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Teaching New-Comer Haitian Teens: An Exploratory Study of Middle School Mathematics Teachers' Instructional Endorsement of Haitian Creole

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TEACHING NEW-COMER HAITIAN TEENS

**Teaching New-Comer Haitian Teens:
An Exploratory Study of Middle School Mathematics Teachers'
Instructional Endorsement of Haitian Creole**

by

Nancye Henry-Barthelemy

**A Dissertation* Submitted in Partial Fulfillment
of the Requirements for the Degree of Doctor of Education**

**Presented to
The Faculty of the
College of Education, Information, and Technology**

June 2018

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Long Island University

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College of Education, Information and Technology

Doctor of Education in Interdisciplinary Educational Studies

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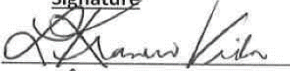

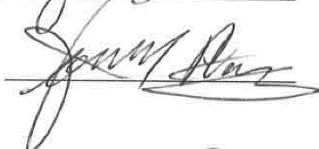
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Dedication

I dedicate this dissertation to...

My husband, Pierre-Henri Barthelemy

My daughter, Mona-Lisa Barthelemy

My son, Jean-Pierre Barthelemy

My sisters Gizelle and Gertha Henry, and their families

My brothers, Pierre-Andre, Parisien, Raphael-Hermann, Guy Henry, and their families

My extended family, friends, and colleagues

All teachers who have high expectations when teaching Haitian immigrants

All immigrants of African descent who are striving for a better life

In loving memory of

My mother, Fernande Defay-Henry (1916-2011) and

My father, Jean Guillaume Henry (1911-1998)

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In addition, I want to thank the twenty teachers who volunteered their time to participate in the survey. Finally, I thank my brothers, Raphael Hermann Henri and all the active and retired bilingual Haitian educators for their help during my research.

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ABSTRACT

The literature about Haitian immigrant children's achievement in the United States and elsewhere is very limited, and so is the information regarding teachers' viewpoints about these students' achievement in relation to teachers' practices. The present exploratory study's purpose was to assess whether there was a relationship between middle school math teachers' personal and professional background and constructs and their appraisals of new-comer Haitian teens' (NCHT) learning outcomes. The mathematics teachers' personal backgrounds include their fluency in Haitian Creole. Their professional background includes their years of experience teaching mathematics, as well as their years of academic preparation in teaching mathematics in Haitian Creole, and their constructs include their personal teaching efficacy, their approaches to instruction, their perception of administrative pressure to prepare for high stakes testing, and their *instructional endorsement of Haitian Creole (IEHC)*. Findings from the quantitative analysis revealed that there is statistically significant evidence of associations between mathematics teachers' fluency in Haitian Creole and their instructional endorsement of Haitian Creole, between mathematics teachers' fluency in Haitian Creole and their appraisals of NCHT learning outcomes, between mathematics teachers' years of experience and their instructional endorsement of Haitian Creole, between mathematics teachers' years of academic preparation to teach math in Haitian Creole and their instructional endorsement of Haitian Creole, and between math teachers' years of academic preparation to teach math in Haitian Creole and their appraisals of NCHT learning outcomes. The study's findings revealed that 85 percent of the participants appraised NCHT mathematics learning outcomes at levels one or two, which is an indication that NCHT may be underachieving in math. The findings also revealed that some of these math teachers were involved in some manner of English instruction during their math lessons. These participants viewed Haitian Creole as a temporary mode of communication for NCHT. In

addition, teachers who had no academic preparation to teach math in Haitian Creole said that they either needed help to provide feedback or did not provide feedback in Haitian Creole to new-comer Haitian teens. Also, some participants in this study indicated that instruction in a new language may be a reason for the underachievement of NCHT. The researcher identified a need for policies that would promote the development of open source online math activities and math video games for new-comer Haitian teens. She also identified a need for a school-based organization that would support these students, their parents and the school community to improve the quality of their interactions. This research, which was conducted with a sample that included both non-speakers and speakers of Haitian Creole, makes an important contribution to the literature regarding teachers' beliefs and practices when working with NCHT. For this study, the researcher created an *Instructional Endorsement of Haitian Creole* questionnaire which can be used in a wide range of contexts, including research and professional development activities to address issues associated with teachers' instructional beliefs about Haitian Creole. The evidence of relationships among the variables in the study serves as an opportunity for this researcher to continue this work. This process may help fill the void that exists in the literature concerning teaching and learning experiences involving NCHT.

Keywords: Achievement goal theory, affective IEHC, behavioral IEHC, Chi-square, cognitive IEHC, Fisher exact test, Haitian Creole, Haitian students, Haitian adolescents, Haitian immigrant, instructional endorsement of Haitian Creole, IEHC, Kreyòl, mathematics, new-comer Haitian teens, self-determination theory, self-efficacy theory, student achievement, teachers' attitude, teachers' preparation, teaching efficacy theory, technology.

CHAPTER I

Background of the Study

The book *Learning a new land: Immigrant students in American society* by C. Suárez-Orozco, Suárez-Orozco, and Todorova (2009) served as a valuable starting point for this research on middle school mathematics teachers' instructional beliefs and practices and their viewpoints about the mathematics achievement of new-comer Haitian teens. For this research, the researcher defined new-comer Haitian teens (NCHT) as middle school or high school Haitian immigrant students or children of Haitian immigrants who have been in the United States for up to five years. Given the scarcity of empirical research on the academic functioning of NCHT, this research utilized some of the findings of the Longitudinal Immigrant Student Adaptation study (LISA) (Suárez-Orozco, Suárez-Orozco, & Todorova, 2009), along with articles written by researchers who were involved in the study. Their work paved the way for the present research and may contribute to filling in the existing void in empirical studies about new-comer Haitian teens' academic development and well-being. For this research, the researcher introduced and defined a new term called *instructional endorsement of Haitian Creole*. Since it is the researcher's own term, it will not be cited.

There is a demographic of Haitian students who come from Haiti with adequate preparation, resources, and human capital to navigate the U.S. school system and succeed in mathematics. These students tend to reside in neighborhoods where the schools have ample resources to support them in their process of adaptation. The present research is not about them. It is about most immigrant Haitian teens and children of Haitian immigrants of low socio-economic status.

Context

Haitian immigrant students, including NCHT, face many challenges when they enter the U.S. public school system, including the urgent need to develop fluency in English. As they enter the school system, while most school districts initially identify them as English Language Learners (ELLs), and legislators refer to them as Limited English Proficient (LEP) (García, Kleifgen, & Falchi, 2008), they are typically very eager to learn because of the message that their parents conveyed, which is that education is the key to success (Buxton, Lee, & Mahotiere, 2009; Doucet & Suarez-Orozco, 2006; Nicholas, Stepick, & Stepick, 2008). However, after a few years in the system, many of these students tended to become disengaged and to fall into categories that C. Suárez-Orozco, Suárez-Orozco, et al. (2009) described as low achievers, slow decliners, or precipitous decliners. Like many children of color and of low socio-economic background, they experienced academic failure, social marginalization, and low teacher expectation (Diamond, Randolph, & Spillane, 2004). Their placement in remedial programs further limited their opportunities to enroll in advanced level courses in high school (Callahan, Wilkinson, Muller, & Frisco, 2009). Scholars attributed the failure of minority children of color and immigrant children of low socio-economic status, in part, to school context and their teachers' attitudes (Diamond et al., 2004). C. Suárez-Orozco, Suárez-Orozco, et al. (2009) found that new-comer immigrant students' initial motivation to achieve academically tended to decrease when there was a weak relationship between the students and the teachers or other adults at the school. García et al. (2008) argued that "...[t]he conflicting nature of research, policy, and teaching practices is responsible for much of the miseducation of English language learners in the United States and their failure in school" (p. 6).

As opposed to NCHT of low socio-economic status, NCHT of high socio-economic status enroll in schools that have ample resources to help them succeed academically. These

students usually perform well in school, not only in the U.S., but also in other parts of the world (Joseph, 2010). Many who graduated from U.S. school systems have become active and productive members of U.S. society (Joseph, 2010; Nicholas et al., 2008).

Synopsis of the Sections That Follow in This Chapter

The sections that follow present an overview of the Haitian students' experience. The first section begins with a brief historical overview of Haiti and its language policy, followed by Haitian's immigration pattern and demographics in the United States. The chapter continues with an overview of parental involvement, followed by the requirements for achievement in the states of New York and Florida. The chapter ends with the pattern of achievement of the NCHT in the New York City Public Schools and in the Miami Dade County Public Schools, followed by issues related to teachers' attitudes.

Haitian Students' Country of Origin

Haitian students emigrated from Haiti - the first black republic in the Western hemisphere to declare its independence from France in 1804 (Fouron, 2010; Gates, 2011). This Caribbean country occupies the western third of the island of Hispaniola, which it shares with the Dominican Republic. Colonialism, slavery, and international boycotts and sanctions, along with corrupt leadership (Fouron, 2010) and natural disasters (Katz, 2013) contributed to the hardships that have negatively affected the country's autonomy and its people's livelihood (Gates, 2011). The map below shows the geographic location of the country (CIA, 2016).

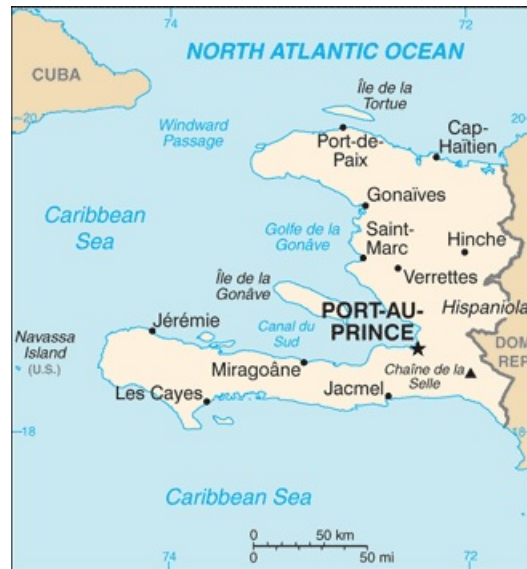


Figure 1. Map of Haiti taken from CIA (2016)

Haiti's Language Policy

According to Plaisir (personal communication, 2017), “the Haitian Constitution recognizes two official languages in the country: Haitian Creole and French. But there is a widening gap in practice, whereby French has a higher social status than Haitian Creole.” While Haitian Creole is a marker of Haitian national identity, French is perceived by many Haitians as a marker of prestige and educational achievement (Plaisir, 2014). Haitian Creole is a language that all Haitians living in Haiti and the diaspora speak and understand. Dejean (2010) found that the use of Haitian Creole in the education of Haitian students benefited them academically and socially. Even though less than 10% of the country’s population speak French, and very few students can communicate effectively in French, educators and school administrators routinely used the language in their practice. DeGraff (2010) argued that “[t]he use of French as a language of instruction excludes 90% of the population for whom French is an inaccessible foreign tongue (par 3)”. Despite the exclusion, parents seek opportunities for their children to learn French and secure upward mobility in Haiti. However, Plaisir observed that “[n]owadays, Haitians of all social backgrounds are striving to speak English, NOT French, as a high-status

language”. Consistent with this trend, Haitian parents who immigrate into the United States want their children to learn English so that they can do well in their new society.

Haitian Immigration to the United States

Since the 1960s, an increasing number of Haitians have immigrated to the United States to escape a multitude of societal, economic, and political hardships (Buxton et al., 2009; Cone, Buxton, Lee, & Mahotiere, 2014). Joseph (2010) reported that Haitians immigrated into the United States in several waves. The first wave was composed of colonists, free mulattoes, and slaves who escaped the Haitian revolution of 1791. They settled mostly in Louisiana. The second wave of Haitian immigrants were mostly businessmen, professionals, and politicians who came during and after the U.S. occupation of Haiti that lasted from 1915 to 1934. They settled mostly in Harlem and were actively involved in the Harlem Renaissance, as well as in Marcus Garvey’s United Negro Improvement Association (UNIA) – a movement that promoted the return of Blacks to Africa. Joseph said that the third wave consisted mostly of the elite or political rivals of Duvalier, who was elected president of Haiti in 1957 and led a dictatorial regime. Members of the middle class followed for fear of political retaliation and economic instability. Most of them settled in the New York metropolitan area, followed by Miami, Chicago, Boston, and Philadelphia. A fourth wave came after Duvalier named his son president for life in 1971. After the coup d’état against Haitian President Jean Bertrand Aristide in September 1991, Joseph reported that a fifth wave of Haitian immigrants came to the U.S., but that the number of Haitians arriving by boat had decreased because the U.S. Coast Guard and other agencies stationed in the waters around Haiti deterred boats from coming to U.S. shores.

Haitians settled mostly in New York City, Boston, and Miami, and have established themselves in almost every job, career, and profession in business, education, healthcare, law,

and the service industry (Joseph, 2010). The Migration Policy Institute (MPI, 2017b) reported that the population of Haitian immigrants in the United States has grown from about 5,000 in 1960 to about 628,000 in 2014 (see Figure 2 below).

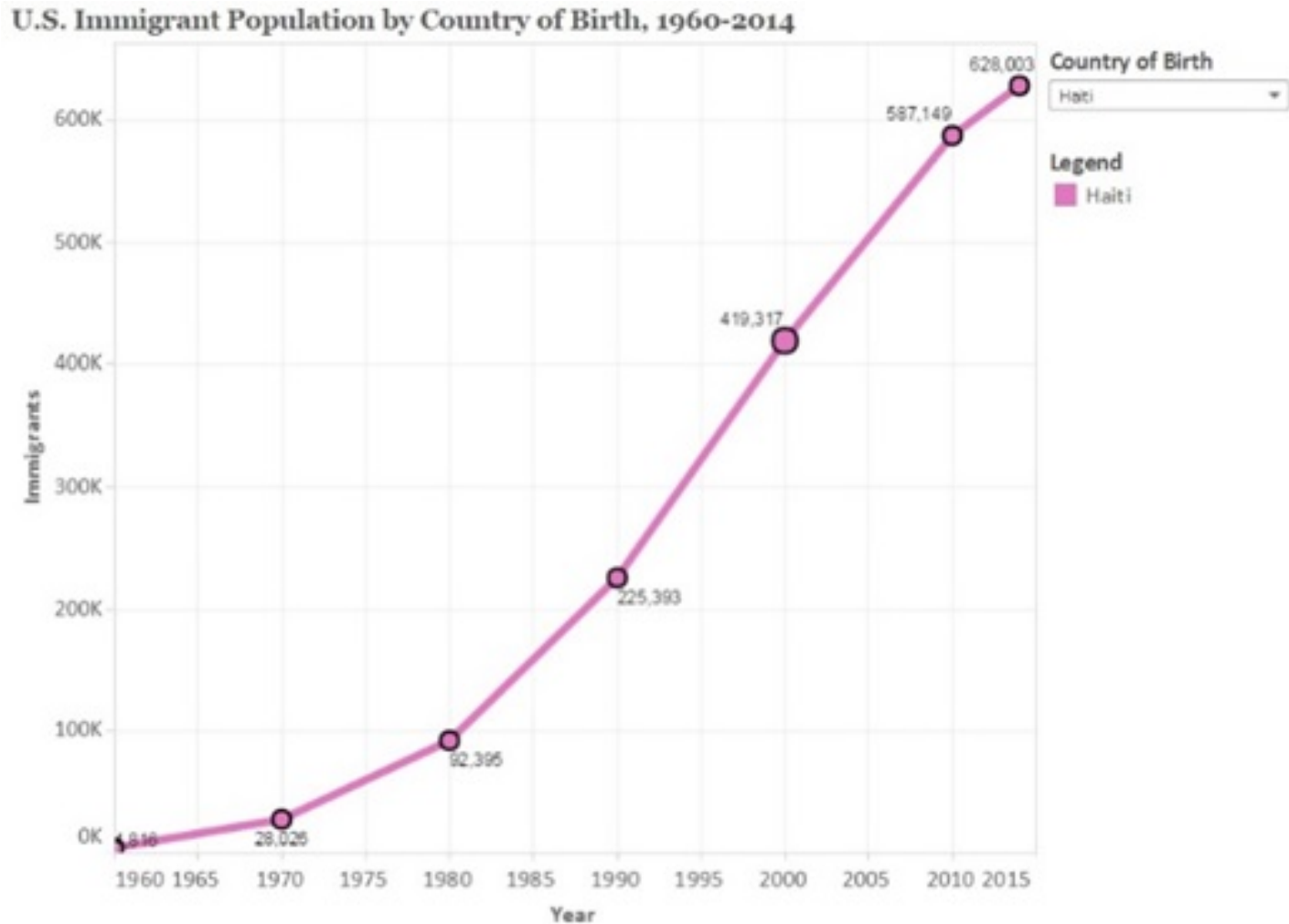


Figure 2. Haitian population in the United States from 1960 to 2014, from MPI (2017b).

MPI (2017a) found that, as of 2014, in New York State, there were 57,800 Haitians in Kings County, 25,400 in Queens County, 15,100 in Nassau County, and 10,000 in Rockland County. As of 2015, the New York City Department of Education (NYCDOE) reported that about 3,031 (1.99%) of the ELL student population used Haitian-Creole as their mode of communication at home. Figure 3 below shows the top ten home languages spoken by ELLs as of 2015 in the NYCDOE (NYCDOE, 2016).

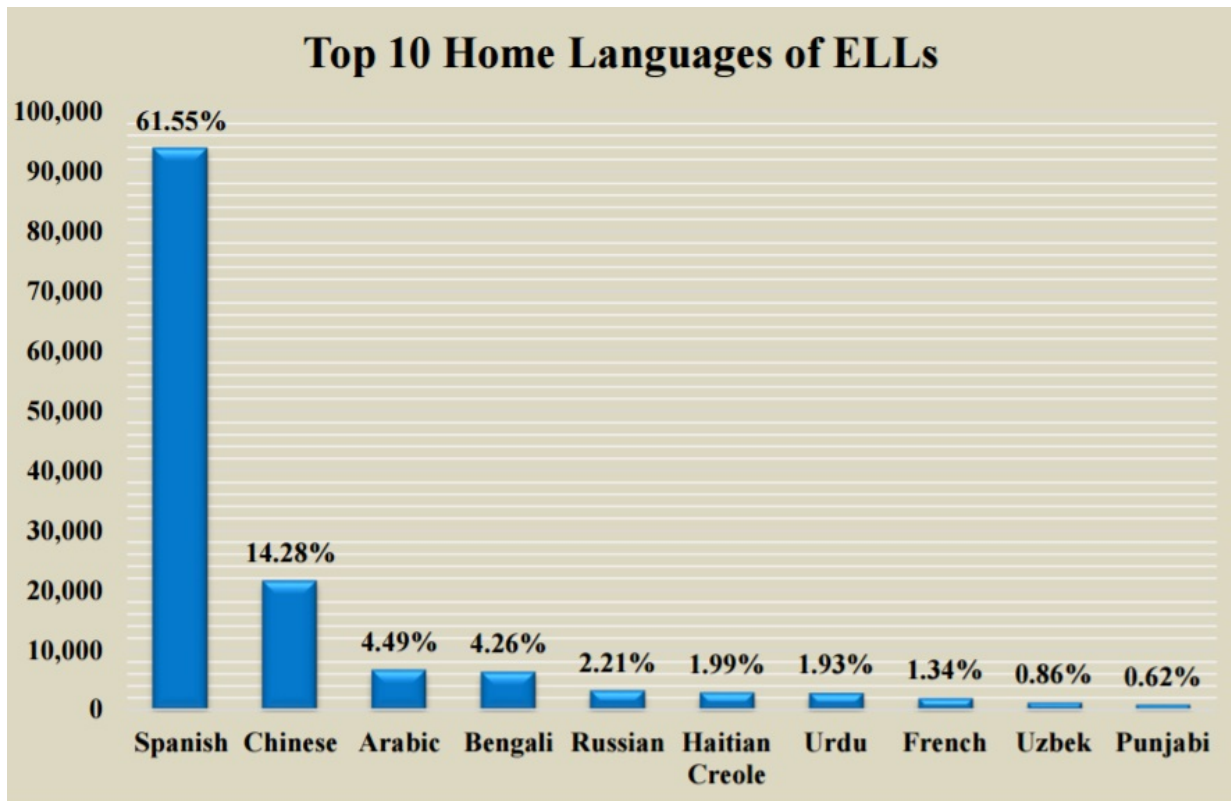


Figure 3. New York City Department of Education – Top ten home languages spoken by English Language Learners in New York City K-12 public schools, from NYCDOE (2016).

It is important for NCHT to have teachers who are trained to teach and support students whose home language is Haitian Creole (Plaisir, personal communication, 2017). Suarez-Orozco, Pimentel, and Martin (2009) found that supportive school-based relationships strongly contribute to both the academic engagement and the school performance of the new immigrant students. These supportive relationships include the valuing of these students' home languages in a welcoming environment that promotes parent engagement and students' achievement (Reeve, 2006).

NCHT and Their Parents' Engagement in U.S. Schools

Despite the complications and trauma associated with leaving their country and their close family members behind, Haitian immigrant parents who make it to the U.S. with their school age children view the opportunity to raise them in this country as a new and bright

beginning that guarantees success. Unlike families with high human capital, such as, medical doctors, engineers, and so forth, most of these immigrant families have low socio-economic status. They work many low paid jobs, mostly in the service industry, and do whatever it takes to insure that their children succeed (Stepick, 1998; Suárez-Orozco, Suárez-Orozco, et al., 2009). These jobs' schedules often do not offer these parents the flexibility necessary to actively participate in their children's school activities. These parents are typically unaware of the crucial role of parental involvement in U.S. schools. They expect the teachers at the schools to provide their children the guidance that is necessary for their academic success (Suárez-Orozco, Suárez-Orozco, et al., 2009). On the other hand, teachers are expecting parents to play an active role in their children's education and view parents who do not engage in school activities as uncaring. Many parents who attend school events, such as PTA meetings, report that their experiences at those school events left them with a feeling of being stigmatized (Doucet, 2011). Such issues may have a negative effect on students' engagement, and make it difficult for the students to meet existing standards of performance (Suárez-Orozco, Pimentel, & Martin, 2009).

New York State's Performance Levels for 2015 Grades 3-8 Mathematics Tests

The New York State Education Department (NYSED) established a scale of performance subdivided into four levels, which serves to gauge the performance of students in grades 3-8 in every school. NYSED makes the data public through the state's School Report Cards. Students who score at level 1 in math are considered well below proficient in standards for their grade. Students who score at level 2 are partially proficient, with knowledge and skills that are insufficient for their grade. Students who score at level 3 are considered proficient in standards for their grade. Students who score at level 4 are considered excelling in standards for their

grade (NYSED, 2015). These standards are utilized to gauge all students' including ELLs' achievement in mathematics.

State of Florida's Performance Levels for 2016-2017 Grade 3-8 Mathematics Tests

The Florida Department of Education (FLDOE) categorizes students' performance on statewide assessments into five achievement levels. Level 1: Inadequate: Highly likely to need substantial support for the next grade; Level 2: Below Satisfactory: Likely to need substantial support for the next grade; Level 3: Satisfactory: May need additional support for the next grade; Level 4: Proficient: Likely to excel in the next grade; Level 5: Mastery: Highly likely to excel in the next grade (FLDOE, 2016a).

NCHT's Achievement in Mathematics in New York City Public Schools and Miami Dade County Public Schools in Florida

It is difficult to know about the academic status of NCHT in the New York City public schools and the Miami Dade County Public Schools in Florida because the data are not fully disaggregated. Census data show high concentrations of Haitian immigrants living in communities where African American and immigrants of African descent reside. Therefore, given that NCHT are both English Language Learners and Black, the researcher relied on the findings for each demographic. In New York, a large population of Haitians reside in School District # 17 in Brooklyn, where people of African descent reside. Thus, the researcher focused on mathematics assessment data on English Language Learners and African American students in that district. Under the amended Commissioner's Regulation Part 154, the New York State Education Department (NYSED, 2016a) defines English Language Learners as follows:

“[S]tudents, who by reason of foreign birth or ancestry, speak a language other than English, and either understand and speak little or no English, or score below a state

designated level of proficiency on the New York State Identification Test for English Language Learners (NYSITELL) administered at the time of the student’s enrollment in the New York State public school system, or their performance on the New York State English As a Second Language Assessment Test (NYSESLAT) administered annually during the spring” (p. 22).

In School District # 17, the results for the 2016-17 mathematics assessment of English Language Learners showed that only 10 percent of these students (100 out of 796 who tested) scored at a proficient level in the year 2016 and 12 percent (124 out of 1,017) scored at that level in 2017 (see Figure 4). Students who score at the highest levels are those who are likely to pursue advanced studies in mathematics (Bandura, 1993). Only four percent of these students (29 in 2016 and 45 in 2017) scored at level four in both years (NYSESED, 2017c).

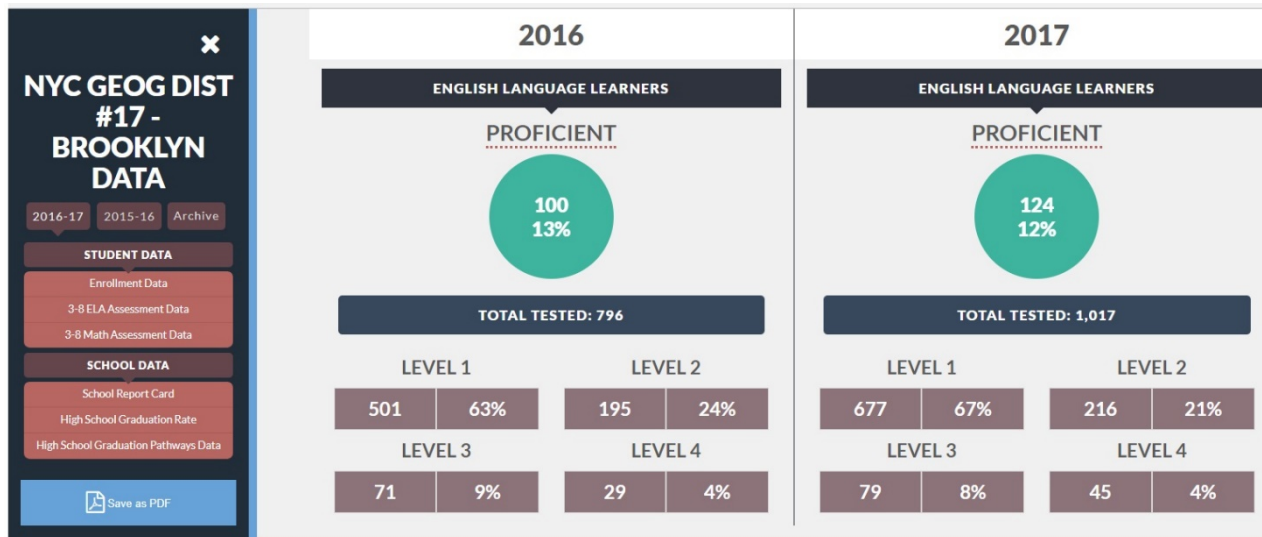


Figure 4. New York City School District #17 – Brooklyn Grades 3-8 mathematics assessment data on English Language Learners, from NYSED (2017c).

African American students also showed alarming results in the years 2016 and 2017 (see Figure 5). In the same school district, the results for the mathematics assessment of African American students showed that only 26 percent of these students (1787 out of 6,975) scored at a proficient level in the year 2016, and 25 percent (1,701 out of 6,713) scored at that level in 2017.

Only ten percent of these students (669 out of 6,975) scored at level four in 2016, and eight percent (554 out of 6,713) scored at that level in 2017 (NYSED, 2017b).

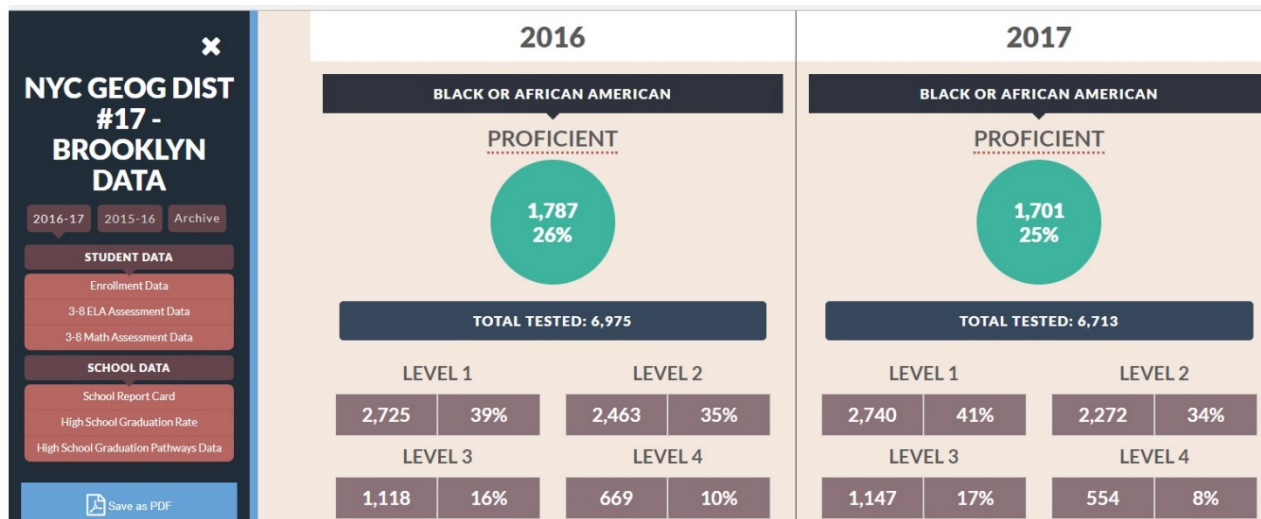


Figure 5. New York City School District #17 – Brooklyn Grades 3-8 mathematics assessment data on African American students, from NYSED (2017b).

In Florida, there was a large population of NCHT who attended schools in the Miami Dade County Public school district. It was even more difficult to know how these students were doing in math because the published data were not disaggregated for African American or English Language Learners. In 2016, the school district reported that, of a total of 16,556 eighth grade students who tested in math (FLDOE, 2016b), only six percent scored at level 5. Students who scored at that level were those who experienced success in math and who were likely to embrace the STEM fields. Meanwhile, the district reported that a total of 59% scored at level 2 or below (see Figure 6).



**Spring 2016 Florida Standards Assessments
Mathematics Grade 8
District Results**



Notes: (1) To provide meaningful results and protect the privacy of individual students, data are not reported when the total number of students in a group is less than 10 or when all students in a group are in the same category (i.e., all in the same Achievement Level). An asterisk (*) appears when data are suppressed. (2) Percentages may not add to 100 due to rounding.

District Number	District Name	Grade	Number of Students	Mean Scale Score	Percentage in Level 3 or Above	Percentage in Each Achievement Level				
						1	2	3	4	5
00	STATE TOTALS	08	134,672	334	48	28	24	26	12	10
13	DADE	08	16,556	330	41	34	25	25	10	6

Figure 6. Miami Dade County Public School results of spring 2016 Florida standards assessments of mathematics in grade 8, from FLDOE (2016b).

In 2017, the district reported that, of the 16,569 eighth grade students who tested in math (FLDOE, 2017), only 5% scored at level 5. On the other hand, 44% of these students scored at or below level 2 (see Figure 7). Students who scored at level 2 or below were likely to experience failure in math. And such failure may negatively impact their self-efficacy in math (Bandura, 1993).



**Spring 2017 Florida Standards Assessments
Mathematics Grade 8
District Results**



Notes: (1) To provide meaningful results and protect the privacy of individual students, data are not reported when the total number of students in a group is less than 10 or when all students in a group are in the same Achievement Level. An asterisk (*) appears when data are suppressed. (2) Percentages may not add to 100 due to rounding.

District Number	District Name	Grade	Number of Students	Mean Scale Score	Percentage in Level 3 or Above	Percentage in Each Achievement Level				
						1	2	3	4	5
00	STATE TOTALS	08	132,360	333	46	30	24	26	11	9
13	DADE	08	16,569	329	39	34	26	24	10	5

Figure 7. Miami Dade County Public Schools district results of spring 2017 Florida standards assessments of mathematics in grade 8, from FLDOE (2017)

These students' pattern of underachievement is an important issue, considering that students' low scores influenced teachers' attitudes. Diamond et al. (2004) found that in schools with predominantly African American students, teachers emphasized students' deficits. In a survey of teachers from New York, Pennsylvania, and Texas, Hansen-Thomas and Cavagnetto (2010) found that educators attributed their ELLs' 'failure' in math to these students' difficulty understanding English.

Teachers' Attitudes

Even though research on teachers' attitudes is extensive,(for example, (Callahan, 2005; Diamond et al., 2004; Dupoux, Wolman, & Estrada, 2005; Nelson & Guerra, 2013; Reeves, 2006; Yoon, 2008), most of the samples in these studies did not focus on teachers of the new-comer Haitian student population. The LISA study collected data associated with teachers' appraisals of and opinions about NCHT's cognitive, behavioral, and affective engagement; but

they did not collect information about the NCHT's teachers' classroom environment and practices, such as, these teachers' approaches to instruction or their personal teaching efficacy.

There are many reasons why a study of NCHT's teachers' backgrounds and constructs is important: First, given the challenges and administrative pressure that teachers face to prepare these students for standardized exams (Dunne, personal communication, 2017), there is a need to explore whether there is an association between math teachers' approaches to instruction and their teaching efficacy, their perceptions of high stakes administrative pressure at their schools, and their appraisals of NCHT's mathematics learning outcomes. Second, since students achieve better when their teachers provide feedback that is clear (Hattie & Timperley, 2007), it is important to know whether there is an association between teachers' appraisals of NCHT's learning outcomes and both the math teachers' fluency in Haitian Creole and their academic preparation in teaching math in Haitian-Creole (Plaisir, personal communication, 2017). Third, since students' proficiency in their home language contributes to their academic achievement (Cummins, 2001; García & Sylvan, 2011; Skutnabb-Kangas, 2004), it is important to explore whether there is an association between NCHT's mathematics teachers' instructional endorsement of Haitian Creole and their appraisals of NCHT's learning outcomes. The researcher defined teachers' instructional endorsement of Haitian Creole as an instructional approach that regulates the use of Haitian Creole in classroom activities. The researcher assumes that the stronger the endorsement, the more the teachers create opportunities for their students to use Haitian Creole. The weaker the endorsement, the less teachers create such opportunities.

Purpose of the Study

The purpose of the present study is to explore the relationship between middle school math teachers' personal and professional background and constructs and their appraisals of

NCHT's learning outcomes. The mathematics teachers' personal backgrounds include their fluency in Haitian Creole. Their professional background includes their years of experience teaching mathematics, as well as their years of academic preparation in teaching mathematics in Haitian Creole, and their constructs include their personal teaching efficacy, their approaches to instruction, their perception of administrative pressure to prepare for high stakes testing, and their instructional endorsement of Haitian Creole. This study may assist school leaders in identifying biases that teachers may hold which may have a negative impact on NCHT. It may also help teachers better understand the needs of NCHT and incline them to adjust their beliefs and practices.

Definition of Terms

The following definitions are provided by the Office of Bilingual Education and World Languages according to the mandates of CR Part 154 (OBEWL, 2015):

Bilingual Education Program (BE): A bilingual education program is a research-based program comprised of the following instructional components:

- Language Arts which includes Home and English Language Arts
- English as a New Language
- Bilingual content areas. (p.1)

English Language Learner (ELL): A student who speaks or understands a language other than English and who scores below a State designated level of proficiency on the NYSITELL or the NYSESLAT (p.2).

English Language Learners. English Language Learners (ELLs) are those who, by reason of foreign birth or ancestry, speak or understand a language other than English, speak or understand little or no English, require support to become proficient in

English, and are identified pursuant to Section 154.3 of the Commissioner's Regulations. These students are also referred to as Limited English Proficient (LEP) (par 3).

English Proficiency Level: A student's performance on the NYSITELL or the NYSESLAT indicates the student's level of English language proficiency. Those levels are: Entering, Emerging, Transitioning, Expanding, or Commanding (p.2).

Home Language: A language as determined by the Home Language Questionnaire which is a diagnostic screening instrument used to determine which students are possibly ELLs (p. 2).

New York State English as a Second Language Achievement Test (NYSESLAT): An assessment designed to annually measure the English language proficiency of all ELLs enrolled in grades K-12. It is one component of the State's compliance with Federal laws that mandate annually assessing and monitoring the English Language proficiency progress of all ELLs (p.3).

More Terms

Mastery Goal Orientation: Mastery goal orientation relates to the development and mastery of new skills and knowledge and the understanding of challenging learning materials. The success of the learner is measured in terms of his/her self-improvement. The student derives satisfaction from the quality of the task and the level of challenge involved in performing that task (Meece, Anderman, & Anderman, 2006).

New-comer Haitian Teens (NCHT): Middle school or high school Haitian immigrant students who are new-comers or children of new-comer Haitian immigrants, if they have been in the U.S. for up to five years. The author of the present study developed this definition.

Performance Goal Orientation: Focuses on the demonstration of high ability in comparison to others. Doing better than others and surpassing performance standards bring a sense of accomplishment to the learner (Meece et al., 2006).

School Goal Structure: Mastery Goal Structure for students refers to teachers' perceptions that the school conveys to students that the purpose of engaging in academic work is to develop competence. **Performance Goal Structure** for students refers to teachers' perceptions that the school conveys to students that the purpose of engaging in academic work is to demonstrate competence (Midgley et al., 2000).

Teachers' Instructional Endorsement of Haitian Creole: It is defined by the author for the present research as an instructional approach that regulates the use of Haitian Creole in classroom activities. The researcher assumes that the stronger the endorsement, the more the teachers create opportunities for their students to use Haitian Creole. The weaker the endorsement, the less teachers create such opportunities.

Chapter Summary

The literature written about Haitian immigrant children's achievement in the United States and elsewhere is very limited, and, to date, there is limited information regarding teachers' viewpoints about these students' achievement in relation to teachers' practice in classrooms. Given the fact that many of these students are experiencing obstacles in their schooling experiences and academic achievements in the United States, it is important to understand issues that may affect the teaching and learning processes from the teachers' perspective. This research serves as an opportunity to inform policy makers and school administrators about teachers' areas of need for professional development. The literature on Haitian immigrant students suggests that, although the students are failing, most of them want to learn (Nicholas et al., 2008; Suárez-

Orozco, Suárez-Orozco, et al., 2009). Therefore, examining teachers' opinions, backgrounds, and constructs could be beneficial for student achievement. In addition, teachers' learning about these students' background, as well as their awareness of best practices, may serve to enhance the quality of instruction for the academic success of their NCHT, in general, and these students' mathematics achievement, in particular.

Organization of the Dissertation

The researcher presents this dissertation in five chapters. Chapter I provides an introduction and an overview of the study and frames the topic on the issues surrounding the achievement of Haitian immigrant students, presenting the Haitian students' background and introducing the reader to the issues surrounding NCHT's achievement. It presents the general problem to be addressed in the study, describes the need for the study, and offers definitions of key terms in the research area.

Chapter II provides a literature review of key areas related to the topic. It begins with an overview of Haitian immigrant student characteristics and experiences from an interdisciplinary perspective, continues with the study's theoretical framework, and closes with a summary.

Chapter III begins with a restatement of the purpose of the study and states the research questions. It presents the methods used to select participants and collect data and explains the methods used for the analysis and interpretation of the data. Overall, this chapter presents the methods and research design used in the study.

Chapter IV presents the results, and chapter V presents a discussion of the findings. It also presents a summary, a discussion of the study's limitations, and possible implications for educational research, policy, and professional development activities.

CHAPTER II

REVIEW OF THE LITERATURE

This chapter begins with literature related to the experiences of the NCHT from four perspectives: the psychosocial perspective and three bilingual perspectives: policy, teaching and learning, and organizational structure. It continues with a theoretical framework that includes the Self-determination, Achievement Goal, Teaching Efficacy, and Self-efficacy theories. It ends with a summary and a brief overview of the next chapter.

Psychosocial Perspective

Scholars have agreed that schools play an important role in promoting the academic achievement of immigrant, including NCHT, through the environment they provide and the policies they implement (Abedi & Herman, 2010; Callahan et al., 2009; Combs, Evans, Fletcher, Parra, & Jiménez, 2005; Cummins, 2000; García & Kleifgen, 2010). For example, school-based support, such as, mentoring, after school programs, tutoring, (Portes & Fernández-Kelly, 2008) and teachers' pedagogical approaches (Cummins, 2000; García & Kleifgen, 2010) are essential for these newcomers because most parents of NCHT have not had the information that has been accessible to the non-immigrant parent population. Most of the time immigrant parents rely on the schools to provide guidance and support for their children (Suárez-Orozco, Suárez-Orozco, et al., 2009).

Suárez-Orozco, Pimentel, et al. (2009) found that supportive school-based relationships strongly contributed to both the academic engagement and the school performance of immigrant students, including NCHT. These types of support were crucial for helping these students cope with their linguistic and cultural transitions into U.S. school systems. It is, therefore, important

for the teachers at schools that NCHT attend to have the necessary awareness, not only to facilitate this transition, but also to help NCHT achieve academic success.

NCHT entered the U.S. school system with the belief that their circumstances, including their socio-economic status, would not interfere with their opportunity to succeed in school and in life (Suárez-Orozco, Suárez-Orozco, et al., 2009). These students expressed their motivation to succeed in school and their appreciation for the sacrifices that their parents have made for them to come to the United States and have a better life (Doucet, 2005; Rumbaut, 2005; Stepick & Swartz, 1998; Suárez-Orozco, Suárez-Orozco, & Qin-Hilliard, 2005; Suárez-Orozco, Suárez-Orozco, et al., 2009). According to Nicholas et al. (2008), these students typically have strict parents who put an immense emphasis on the importance of education and the maintenance of their values and culture, and these students have been convinced that the medium by which they could please their parents is by obtaining a good education. The authors argued that “these students’ motivation to fulfill an obligation, rather than seek self-satisfaction, distinguishes Haitian students who succeed from those who perform poorly in school and face the likelihood of economic marginalization” (p. 238).

Many challenges appeared to interfere with these students’ aspirations. They needed to quickly develop fluency in English, which was a predictor of academic achievement (Palumbo & Kramer-Vida, 2012; Suárez-Orozco, Suárez-Orozco, et al., 2009), and they were compelled to adjust to a host of changes that came with immigrating into a new country and learning the way of life in a new neighborhood, home, and school (Suárez-Orozco, Suárez-Orozco, et al., 2009). Some of them have left behind close family members and friends (Suárez-Orozco, Bang, & Kim, 2010) and were coping with the stress associated with separation. Others came to live with parents who had started new relationships and new families (Suárez-Orozco, Suárez-Orozco, et

al., 2009), and were facing the complexities of reunification. Many of them were negotiating a sense of identity in their new environments (Cone et al., 2014; Doucet, 2005; Doucet & Suarez-Orozco, 2006). Others managed a shift to a new school language (English in the U.S.) from their prior school language, which was French in Haiti. Also, many of them had interrupted education because of political instability or financial hardship in Haiti (Désir, 2007; Suarez-Orozco et al., 2009; Suárez-Orozco, Suárez-Orozco, et al., 2009). Some of them experienced intergenerational conflicts (Rumbaut, 2005; Suárez-Orozco, Suárez-Orozco, et al., 2009). Others were exposed to a hostile reception, including discrimination (Portes & Zhou, 2005), racism (Doucet & Suarez-Orozco, 2006), and violence at their schools (Suárez-Orozco, Suárez-Orozco, et al., 2009). Portes and Zhou (2005) found that these students' native-born peers were teasing them for being "too docile and too subservient to whites" (p. 89), for speaking Creole or French, and for speaking English with an accent. These students often found themselves in a constant conflict between maintaining their parents' values and aligning with the cultural norms of their peers at school (Portes & Zhou, 2005).

Some of these students were dealing with perceived racism in their school buildings. In one of the interviews conducted as part of the LISA study (Doucet & Suarez-Orozco, 2006), a Haitian child interpreted the disparity in the way black and white students were disciplined at his school, suggesting that when black and white students were in conflict and sent to the principal's office, the black students were always the ones at fault.

Suárez-Orozco, Suárez-Orozco, et al. (2009) found that poor immigrant students, who were the ones who needed the most academic support, enrolled in schools that had low expectations of them. They found that these poorly resourced schools were plagued with

ongoing threats of violence. They were overcrowded and understaffed, with a high rate of teacher and staff turnover. Most NCHT were enrolled in these types of schools.

Neither these students nor their parents fully understood the United States' zip code-based schooling inequality (Kozol, 2012). Two longitudinal studies documented that most Haitian students aspired to graduate from college (Rumbaut, 2005; Suárez-Orozco, Suárez-Orozco, et al., 2009), but that the majority of these students were not achieving their goal to succeed academically.

Bilingual Education - Policy Perspective

Two theoretical perspectives have governed the on-going debates in favor of or against bilingual education in the U.S. over the past few decades (Baker, 2011; Ovando, 2003).

Opponents of bilingual education argued that students would develop fluency and perform better in English if most of their time was spent on exposure to English instruction (Rossell & Baker, 1996). They viewed the English Learners' native language as a problem that needed to be fixed (Hakuta, 1986). The English-Only policy was in effect for over a decade in New York City under the No Child Left Behind Act, and was responsible for the closure of many schools where bilingual teachers were educating thousands of students whose native language was not English (Menken & Solorza, 2012). Consequently, ELL students, including NCHT, were placed in mainstream classrooms where teachers did not necessarily have much knowledge about the theories and practices of bilingual education. Combs et al. (2005) found that teachers, including those with bilingual credentials, expressed a sense of frustration and failure after their years of teaching in English-only settings. One of the bilingual teachers they interviewed explained why she was abandoning the teaching profession by saying: "I don't want to go back into the classroom because it's such an injustice" (p, 715). The researchers found that English

monolingual teachers who were teaching ELLs “felt particularly handicapped because in addition to feeling unprepared for this sort of teaching, they could not understand or make themselves understood to many of their students” (p. 715).

Proponents of bilingual education argued that when a school provided bilingual education and made use of a students’ home language, such processes not only facilitated English language acquisition, but also promoted the students’ academic development in content areas (Baker, 2011; Cummins, 2005; García & Kleifgen, 2010; Skutnabb-Kangas, 2004). Furthermore, students who had a strong foundation in their first language (L1) tended to make better progress in their development of literacy in a second language (L2) (Cummins, 2000).

Willig (1985) conducted a meta-analysis of several studies whose findings suggested that English-only was superior to bilingual education in promoting student achievement. Contrary to those studies’ claims, she concluded that bilingual education had a positive effect on students’ achievement in all domains, including mathematics. In addition, in her analysis of the studies in the meta-analysis, the researcher uncovered methodological flaws in the design of the studies’ experimental and control groups, suggesting that:

“Group composition changes in transitional bilingual programs because children are exited, or moved out of, the bilingual program and into the traditional program as soon as they are thought to be sufficiently proficient in oral English. The slots vacated by these children then become available to new children who know less English, and who are then added to the bilingual program. Through this process, the level of English proficiency in the experimental groups is constantly suppressed. On the other hand, the non-bilingual classes constantly receive the students who have been exited successfully from the bilingual programs. Since these non-bilingual classes often are those used for comparison

groups, the level of English proficiency is guaranteed to be elevated above that of the experimental group” (p. 304).

The Practice of Placement

A study by Kanno and Kangas (2014), although not focused on Haitians, depicted the ELL immigrant experience in the U.S. secondary school system. The researchers conducted a qualitative, longitudinal study of a diverse cohort of eight ELL students attending one high school in Pennsylvania. They wanted to understand the practices that limited the opportunity for ELLs to enroll in advanced placement courses. They found that, first, the course sequences were designed to channel ELLs in a remedial path, with limited options for advanced placement courses. Second, since there was a required standardized test associated with advanced placement, ELL students could not obtain high enough scores because of limited English proficiency. Third, their teachers and counselors encouraged them to take lower track courses instead of challenging ones to “protect” them, assuming that ELLs were not capable of handling challenging coursework. Fourth, the advanced placement courses were fast-paced and mostly delivered in English without language support for non-English speakers. Finally, they found that ELLs and their parents were not aware of their options to request enrollment in advanced placement courses, and they generally accepted the low-level placements that school professionals selected.

The researchers recommended that schools change their perceptions of immigrant students’ abilities. They advised that educators make advanced coursework accessible to ELLs and provide them with the linguistic support needed for these courses. They suggested putting an end to the exclusionary practice of setting English proficiency as a requirement to take high-level courses.

NCHT's Achievement

Suárez-Orozco, Suárez-Orozco, et al. (2009) conducted the five-year Longitudinal Immigrant Student Adaptation study (LISA), which combined longitudinal, interdisciplinary, and comparative approaches to uncover patterns of adaptation of 408 newly arrived immigrant youth from Central America, China, the Dominican Republic, Haiti, and Mexico. The results revealed that, initially, 97% of the participants believed that schools prepared students to “get ahead”; and that 86% of the students knew it was important to study hard. Over 75% expressed positive attitudes toward school. However, the students’ attitudes and expectations did not match their achievement patterns after a few years in the system. The researchers used five attributes to describe the achievement of these students: precipitous decliners, slow decliners, low achievers, improvers, and high achievers.

The researchers found that close to 19% of the new immigrant Haitian students in the sample were low achievers. The low achievers were students whose starting low grades kept getting lower the longer they lived in the United States. Low achievers typically lived with a single parent. Their mothers were likely to have a low level of education. They tended to attend the worst schools and they had lower levels of English proficiency than the other groups. They were likely to report psychological symptoms at high levels, and their schools typically did not provide the support they needed as they faced the complexities associated with being newcomers to the United States. In short, 19% of the students in the sample were failing and not receiving necessary academic and psychological support from their schools.

The researchers also found that more than half of the students in the sample started with a B average, but after the five-year period of the study, their GPA declined. The slow decliners experienced a half grade decline in GPA, but the precipitous decliners’ GPA decreased by one

and a half grade points. About 28% and 36% of the sample of Haitian students, respectively, were found to be in the slow decliners and precipitous decliners categories. They found that students in these categories typically had trouble communicating in English. They were likely to attend low achieving schools that offered substandard learning environments. The researchers found that eighty percent of these students were transferred from their bilingual or ESL programs to mainstream classrooms where they started earning failing grades. In some cases, students who were excelling in those bilingual or ESL programs started experiencing failure upon transition to competitive mainstream programs. To sum it up, the researchers found that about 64% of the Haitian students in the sample started with a B average and high motivation to learn, but, over time, because of the quality of their schools and their difficulty communicating in English, their grades dropped from a B to a grade as low as a C-.

Mathematics Teachers' Appraisals of NCHT's Learning Outcomes

School report card data reported by the New York State Education Department (NYSED) and the Florida Department of Education (FLDOE) did not show how NCHT were doing in math, but NYSED data reported that Black students and ELL students were not reaching an adequate level of proficiency in the subject (NYSED, 2017d). The NYSED performance scale suggested that students who scored at level 1 in math were considered well below proficient in standards for their grade. Students who scored at level 2 were partially proficient, with knowledge and skills that were insufficient for their grade. Students who scored at level 3 were considered proficient in standards for their grade. Students who scored at level 4 were considered excelling in standards for their grade (NYSED, 2015).

The Florida Department of Education did not disaggregate the students' performance data for English Language Learners or African American students. The department categorized

students' performance on statewide assessments into five achievement levels. Level 1: Inadequate: Highly likely to need substantial support for the next grade; Level 2: Below Satisfactory: Likely to need substantial support for the next grade; Level 3: Satisfactory: May need additional support for the next grade; Level 4: Proficient: Likely to excel in the next grade; Level 5: Mastery: Highly likely to excel in the next grade (FLDOE, 2016a).

The National Research Council and the Mathematics Learning Study Committee (NRC & MLSC, 2001) defined mathematical proficiency as being the simultaneous and integrated acquisition of five kinds of mathematical competencies. These competencies, also known as “strands”, are the following: (a) the student's conceptual understanding, which is characterized by the student's comprehension of mathematical concepts, operations, and relations; (b) procedural fluency, which is characterized by the student's skills in carrying out procedures flexibly, accurately, efficiently, and appropriately; (c) the student's strategic competence, which is characterized by the student's ability to formulate, represent, and solve mathematical problems; (d) adaptive reasoning, which is characterized by the student's capacity for logical thought, reflection, explanation, and justification; and (e) productive disposition, which is characterized by the student's habitual inclination to see mathematics as sensible, useful, and worthwhile, coupled with a belief in diligence and one's own efficacy.

It is important to obtain teachers' appraisals of NCHT learning outcomes in mathematics for the following reasons: Experiences of failure in math were found to decrease students' self-efficacy in the subject (Pajares & Schunk, 2001) and negatively affect the likelihood of their participation in STEM related majors in their academic trajectories (Bandura, 1993).

Additionally, English fluency was found to be a predictor of academic achievement (Palumbo & Kramer-Vida, 2012; Suárez-Orozco, Suárez-Orozco, et al., 2009). However, academic English fluency was found to take five to seven years to develop (Thomas & Collier,

1997). Abedi and Herman (2010) found that ELL students had to take on the “challenges of learning English and U.S. culture, in addition to learning the academic content of subject matter curriculum” (p. 725). Despite teachers’ commitment to provide quality education to all students, English Language Learners (ELLs) have been failing in their classrooms (Abedi & Herman, 2010). Menken and Kleyn (2010) found that in schools where English language acquisition was prioritized over content such as mathematics, a sizable proportion of ELLs were found to be unprepared for rigorous academic work and were classified as long-term English Language Learners. Callahan (2005) found that ELL students who were failing were routinely placed in remedial courses. These students’ placements in remedial courses were found to decrease their chances of graduating from high school, leading them to drop out of school altogether (Rumberger & Lim, 2008).

Bilingual Education - Teaching and Learning Perspective

Teachers who lack knowledge about the benefits of bilingualism tend to view the students’ home language as an issue that needs to be resolved. They tend to favor subtractive schooling for their immigrant students, with the development of English prioritized to ‘replace’ the students’ home languages (Cummins, 2000). Such practice was found to cause academic failure among a large population of immigrant students labeled as Long Term English Language Learners (LTELL) (Menken & Kleyn, 2010). On the other hand, teachers who have adequate training and credentials to teach children bilingually tend to develop positive attitudes toward their immigrant students’ home languages because they know that the skills that the students acquired in their home languages transfer to English (Cummins, 2000). These educators tend to view bilingualism from an asset-oriented perspective, and tend to view their immigrant students’ home languages as an advantage that the student should maintain. As these teachers validate

their students' home languages in their practice, they promote their immigrant students' academic achievement (Cummins, 2009; García, Flores, & Chu, 2011; García & Sylvan, 2011). Thomas and Collier (1997) found that only ELL students who received "strong cognitive and academic development through their first language for many years (at least through Grade 5 or 6), as well as through the second language (English), are doing well in school as they reach the last of the high school years" (p. 15). They found that programs that put major emphasis on learning English tended to offer watered down curricula in an English-only setting, which kept the ELL students behind in content areas such as mathematics. Collier (1995) found that "the most significant student background variable was the amount of formal schooling students have received in their first language" (p.7). She added that when students received their education in a second language, they did well in early years up to second or third grade. But as they moved to higher grade levels and faced increased cognitively demanding tasks, students with little or no academic development in their first language did less and less well.

Teachers have expressed concerns about Haitian students' disengagement after a few years in the U.S. school system. These students were routinely placed prematurely in mainstream classrooms where they were earning failing grades (Suárez-Orozco, Suárez-Orozco, et al., 2009). Nicolas et al. (2008) suggested that disengagement, also known as educational withdrawal, was situation specific and referred to the way students coped with "stressful school environments in which they fe[lt] powerless to change the offending situation" (p. 274). In the context of the NCHT's school environment, one offending situation was the students' inability to communicate effectively and fully participate in classroom activities conducted in a language that they did not understand (Abedi & Herman, 2010). Another offending situation was the failing grades they kept earning on standardized exams, often because of their low fluency in

English (Suárez-Orozco, Suárez-Orozco, et al., 2009). Cerat (2015) warned that the practice of utilizing “a second language as the primary vehicle for instruction sets these students up for failure, as noted by the egregious statistics of Haitian students’ underachievement both in Haiti and abroad, where such a practice is the norm” (p. 112). These issues reveal the need for teachers to understand the importance of their instructional endorsement of Haitian Creole when teaching NCHT.

Mathematics Teachers’ Instructional Endorsement of Haitian Creole

Very few studies have paid attention to mathematics teachers’ instructional endorsement of Haitian Creole. Gauging such endorsement is important because Haitian students have been found by some researchers from MIT to develop better understanding of math when their classroom activities were conducted in Haitian Creole (DeGraff & Ruggles, 2014).

DeGraff (2005) and Dejean (2010) found that people held deficit beliefs about Haitian Creole suggesting that Haitian Creole was not fit to be a language of instruction. In reaction to a local school’s initiative to include Haitian Creole as a language of instruction in Miami, a member of the school community questioned why the school was “spending public funds to teach kids in school the language of peasants ” (p. 124 as cited in DeGraff (2009). Haitian Creole has been mischaracterized even by some well-intentioned educators and scholars. For example, Elie (2011) offered a definition of Haitian Creole suggesting that it “is a broken form of the French language.” (p. 13). DeGraff (2005) argued that “the lack of understanding about the legitimacy of Creole languages as valued resources in the classroom and elsewhere comes at a great social cost for the education of Creole speakers” (p. 125).

Haitian Creole is a legitimate language spoken and understood by all Haitians living in Haiti and the diaspora. Its use in the education of Haitian students was found to benefit Haitian students academically and socially (Dejean, 2010). Haitian students who received mathematics

instruction in Haitian Creole were reported to be more engaged and to develop deeper understanding of the materials than students who were taught in a second language (DeGraff & Ruggles, 2014).

Bilingual Education - Organizational Perspective

García et al. (2011) used case studies from two small high schools in New York City to show how students benefited from bilingual programs when such programs were conceived from the bottom up, that is, when the students' realities played a major role in their school activities. Included in their realities were the diversity of languages with which a student may already be fluent, such as, a school language from their country or the dialect varieties within the languages that they already knew. The researchers highlighted the organizational practices at International High School, housed at LaGuardia Community College. In that school, the teachers worked in teams, and each team worked together with a diverse cohort of about 70 students from different parts of the world. In those cohorts, students who were from less common language groups were grouped together to facilitate peer support. Although instruction was in English, the students used their home language extensively in class to make meaning of the materials presented by their teachers. They completed their projects using both their home languages and English. The teachers' practice was found to promote students' achievement.

Theoretical Framework

Self-determination Theory

Reeve, Deci, and Ryan (2004a) theorized that in classrooms students can be "curious, proactive, and highly engaged, or they can be alienated, reactive, and passive. Just how engaged students are during instruction depends, in part, on the supportive quality of the classroom conditions in which their learning takes place" (p. 225). NCHT have entered their new

classrooms in the U.S. with what Reeve, Deci, et al. (2004a) called “inner motivational resources” (p. 41). These resources, which are either fostered or undermined by classroom conditions, include the students’ basic psychological needs, as well as their interests, preferences, values, goals, aspirations, and personal strivings (Reeve, 2006). Reeve and Halusic (2009) theorized that students have three basic psychological needs that are important for the development of their intrinsic motivation, healthy development, and cognitive functioning. They are their needs for autonomy, competence, and relatedness. When these needs are met, the students show positive emotionality and are engaged in their learning. However, when these needs are ignored or undermined, this can lead to negative outcomes.

The need for autonomy refers to the needs of the students to take initiative to learn something new without outside pressure. Students display autonomous behaviors if their interests, values, and other aspects of their inner resources are closely associated with such behavior. Students who are autonomous perceive that they have high freedom, low pressure, and a perceived sense of choice (Reeve, Deci, & Ryan, 2004b 2004).

The need for competence deals with the students’ need to effectively interact with their environment and to welcome challenges. Students show their need for competence when they show interest in activities that test their skills and talents. Relatedness has to do with the students’ need for closeness to others, such as, teachers, peers, and so on. According to the authors, students tend to connect to people they think cared about them, respect them, and embrace their values.

Classroom lessons that capitalized on students’ inner motivational resources have been found to facilitate students’ motivation and engagement, which may lead to academic achievement (Reeve & Halusic, 2009). Studies that focused on motivation, engagement, and

achievement of NCHT in their middle school math classroom environments are rare, but Berson, Berson, and McGlinn Manfra (2012) presented an example of a classroom practice that supported Haitian students' basic psychological needs. A third-grade teacher had two Haitian students who were shy, not proficient in English, and not interacting with other students in the class. The teacher used an iPad app in Haitian Creole as part of a lesson she presented to the class. When the rest of the class was learning to pronounce Haitian Creole, these two students became the experts that the rest of the class turned to for help with the activity. Through this activity, the teacher capitalized on some of these two students' resources to ensure that they were motivated and engaged (Reeve, Jang, Carrell, Jeon, & Barch, 2004), and she also helped meet these students' basic psychological needs for autonomy, competence, and relatedness (Deci, Koestner, & Ryan, 2001; Niemiec & Ryan, 2009; Reeve, 2006).

Achievement Goal Theory

Achievement goal theorists found that there are two reasons why people want to reach their goals: One reason is to develop competence and the other reason is to demonstrate ability in comparison to others (Ames, 1992; Dweck & Leggett, 1988). Many theorists labeled these contrasting goal orientations using different terminologies, including learning and performance goals (Dweck, 1986; Dweck & Leggett, 1988; Elliott & Dweck, 1988) and mastery and performance goals (Ames & Archer, 1988), among others. According to Ames and Archer (1988), people who are performance goal oriented are concerned with the judgment that others make of their ability. They want to prove their ability by "being successful, outperforming others, or by achieving success with little effort" (p. 260). On the other hand, people who are mastery goal oriented put more value on the process of learning and developing new skills. They view mastery as being a result of effort.

Elliott and Dweck (1988) theorized that students' achievement goal orientations originate from within. In a two-part study of fifth grade students, Elliot and Dweck wanted to understand how performance and learning goals facilitated students' success or failure. In the first part, the experimenters conducted an activity during which they gave contrasting feedback to the students. Half of the students learned that they had high ability, and the other half learned that they had low ability.

In the second part of the study, the students were asked to choose between a learning task and a performance task. While introducing the learning task, the experimenter told the students that they might make mistakes, or get confused, while working on the activity, but that they would develop new skills in the long run. In introducing the performance task, the experimenter told the students that they would be able to display their skills at three levels of task difficulty, but that they would not learn anything new in that task.

The researchers found that, for children who were learning-goal oriented, their "beliefs about their current skills were irrelevant in determining their achievement behavior. Regardless of whether they perceived their skills to be high or low, they sought to increase competence" (p. 10). These children chose challenging tasks, welcomed opportunities to learn new skills, even when others noticed their mistakes. No matter their beliefs about their current skills, they "responded to failure in a mastery-oriented manner—their problem-solving strategies became more sophisticated" (p. 10).

On the other hand, children who were performance-goal oriented who believed that their current skills were high "responded in a mastery-oriented manner in the face of obstacles" (p. 10); but they did not choose tasks that would expose their mistakes publicly. Performance goal-oriented children who believed they had low ability attributed their mistakes to their lack of

ability, responded to them “with negative affect, and [gave] up attempts to find effective ways of overcoming those mistakes” (p. 10).

Wolters (2004) used a sample consisting of 525 junior high school students to investigate how different components of achievement goal theory were related to each other and to students’ motivation, cognitive engagement, and achievement in mathematics. They found that, in all domains, mastery structure and mastery orientation were related to adaptive (mastery-oriented) outcomes. Blackwell, Trzesniewski, and Dweck (2007) found that students were mastery-oriented or performance-oriented, depending on the way they viewed their intelligence.

Implicit Theories of Intelligence

Blackwell et al. (2007) suggested that some students thought that intelligence was fixed (entity theory), and others thought that intelligence could be developed (incremental theory). People who subscribe to the entity theory seek performance goals to gain positive judgments or avoid negative judgments. They tend to avoid risk and show a low level of persistence. On the other hand, people who subscribe to the incremental theory are geared toward learning (mastery) goals for the sake of increasing competence. They are mastery oriented. They seek challenge and possess high levels of persistence (Dweck & Leggett, 1988).

Dweck (2006) suggested that students who viewed their intelligence as fixed had a fixed mindset and those who thought that their intelligence was malleable had a growth mindset. From her studies of seventh graders, Dweck found that students with fixed mindsets shared three characteristics: (a) they avoided making mistakes, (b) they thought that hard work signaled low intelligence, and (c) they did not try to repair their mistakes. She found, on the other hand, that those seventh graders who possessed a growth mindset shared three characteristics: (a) They

liked challenging work and the learning that came in the process; (b) they believed in working hard to achieve success; and (c) they confronted their mistakes and corrected them.

Teacher's Achievement Goal Orientations

As opposed to Elliott and Dweck (1988) who theorized that students' achievement goal orientations originated from within, Ames (1992) found that students' achievement goal orientation originated from their classroom environments. Teachers who embraced mastery-orientation were found to focus on the students' improvement in their acquisition of knowledge and skills. On the other hand, teachers who subscribed to performance-oriented goals focused on comparing students' achievement through processes, such as, grading and competition.

In their research on classroom goal structure, Ames and Archer (1988) found that students who viewed their classrooms as being mastery-goal oriented reported using better strategies, chose challenging tasks, had a favorable attitude toward the class, and had stronger beliefs that success was the result of someone's effort. On the other hand, students who perceived that their classrooms were performance-goal oriented tended to attribute failure to lack of ability.

From their literature review, the authors derived a classroom goal structure which included eight dimensions of mastery-goal oriented, in contrast to performance goal-oriented, classroom climates. They proposed that in mastery goal-oriented classrooms success was defined as improvement or progress as opposed to high grades or high normative performance. Value was placed on effort and learning as opposed to normatively high ability. Reasons for satisfaction were explained in terms of working hard, and facing challenges, as opposed to doing better than others. Teachers were oriented toward how students were learning, rather than how students were performing. Errors or mistakes were viewed as being part of learning, as opposed to being anxiety eliciting. The focus was on the process of learning, rather than on students' performance

relative to others. The reason for effort was explained as a means to learn something new, as opposed to a means to obtain high grades or perform better than others. Evaluation criteria was absolute and progress-based, rather than being normative.

Schools' Achievement Goal Orientation

Schools' achievement goal orientation has been found to influence teachers' approach to instruction. Ames (1992) suggested that:

“[t]he impact of mastery-oriented structures on student motivation may be enhanced or even subverted by school policies and programs that, for example, make performance salient (e.g., public recognition and award programs), attempt to exert considerable external control over behavior (e.g., incentive or discipline programs), or encourage social comparison (e.g., tracking, honor rolls, contests)” (p. 267).

Teaching Efficacy Theory

According to Bandura (1993), “[t]eachers' beliefs in their personal efficacy to motivate and promote learning affect the types of learning environments they create and the level of academic progress their students achieve” (p.117). Teachers' efficacy has been associated with many important outcomes, including students' motivation (Midgley, Feldlaufer, & Eccles, 1989b 1989a), students' engagement and achievement (Armor, 1976; Bandura, 1977), and students' self-efficacy (Midgley, Feldlaufer, & Eccles, 1989a). Teachers with a high sense of efficacy tend to be open to new ideas and innovations that promote students' learning and achievement (Guskey, 1988). They tend to be patient in their interactions with students who are struggling (Gibson & Dembo, 1984). On the other hand, teachers with a low sense of efficacy rely heavily on strategies that use rewards and punishments to facilitate students' learning (Woolfolk & Hoy,

1990). Schunk (1991) suggested that these teachers “tended to avoid planning activities they believed exceeded their capabilities...” (p. 12).

The construct of teachers’ efficacy was initially introduced by Rand researchers (Armor, 1976) who used a scale containing two statements to measure the construct. The two statements were:

“When it comes right down to it, a teacher really can’t do much because most of a students’ motivation and performance depends on his or her home environment.” (p. 73)

“If I really try hard, I can get through to even the most difficult or unmotivated students.” (p 73).

With this scale, they measured the extent to which teachers believed that they had control over the outcomes of their teaching practice. Teachers who thought that such outcomes were outside of their control agreed that the environment interfered with their ability to have an impact on their students’ learning. Teachers who thought that such outcomes were within their control agreed that they could teach the most unmotivated and difficult students.

Self-Efficacy Theory

Students’ self-efficacy beliefs refer to their confidence in their capabilities to complete their tasks (Bandura, 1993). More specifically, Pajares and Schunk (2001) referred to this concept as the students’ academic self-efficacy - beliefs about one’s capability to perform a specific academic task.

Self-efficacy beliefs are critically important for students’ academic achievement, motivation, and learning. Students who focused on the personal and social effects and the pleasure associated with successful completion of a task developed strategies to learn the skills needed to complete the task. On the other hand, students with low self-efficacy focused so much

on the pain related to their skill deficits that they failed to take the actions necessary to achieve their goals (Bandura, 1989).

There are conditional relations between self-efficacy beliefs and outcome expectancies (Bandura, 1977). In addition, Zimmerman, Bandura, and Martinez-Pons (1992) theorized that “[p]erceived efficacy to achieve motivates academic attainment both directly and indirectly by influencing personal goal setting. Self-efficacy and goals in combination contribute to subsequent academic attainments” (p. 674).

Students’ self-efficacy beliefs were created because of their interpretation of four major sources: a) mastery experience, b) vicarious experience, c) social persuasion, and d) their physiological and emotional states (Bandura, 1993).

Mastery Experience

Mastery experience refers to the students’ past and present experiences of success and failure in a domain. It is the most important source of self-efficacy beliefs since it is where the learners obtained information regarding the requirements for success. Students were found to gain mastery experiences by confronting problems in successive, attainable steps. As the learners achieved successes through these steps, they gained robust self-efficacy beliefs. However, if they experienced failure, their self-efficacy beliefs were undermined. In addition, easy successes caused students to give up when facing failure or setbacks. It was important for the student to develop resilient self-efficacy to persevere despite eventual obstacles. For example, students who obtained high scores on difficult exams were found to develop a strong sense of confidence in their capabilities. These students had the tendency to develop affinity for fields of study that were related to the tasks, and persevered in their efforts in challenging situations in the domain (Bandura, 1993). In addition, students who obtained high scores on easy

exams tended to experience a decrease in their sense of confidence in their math capabilities when experiencing failure in the subject, and students who consistently received failing grades in math were likely to avoid tasks that were math related and developed apprehension toward the subject (Pajares, 1996).

Bandura (1993) further theorized that mastery experience was mediated by people's interpretation of success or failure on a given task, their perception about the difficulty of the task, and the amount of effort needed to complete the task. For example, studies have found that students who took on the challenges involved in a task and persevered despite the obstacles encountered, started earning praise from peers and teachers. Such experiences resulted in boosting their self-efficacy beliefs (Pajares, 1996).

Vicarious Experience

The second source of self-efficacy beliefs is the vicarious experience - the effect of the actions of others. Though not as strong as the mastery experience, people who doubted their abilities or whose prior experience in the domain was limited used this source of information (Bandura, 1993). When people observed that others could succeed in a task, they developed more confidence in their ability to succeed in that task.

Social Persuasion

The third source of self-efficacy belief, which is weaker than the two sources described above, is social persuasion – the message people received from others. Bandura (1993) warned about the role the persuaders played in the learner's self-efficacy beliefs; and Zimmerman (2000) found that great persuaders helped develop people's beliefs in their capabilities by keeping in mind the steps and levels of success the person was working toward achieving. They boosted the

person's confidence by using persuasion that was genuine and positive. They refrained from negative persuasion because this type of persuasion defeated and weakened self-efficacy beliefs.

Pajares and Schunk (2001) suggested that teachers gave performance feedback to inform the students of goal progress, to strengthen self-efficacy, and to sustain motivation. They suggested that, in the early stages of learning, students greatly valued and believed effort based feedback (Schunk, 1991), but feedback also needed to be clear and timely (Hattie & Timperley, 2007) for the student to benefit from it.

Physiological and Emotional States

The fourth source of information about self-efficacy beliefs is physiological and emotional states, such as, stress, arousal, mood, anxiety, etc. (Pajares, 1996). For example, in a review of the literature on middle school student self-efficacy in mathematics, Usher (2009) found that students felt anxious, sad, or helpless when thinking of math. They noticed their heart pounding when taking a math test. They experienced their mind going blank and being unable to think clearly when trying to do math. They lost confidence as they felt sick when doing math, or they experienced agitation, anxiety, sweaty palms, and/or a racing heart when solving a math problem.

Instruction in English-only settings was found to affect ELLs' psychological and emotional state. Abedi and Herman (2010) addressed the added burden that ELL students faced, which was to learn content in a language in which they were not proficient. Combs et al. (2005) quoted a teacher who explained how ELLs reacted to the challenge of understanding lessons that were presented to them in English:

“Silent tears. Simply because they didn’t . . . they want to do well in school, and they do not understand what I’m talking about and when they see the work, even with the simple stuff, it’s just too overwhelming for them” (p. 711).

Chapter Summary

This chapter included a presentation of the experiences of the NCHT from various perspectives and a theoretical framework that encompassed the Self-determination, the Achievement Goal, the Teaching Efficacy, and the Self-efficacy theories. From the psychosocial perspective, the literature suggested that these students were facing many challenges that were the result of changes associated with the process of immigration to the United States. These changes included separation from loved ones that these students left behind, as well as the adaptation that these students needed to make in their new environments. These students initially expressed great expectations about their educational opportunities in the United States. But their neighborhood schools were not providing the necessary support to meet their expectations.

From the perspectives that are rooted in bilingual education, one major obstacle to quality of education for these students was the approach that was used to educate them. Most of the exemplary bilingual programs, such as the ones highlighted in this chapter, were not accessible to these students. NCHT usually were transferred to mainstream classrooms where they struggled and earned bad grades. They ultimately were placed in remedial programs. There is an ongoing debate in favor of or against bilingual education. Those who were in favor of bilingual education attested to the benefits associated with teaching students in their home language, which included students’ engagement and academic achievement. Those who opposed

bilingual education suggested that these students should be in an environment where they had plenty of opportunity to develop English fluency.

The paper's theoretical framework includes the Self-determination Theory, the Achievement Goal theory, the Teaching Efficacy theory, and the Self-efficacy theory. But, there is a dearth of studies focusing on teachers' constructs in relation to achievement. This study will serve to help fill the existing gap.

Tschannen-Moran and Hoy (2001) addressed the need to identify "what supports could build strong efficacy beliefs among teachers working with students of low socioeconomic status, students in racially diverse settings or urban contexts" (p. 802). This research explores whether there is a relationship between teachers' teaching efficacy, their approach to instruction, their endorsement of Haitian Creole in the classroom, and their opinions about NCHT learning outcomes.

In Chapter III, the researcher presents the questions, method, participants, statistical method, procedure, and research protocol.

CHAPTER III

METHOD

Purpose of the Study

The purpose of the present study is to explore the relationship between middle school math teachers' personal and professional background and constructs and their appraisals of NCHT's learning outcomes. The mathematics teachers' personal backgrounds include their fluency in Haitian Creole. Their professional background includes their years of experience teaching mathematics, as well as their years of academic preparation in teaching mathematics in Haitian Creole, and their constructs include their personal teaching efficacy, their approaches to instruction, their perception of administrative pressure to prepare for high stakes testing, and their instructional endorsement of Haitian Creole (IEHC). This study may assist school leaders in identifying biases that teachers may hold which may have a negative impact on NCHT. It may also help teachers better understand the needs of NCHT and incline them to adjust their beliefs and practices.

Research Questions

- RQ1:** Is there an association between mathematics teachers' mastery approach to instruction and their instructional endorsement of Haitian Creole?
- RQ2:** Is there an association between mathematics teachers' performance approach to instruction and their instructional endorsement of Haitian Creole?
- RQ3:** Is there an association between mathematics teachers' personal teaching efficacy and their instructional endorsement of Haitian Creole?
- RQ4:** Is there an association between mathematics teachers' mastery approach to instruction and their appraisals of NCHT learning outcomes?

- RQ5:** Is there an association between mathematics teachers' performance approach to instruction and their appraisals of NCHT learning outcomes?
- RQ6:** Is there an association between mathematics teachers' personal teaching efficacy and their appraisals of NCHT learning outcomes?
- RQ7:** Is there an association between mathematics teachers' gender and their instructional endorsement of Haitian Creole?
- RQ8:** Is there an association between mathematics teachers' gender and their appraisals of NCHT learning outcomes?
- RQ9:** Is there an association between mathematics teachers' fluency in Haitian Creole and their instructional endorsement of Haitian Creole?
- RQ10:** Is there an association between mathematics teachers' fluency in Haitian Creole and their appraisals of NCHT learning outcomes?
- RQ11:** Is there an association between math teachers' years of experience and their instructional endorsement of Haitian Creole?
- RQ12:** Is there an association between math teachers' years of experience and their appraisals of NCHT learning outcomes?
- RQ13:** Is there an association between math teachers' years of academic preparation to teach math in Haitian Creole and their instructional endorsement of Haitian Creole?
- RQ14:** Is there an association between math teachers' years of academic preparation to teach math in Haitian Creole and their appraisals of NCHT learning outcomes?

RQ15: Is there an association between math teachers' perceived administrative pressure to prepare for high stakes testing and their instructional endorsement of Haitian Creole?

RQ16: Is there an association between math teachers' perceived administrative pressure to prepare for high stakes testing and their appraisals of NCHT learning outcomes?

RQ17: Is there an association between math teachers' instructional endorsement of Haitian Creole and their appraisals of NCHT learning outcomes?

Participants

The researcher started with a sample of convenience which consisted of 20 middle school math teachers who were teaching NCHT at the time they volunteered to be participants in the study. At a conference, the researcher met 10 of these teachers who were teaching NCHT in New York. The other 10 teachers who were teaching in Florida were introduced to her by her brother who is a middle school math teacher in that region. During the time of data collection, the researcher replaced four New York teachers and three Florida teachers for the following reasons: Three of them answered "No" to one of the qualifying questions of the survey and no longer qualified to take the survey. Three of them did not respond to the survey despite the researcher's phone calls and email reminders. One of them only answered four questions and did not complete the survey despite the researcher's phone calls and email reminders. The researcher's brother and some of her colleagues who were educators recommended seven teachers who were teaching NCHT and agreed to participate. The new sample consisted of six teachers that the researcher met at a conference in New York, and four who were recommended by New York colleagues who were educators, and ten teachers who were recommended by the

researcher's brother who teaches in Florida. All twenty teachers were middle school math teachers who were teaching NCHT at the time of data collection.

Measures

The researcher used three scales developed by Midgley et al. (2000) to gauge the teachers' approaches to instruction and their personal teaching efficacy, and a questionnaire developed by the author of the present study that measured the teachers' fluency in Haitian Creole, their instructional endorsement of Haitian Creole, and their appraisals of NCHT's mathematics learning outcomes.

Many researchers have developed previous versions of the three scales that measure teachers' approaches to instruction and their personal teaching efficacy, but this research utilized the versions found in Midgley et al. (2000). The scale that measured teachers' approaches to instruction gauged the extent to which the teachers were mastery- or performance-oriented in their classroom practices. Buck (1992) stated that this scale was adapted from Ames and Archer (1988), Ames and Maehr (1988), and Maehr and Midgley (1990). The scale that measured the teachers' personal teaching efficacy was developed by Midgley et al. (1989a). In developing the scale, the researchers stated that they used items from Armor (1976), Berman (1977), Ashton (1982), and Midgley, Feldlaufer, and Eccles (1988). The scale that measured the extent to which teachers have a mastery approach to instruction contains four items and has a Cronbach's alpha of .69 (see Appendix C). One item on this scale reads: "I give a wide range of assignments, matched to students' needs and skill level." The scale for the teachers' performance approach to instruction contains five items and has a Cronbach's alpha of .69 (see Appendix D). One item on the scale reads: "I help students understand how their performance compares to others." These two items help to explain the contrast that exists between mastery and performance approaches

to instruction. The scale that measured the teachers' personal teaching efficacy contains seven items and has a Cronbach's alpha of .74 (see Appendix E). One item on the scale reads, "If I try really hard, I can get through to even the most difficult student" (Midgley et al., 2000). This was one of the two statements initially used by Rand researchers (Armor, 1976) to measure the extent to which teachers believed that they had control over the outcomes of their teaching practice.

Teachers who thought that such outcomes were outside of their control agreed that the environment interfered with their ability to have an impact on their students' learning. Teachers who thought that such outcomes were within their control agreed that they could teach the most unmotivated and difficult students. Over the years, Midgley et al. (2000) reported that these three scales have been refined and tested at all levels from elementary to high school with teacher samples that included 30% minority, who were mostly African American. The three scales can be found in set 1 of 2, numbers 18 through 35, and numbers 1 through 4 of set 2 of 2 in the survey (see Appendix F). These items were measured on a one to five scale with 1 = "Totally Disagree", 2 = "Disagree", 3 = "Somewhat Agree", 4 = "Agree", and 5 = "Totally Agree".

The survey started with two qualifying questions: the first one read, "Do you teach mathematics in middle school?" The respondent selected from two answer choices: a "Yes" answer allowed the respondent to continue, and a "No" answer ended the survey. The second qualifying question read: "Do you have one or more new-comer Haitian students in your math class?" The respondent selected from two answer choices: a "Yes" answer allowed the respondent to continue, and a "No" answer ended the survey. The survey included questions and statements that were developed for this study by the researcher. They have been reviewed for clarity by 10 educators, including college professors and retired teachers and administrators who

have years of experience working with Haitian students. One question measured teachers' appraisals of NCHTs' mathematics learning outcomes (see item 9 in Appendix F), one statement asked the teachers whether the teachers spoke Haitian Creole (see item 6 in Appendix F). Another statement asked the teachers about their levels of fluency in Haitian Creole (see item 7 in Appendix F). Item 8 measured the number of years the teacher was trained academically to teach mathematics in Haitian-Creole. Item 17 measured the teachers' perceived administrative pressure to prepare for high stakes testing. Seven statements measured the mathematics teachers' instructional endorsement of Haitian Creole - a new questionnaire designed by the researcher for this study (see Table 1 below). These statements are numbers 10 through 16 in the survey (see Appendix F). For ratings to be reliable, the researcher offered response choices that allowed participants to have a clear understanding of the meaning of each point on the scale. For example, the teachers were asked to make appraisals of NCHT's learning outcomes based on four levels of performance defined by the New York State Education Department (NYSED, 2017a). Krosnick and Presser (2010) suggested that "people must have a clear understanding of the meanings of the points on the scale. If the meaning of scale points is ambiguous, then both reliability and validity of measurement may be compromised" (p. 270).

The survey contains ten variables which represent each teacher's gender, years of experience, years of academic preparation to teach math in Haitian Creole, instructional endorsement of Haitian Creole, fluency in Haitian Creole, appraisal of NCHT's learning outcomes, perceptions of administrative pressure to prepare for high stakes testing, choice of a mastery or a performance approach, and their perceptions of their personal teaching efficacy. The variable that represents teachers' years of experience has two levels: "Less than ten years" and "Ten years or more". Rockoff (2004) found that students' test scores differ by

approximately .20 standard deviations on average between beginning teachers and teachers with ten or more years of experience. The variable gender has two levels: “Male” and “Female”.

Middle School Math Teachers’ Fluency in Haitian Creole

The variable “Fluency in Haitian Creole” was measured with the following two items: Item 6, which measures whether the respondent spoke the language, reads: “Do you speak Haitian Creole?” The respondent had two answer choices: “Yes” or “No”. Item 7 measured the degree to which the respondent was fluent in Haitian Creole. It reads: “I am fluent in Haitian Creole. Please indicate the degree to which you agree that this statement applies to you”. The respondent chose from: 1= “Totally Disagree”, 2= “Disagree”, 3= “Somewhat Agree”, 4= “Agree, and 5= “Totally Agree”. The researcher merged the answer choices “Totally Disagree”, and “Disagree” and coded them as “No Fluency”. The researcher coded the answer choice “Somewhat Agree” as “Low Fluency”, and she merged “Agree”, and “Totally Agree” and coded them as “High Fluency”.

Middle School Math Teachers’ Years of Academic Preparation in Teaching Mathematics in Haitian Creole

The variable “Years of Academic Preparation in Teaching Mathematics in Haitian Creole” was measured with Item 8, which reads: “How many years of academic preparation have you accumulated in teaching mathematics in Haitian-Creole?”. The respondent chose from: 1 = “Zero”, and 2= “Less than two years but not zero”, and 3= “Two years or more”. The researcher merged “Zero” and “Less than two years but not zero” and coded these answer choices as “Short Term Preparation”. She coded “Two years or more”, as “Long Term Preparation”.

Middle School Math Teachers’ Perceived Administrative Pressure to Prepare for High Stakes Testing

The variable “Administrative Pressure” was measured with Item 17 in the survey. It reads: “In my school, teachers are under administrative pressure to prepare their students for standardized exams.” The respondent chose from: 1= “Totally Disagree”, 2= “Disagree”, 3= “Somewhat Agree”, 4= “Agree, and 5= “Totally Agree”. The researcher compared the numerical value of each participant’s response to the median of all responses. She coded responses whose numerical values were below the median as “Low Pressure”, and coded responses whose numerical values were greater than or equal to the median as “High Pressure”.

Teachers’ Instructional Endorsement of Haitian Creole

“Teachers’ Instructional Endorsement of Haitian Creole” (IEHC) is a latent variable that was created by the researcher for this study. It was measured through its cognitive, behavioral and affective components. The researcher used seven statements from the literature to measure the teachers’ instructional beliefs about Haitian Creole, how comfortable they are with the idea of including Haitian Creole as a medium of communication in their classroom, and the extent to which they include Haitian Creole in their classroom activities. There are seven statements in this measure (see Table 1). They are listed in the survey as item numbers 10 through 16 (see Appendix F). As mentioned earlier, these items were tested by ten educators for clarity. Changes were made, based on feedback received from the 10 educators. They were tested for clarity a second time as part of a pilot study of the entire survey. All seven statements in the teacher’s instructional endorsement questionnaire have five levels: 1= “Totally Disagree”, 2= “Disagree”, 3= “Somewhat Agree”, 4= “Agree”, and 5 = “Totally Agree”. The statements are the following:

Table 1

Mathematics Teachers’ Instructional Endorsement of Haitian Creole Questionnaire

Cognitive component

New-comer Haitian teens understand mathematics better in Haitian Creole than in English.	Adapted from DeGraff (2013)
Teaching mathematics in Haitian Creole hurts new-comer Haitian teens' academic development in the English language. *	Adapted from Cummins (2001)
Affective component	
I feel more comfortable when all my students express themselves only in English in my classroom. *	Adapted from Elie (2011)
This is the United States! Haitian Creole has no place in a mathematics classroom. *	Adapted from DeGraff (2009)
Behavioral component	
In my mathematics classroom, new-comer Haitian teens use Haitian Creole to communicate with new-comer Haitian peers during classroom activities.	Adapted from García and Sylvan (2011)
I provide feedback to my new-comer Haitian teens in Haitian Creole.	Adapted from Cummins (2001)
I distribute materials that are written in Haitian Creole to my new-comer Haitian students during math lessons and activities.	Adapted from DeGraff (2013)

Note: * = Reversed coded.

The strength of the respondent's instructional endorsement of Haitian Creole was obtained by calculating the sum of the values for the responses provided by the participant once reverse coding was applied to the data set. Reversed coding was done using Microsoft excel after downloading the data set. Reverse-coding is often used in research to reduce the acquiescence bias that happens when respondents tend to agree with statements without concern about the content of the statements (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). The researcher used Microsoft excel spreadsheets to calculate the mean endorsement strength for each participant and labeled as "Weak" or "Strong" the two levels that describe the categorical variable "Instructional Endorsement of Haitian Creole". For responses to the seven questions

listed in the table above, such as, “Totally Disagree”, “Totally Disagree”, “Agree”, “Agree”, “Agree”, “Disagree”, “Totally Agree”, the raw total for the strength of the teacher’s IEHC was found by adding the numerical values for these answer choices which are 1, 5, 2, 2, 2, 2, and 5, respectively, which add up to 19. The mean IEHC strength would be $19/7$ or 2.71. It is considered weak since it is less than the questionnaire’s median, which is 3.4. Each respondent’s IEHC strength was coded as “Strong” if it was greater than or equal to 3.4, and “Weak” if it was less than 3.4.

Math Teachers’ Appraisals of NCHT’s Mathematics Learning Outcomes

The following question measured NCHT’s learning outcomes in mathematics: “In your opinion, at what math test score level would you rate most new-comer Haitian students in math?” The respondent had four choices to select from based on the four levels that are defined by NYSED: “Level 1 - Students are considered well below proficient in standards for their grade”, “Level 2 - Students are partially proficient, with knowledge and skills that are insufficient for their grade”, “Level 3 - Students are proficient in standards for their grade”, and “Level 4 - Students are excelling in standards for their grade” (NYSED, 2017a). The researcher coded Level 1 as “Doing Poorly”, and levels 2 and above as “Improving” because the median was 1.5.

Mathematics Teachers’ Approaches to Instruction and Personal Teaching Efficacy

The variable that represents the teachers’ Mastery Approach to Instruction MAI (see Appendix C) was measured by calculating the sum of the values for the responses provided by the participant once reverse coding was applied to the data set. Reverse coding was done with Microsoft excel after downloading the data set. The researcher used Microsoft excel spreadsheets to calculate the mean score (MAI score) for each participant. The researcher compared each participant’s MAI score with the median of all participants’ MAI scores which is

4. She labeled as “High MAI” and “Low MAI” the two levels that serve to describe the categorical variable “Mastery Approach to Instruction”. For example, if a math teacher’s responses to the four questions are “Somewhat agree”, “Somewhat agree”, “Disagree”, “Totally agree”, the teacher’s mastery approach would be found by adding the numerical values for these answer choices, which would be 3, 3, 2, and 4, respectively, which would add up to 12, for a MAI score of $12/4$ or 3. In this case, the respondent’s mastery approach would be coded as “Low MAI” because his or her total MAI score would be less than 4. But, for an MAI score greater than or equal to 4, the teacher’s mastery approach would be labeled as “High MAI”. The same procedure was followed to derive two levels for the variable Performance Approach to Instruction which was coded as “High PAI” and “Low PAI” by comparing each teacher’s PAI score with the median PAI score which is 3. Similarly, this procedure was applied to derive two levels for the variable “Personal Teaching Efficacy” (PTE), which was coded as “High PTE” and “Low PTE”, by comparing each teacher’s PTE score with the median PTE score which is 3.7.

Procedure

Seventeen middle school math teachers who were teaching NCHT received the link to the survey via their personal email addresses, and three received the paper form of the survey. The survey was hosted by Survey Monkey at SurveyMonkey.com. These teachers had expressed their interest in participating in the study and had provided their personal email addresses and phone numbers. The researcher sent a letter to all participants, describing the survey and including a statement about the protection of their privacy. Through this survey, the researcher learned about their gender, age range, personal teaching efficacy, approaches to instruction, perception of administrative pressure to prepare for high stakes testing, proficiency in Haitian Creole, number of years of experience teaching mathematics, number of years of academic

preparation in teaching math in Haitian Creole, instructional endorsement of Haitian Creole, and their appraisals of NCHT's learning outcomes in mathematics. All twenty participants completed the questionnaire and follow-up interviews between August 2nd and November 11, 2017. Seventeen teachers completed the survey online, and three did so on paper. These three teachers who teach in Florida received their paper copies via the researcher's brother who volunteered to distribute, collect, and send back to the researcher the completed survey questionnaires via the United States Postal Service. The paper version consists of Set 1 of 2 which includes items # 1-36 and item # 38 and Set 2 of 2 which includes the mastery approach to instruction questionnaire (see Appendix G). The respondents were asked to complete item # 38 if they answered yes to question # 36 - expressing interest in participating in an in-person interview. The researcher scheduled all interviews to take place at times that did not interfere with the interviewees' work schedules. She conducted three face-to-face and two telephone interviews, for a total of five interviews in New York, and one telephone interview with a teacher in Florida. One of the teachers from Florida completed the interview online. The researcher did not conduct interviews with two participants who opted for interviews but did not respond to the researcher's phone calls and emails.

For respondents who completed the survey online, item #36 in the survey is a question asking the participants whether they would be interested in participating in an in-person interview, which would last about 15 to 30 minutes. For participants who selected "yes" and clicked next, a contact information page opened where they were asked to enter their name, email address, and telephone number. They were reminded that, by providing their contact information, they allowed the researcher to know who they were, but they were told that the

information they provided would remain strictly confidential. Once they completed and submitted their contact information the survey ended.

Respondents who answered “no” to item #36, were prompted to item #37 which is a question asking them whether they wanted to complete an online interview questionnaire. A “no” answer took them to the end of the survey. But for those who answered “yes” and clicked next, the online interview questionnaire page, which contains items 39 through 44, opened. It has the same content as the in-person interview questionnaire. It contains six open ended questions which require 15 to 30 minutes to answer.

The data was analyzed using 2x2 and 3x2 contingency tables. Each of the 2x2 contingency tables contains a one row variable that has two levels and one column variable that has two levels. Each of the 3x2 contingency tables contains a row variable that has two levels and a column variable that has three levels. The researcher used Chi-square to conduct the analysis. Chi square is a non-parametric technique that allows researchers to find evidence of a relationship between two categorical variables (Franke, Ho, & Christie, 2012). Chi square is performed under two assumptions: (a) Each participant should provide only one answer to a specific question, and such answer should belong to only one cell in the contingency table, so that all cell counts in the table add up to the sample size; and (b) no more than 20% of the cells should contain expected frequencies that are less than five. The survey for the present study was designed to collect only one independent answer per participant for each question, which satisfies the first assumption. As for the second assumption, when 20 percent of the cells contained expected frequencies less than five, the researcher used the option “Fisher’s exact” to conduct the tests of independence. Fisher’s exact test is used when the cells contain expected

frequencies that are less than five, or when the test of independence is conducted using a 2x2 contingency table (Agresti, 2002).

The researcher used NVivo 11 to code the interview and identify themes that brought further clarification to the teachers' instructional endorsement of Haitian Creole. Teachers' statements were coded in terms of their affective, cognitive, and behavioral endorsement of Haitian Creole, their approach to instruction, and their personal teaching efficacy. For example, statements that suggested that the teacher was comfortable when students spoke Haitian Creole in the classroom were coded as strong affective endorsement. On the other hand, statements that suggested that the teacher was not comfortable when students spoke Haitian Creole in the classroom was coded as weak affective endorsement. The same procedure was followed when coding these teachers' approaches to instruction and their personal teaching efficacy.

Research question #1

The researcher used the chi square test of independence and the Fisher Exact test to see whether there was an association between mathematics teachers' mastery approach to instruction and their instructional endorsement of Haitian Creole. When conducting the chi square test of independence and the Fisher Exact test, the researcher compared the proportion of mastery-oriented teachers who declared strong instructional endorsement of Haitian Creole and the proportion of mastery-oriented teachers who declared weak instructional endorsement of Haitian Creole. The chi square test of independence helped determine whether the difference in these proportions occurred by chance alone (McDonald, 2009). The test was performed on two variables: One variable was mastery approach to instruction, and the other variable was instructional endorsement of Haitian Creole. Mastery approach to instruction was selected as a column variable with two levels: "Low Mastery" and "High Mastery", and instructional

endorsement of Haitian Creole was selected as a row variable that has two levels: “Weak” and “Strong”. The researcher used the two-way table with measures of association in Stata IC/13, and selected Pearson chi square, as well as a Fisher exact test. The researcher used the value of alpha to decide whether to report the proportion of high-mastery teachers who declared strong instructional endorsement of Haitian Creole in comparison to the proportion of high- mastery teachers who declared weak instructional endorsement of Haitian Creole. In addition, and contingent upon the value of alpha, the researcher reported the proportion of low-mastery teachers who declared strong instructional endorsement of Haitian Creole in comparison to the proportion of low-mastery teachers who declared weak instructional endorsement of Haitian Creole.

Research question #2

The researcher used the chi-square test and the Fisher Exact test to see whether there was an association between mathematics teachers’ performance approach to instruction and their instructional endorsement of Haitian Creole. When conducting the chi square test of independence and the Fisher Exact test, the researcher compared the proportion of performance-oriented teachers who declared strong instructional endorsement of Haitian Creole and the proportion of performance-oriented teachers who declared weak instructional endorsement of Haitian Creole. The chi square test of independence helped determine whether the difference in these proportions occurred by chance alone (McDonald, 2009). The test was performed on two variables: One variable is performance approach and the other variable is instructional endorsement of Haitian Creole. Performance approach was selected as a column variable with two levels: “Low Performance” and “High Performance”, and instructional endorsement of Haitian Creole was selected as the row variable with two levels: “Weak” and “Strong”. The

researcher used the two-way table with measures of association in Stata IC/13 and selected Pearson chi square, as well as a Fisher exact test. The researcher used the value of alpha to decide whether to report the proportion of high-performance teachers who declared strong instructional endorsement of Haitian Creole in comparison to the proportion of high-performance teachers who declared weak instructional endorsement of Haitian Creole. In addition, and contingent upon the value of alpha, the researcher reported the proportion of low-performance teachers who declared strong instructional endorsement of Haitian Creole in comparison to the proportion of low-performance teachers who declared weak instructional endorsement of Haitian Creole. The researcher then made a statement about whether there was statistically significant evidence of a relationship between teachers' performance approach to instruction and their instructional endorsement of Haitian Creole (Agresti, 2002). This same procedure was used to test the independence between the variables in questions 3 through 17.

Research Protocol

After approval from Dr. Kramer-Vida, chair of the dissertation committee, the researcher applied for IRB approval from the LIU Institutional Review Board, describing the purpose of and details about the study. The researcher requested exempt status approval to collect and analyze the data on July 18, 2017. The LIU Institutional Review Board granted her the exempt status on July 28, 2017.

All participants were volunteers, and the researcher kept their participation and data strictly confidential. The researcher provided all participants with a detailed explanation of the purpose of the research before they committed to participation. The researcher provided an email address and a phone number in case the participants had questions. She also provided the phone number of the dissertation chair. She wrote the purpose of the survey at the beginning of the questionnaire. In the introductory section of the survey, the researcher displayed details

about the permission that she received from the University of Michigan to use the scales that measured the teachers' approaches to instruction and personal teaching efficacy (see Appendix E) before they completed the survey (See Appendix F). She gathered the data through the Survey Monkey website at SurveyMonkey.com and conducted a follow-up in-person interview with teachers who expressed interest, provided their contact information, and responded to the researcher's calls or email for scheduling. The in-person follow up questionnaire (see Appendix G) focused on the reasons behind teachers' strong or weak endorsement of Haitian Creole, their approach to instruction, and their personal teaching efficacy, as well as their perceived reasons for their own students' outcomes. It took the participants about ten to 20 minutes to complete the survey and about 20 minutes to respond to the follow-up in-person or on-line interview questionnaire. The researcher did not include offensive or invasive questions in the survey. No part of the dissertation includes identifiable information about any of the participants.

Upon completion of the study, the researcher sent a thank you letter, which included the findings, via email to all participants. The researcher stored survey data securely on a server for use in a scholarly article.

Summary

In this chapter, the researcher presented the study's research design, including the research questions, and a description of the participants, the measures, the procedures, and the research protocol. The questions were intended to measure the math teachers' personal teaching efficacy, their approaches to instruction, their proficiency in Haitian Creole, their endorsement of Haitian Creole, and their opinions about NCHTs learning outcomes in mathematics. A questionnaire was posted online and offered in paper form, and 20 middle school teachers completed the survey. The researcher used Stata IC/13 to conduct a Chi-Square analysis and

explored the relationships between the teachers' construct variables and these teachers' appraisals of their students' learning outcomes in mathematics. She used NVivo 11 to analyze the interviews. The results of the analysis are presented in Chapter IV, followed by a discussion and conclusion in Chapter V.

CHAPTER IV

RESULTS

This chapter presents the results of the research whose purpose was to explore whether there was an association between middle school math teachers' personal and professional background and constructs and their appraisals of NCHT's learning outcomes. The researcher divided the chapter into three parts: The first part is an overview of the process of data collection. The second part is an overview of the scales used for the research. The third part focuses on a quantitative analysis and a qualitative analysis of the data obtained from the participants. The chapter ends with a summary of the findings.

Data Collection

The researcher posted the survey online via Survey Monkey. Seventeen teachers completed the survey online, three did so on paper, and seven of them completed the interview, between August 2nd and November 11, 2017. All twenty teachers were middle school math teachers teaching NCHT at the time of the data collection. Among those who responded online, ten were teaching in New York and seven in Florida. The three teachers who completed the survey on paper were from Florida. The researcher's brother collected these paper responses. He is a middle school math teacher in that region.

The researcher presented the survey in two sets: Set 1 of 2 included the instructional endorsement of Haitian Creole Questionnaire, along with the scales that measure the teachers' performance approach to instruction and their personal teaching efficacy. Set 2 of 2 included the scale that measured the teachers' mastery approach to instruction. The researcher added the latter after the researcher's conversation with the committee chair regarding the fact that the Mastery Approach measure was missing from the survey questionnaire.

Once all participants completed the survey, the researcher downloaded the data from survey Monkey.com, applied required reverse coding, and coded each item imported onto a Microsoft excel spreadsheet. The first row contained the variable names. The teachers' identification – TE01, TE02, TE03 ...TE20 - occupied the first column of the spreadsheet. Thirteen columns contained responses to the multiple-choice questions in the survey. The researcher imported the data into Stata IC/13 for analysis. She then reviewed the frequency count and added a label for each item of the four scales – Mastery Approach to Instruction, Performance Approach to Instruction, Personal Teaching Efficacy, and Instructional Endorsement of Haitian Creole.

To conduct the qualitative analysis, the researcher imported into NVivo 11 Pro, an excel spreadsheet which contained both the multiple choice and the open-ended responses provided by the seven teachers who participated in the interviews -TE03, TE08, TE12, TE13, TE14, TE18, and TE19. The teachers' identification occupied the first column of the spreadsheet, 13 columns contained responses to the multiple- choice questions in the survey, and the last seven columns contained responses to the open-ended questions. The software stored respondents as cases, which allowed the researcher to see all survey responses provided by each respondent. Also, the software stored each multiple-choice question as a case attribute, which allowed the researcher to navigate between the close-ended and the open-ended data when conducting the analysis. In addition, the software generated a node (code) for each question, which allowed the researcher to view the response provided by each participant to a specific question.

The interview questionnaire included five questions, plus one follow-up question, that the researcher added when she needed additional information during the interview. These questions served to collect data on the teachers' instructional endorsement of Haitian Creole whose three

components – affective, behavioral and cognitive -were coded as strong or weak to further clarify the quantitative findings.

Participants

The sample consisted of six teachers who the researcher met at a conference in New York, and four who were recommended by New York colleagues who were educators, and ten teachers who were recommended by the researcher’s brother who teaches in Florida. All twenty teachers were middle school math teachers who were teaching NCHT at the time of data collection. Below are findings about the participants’ personal and professional backgrounds, including age range, gender, fluency in Haitian Creole, years of experience teaching mathematics, and years of academic preparation to teach mathematics in Haitian Creole.

Age Range by Gender

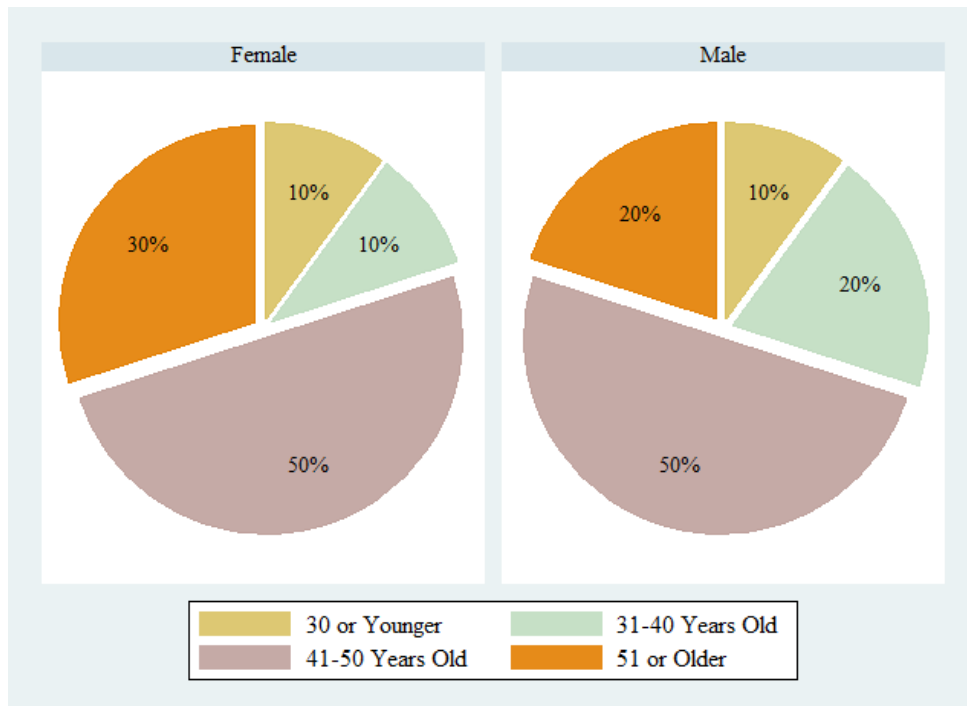


Figure 8. Participants’ age range by gender.

Figure 8 above shows that among the 20 participants, 10 were female and 10 were male. Among the female participants, 10 percent were 30 years old or younger, 20 percent between 31

and 40 years old, fifty percent were between 41 and 50 years old, and 30 percent were 51 or older. Among the male participants, ten percent were 30 or younger, twenty percent were 31-40 years old, five were 41-50 years old, and twenty percent were 51 or older.

Years of Experience Teaching Mathematics

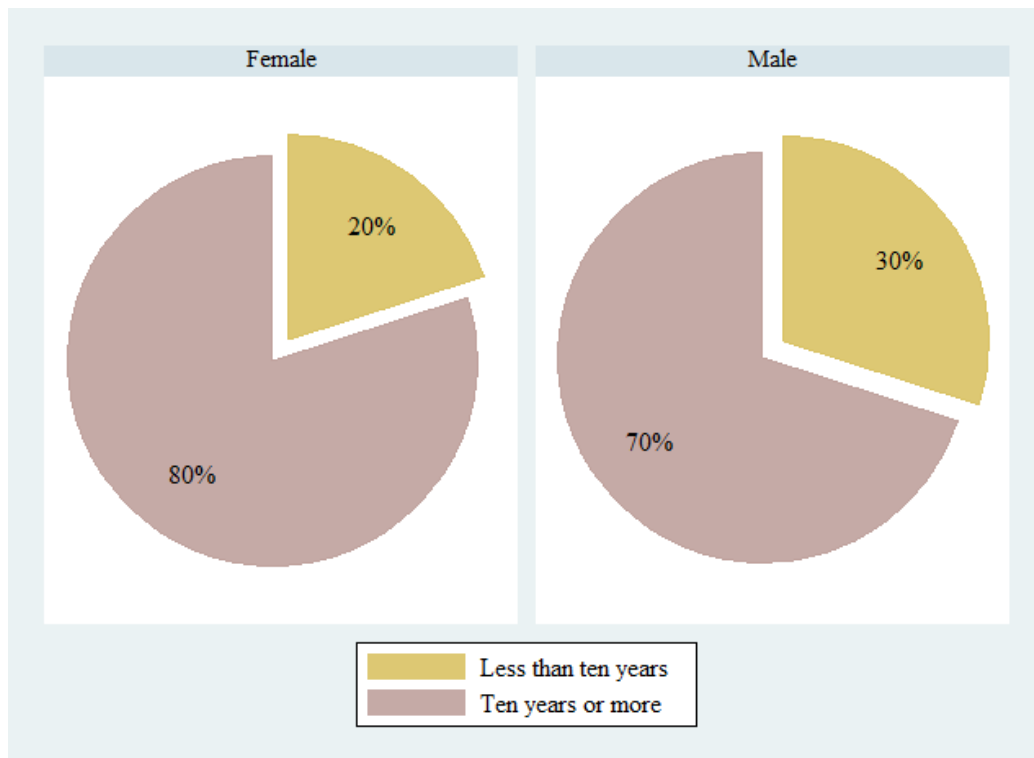


Figure 9. Participants' years of experience teaching mathematics.

Figure 9 above shows that among the female participants, 20% have less than ten years' experience teaching mathematics in secondary school and 80% have been teaching math in secondary school for ten years or more. Among the male participants, 30% have less than ten years of experience teaching mathematics in secondary school, while 70% have been teaching math in secondary school for ten years or more.

Fluency in Haitian Creole

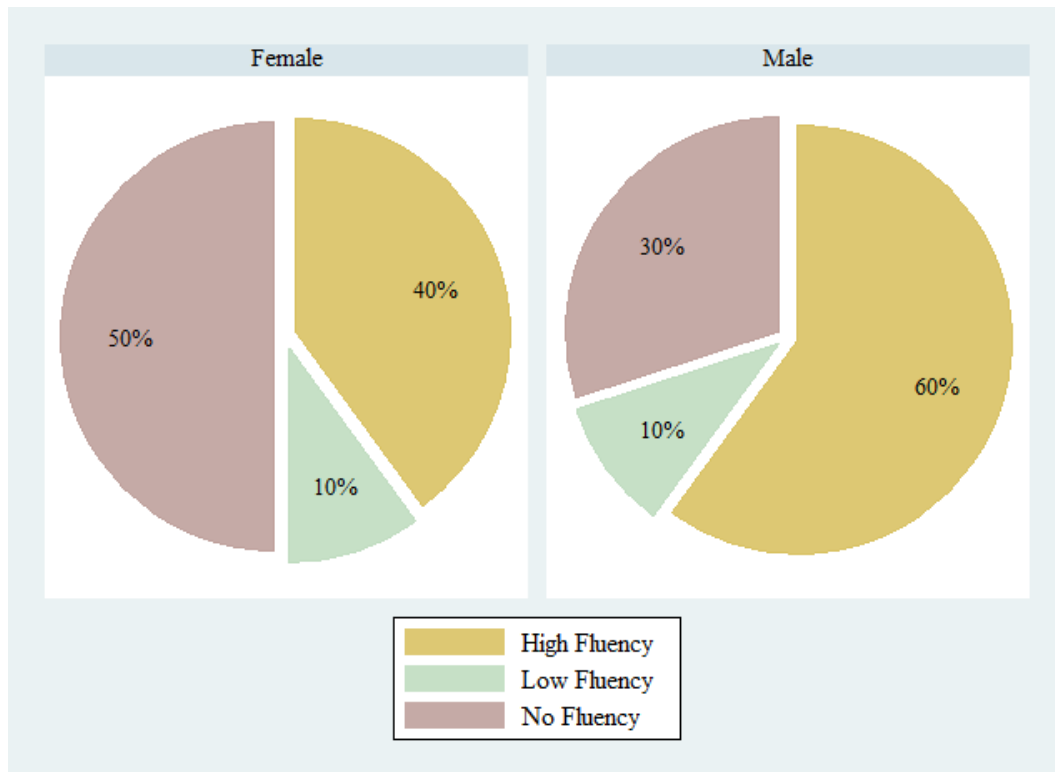


Figure 10. Participants' fluency in Haitian Creole by gender.

Figure 10 above shows that among the female participants, forty percent reported that they had high fluency in Haitian Creole, ten percent had low fluency, and fifty percent had no fluency in Haitian Creole. Among the male participants, sixty percent of them reported that they had high fluency, ten percent had low fluency, and thirty percent had no fluency in Haitian Creole.

Academic Preparation to Teach Math in Haitian Creole

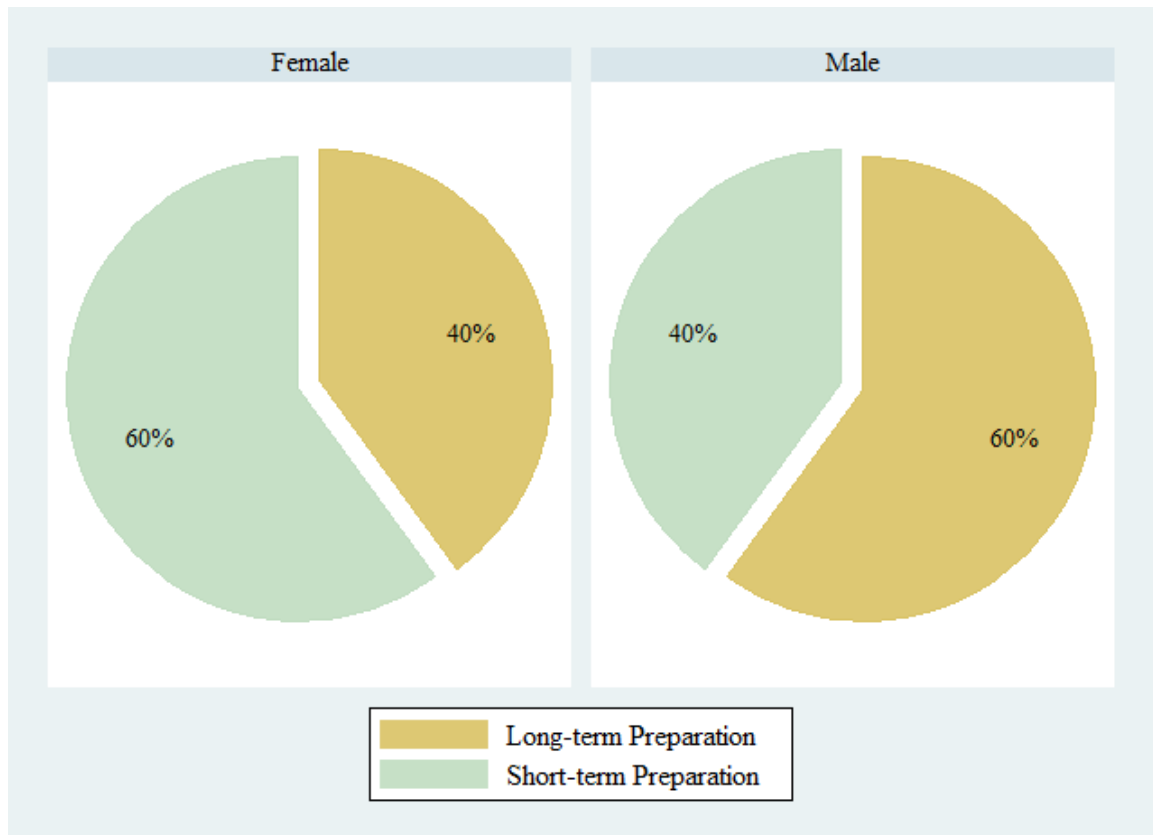


Figure 11. Participants' academic preparation to teach math in Haitian Creole by gender.

Figure 11 above shows that among the female participants, sixty percent had no training or had training for less than two years to teach mathematics in Haitian Creole (short-term preparation), and forty percent of them received such training for two years or more (long-term preparation). Among the male participants, forty percent of them had no training or had training for less than two years to teach mathematics in Haitian Creole, and sixty percent of them received such training for two years or more.

Teachers' Appraisals of NCHT's Mathematics Learning Outcomes

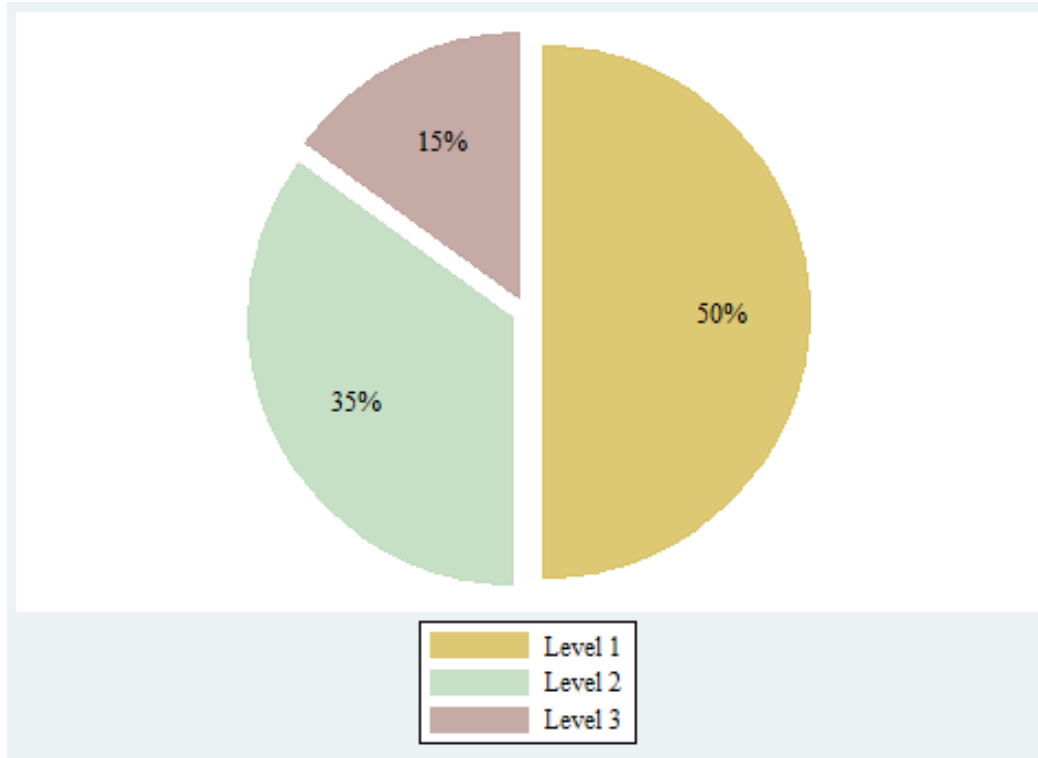


Figure 12. Teachers' appraisals of NCHT's mathematics learning outcomes.

Figure 12 above shows that among the twenty participants, fifty percent of them appraised NCHT's mathematics learning outcomes at Level 1, thirty five percent appraised them at Level 2 and fifteen percent did so at Level 3. None of the participants appraised NCHT's mathematics learning outcomes at Level 4.

Measures

The researcher used four scales to collect the data. They are the scales that measure teachers' mastery approach to instruction (MAI), their performance approach to instruction (PAI), and their personal teaching efficacy (PTE) (Midgley et al., 2000). In addition, the researcher designed a scale to measure teachers' instructional endorsement of Haitian Creole (IEHC) for this study.

Reliability of the Measures in the Survey and Removal of the Mastery Approach to Instruction From the Analysis

The mastery approach to instruction refers to teacher strategies that convey to students that the purpose of engaging in academic work is to develop competence (Midgley et al., 2000). The scale that measured the extent to which teachers have a mastery approach to instruction contains four items and has a Cronbach's alpha of .69. This published alpha estimate was adequate because, to the nearest tenth, its value of about .70 was within the .70 to .95 range (Bland & Altman, 1997; Tavakol & Dennick, 2011).

Given that investigators should not rely on published alpha estimates and should measure alpha each time the test is administered (Streiner, 2003; Tavakol & Dennick, 2011), the researcher used Stata IC/13 to calculate alpha for MAI, PAI, and PTE. Also, she calculated alpha for the IEHC questionnaire that she constructed. She found that the items for PAI, PTE and IEHC resulted in alphas that were acceptable: PAI: (5 items; $\alpha = .71$); PTE: (7 items; $\alpha = .79$); IEHC: (7 items; $\alpha = .76$). But, the reliability for the mastery approach to instruction items resulted in an alpha that is unacceptable (4 items; $\alpha = .42$). The researcher did not modify the scale because the permission that she obtained for the scale did not include an option to make modifications. Before removing the MAI scale from the analysis, the researcher investigated the survey's discriminant validity. A survey has discriminant validity if there is no statistically significant correlation among the scales in a survey (Campbell & Fiske, 1959). The researcher tested the four scales for correlation. She used Stata IC/13 to calculate the inter-scale correlation of the four scales - MAI, PAI, PTE and IEHC. She found that the four scales showed no evidence of discriminant validity. However, when the MAI scale was removed, the three scales IEHC, PAI and PTE showed evidence of discriminant validity. Consequently, she removed the MAI scale from the analysis.

Findings and Analysis

This section includes two parts: a quantitative analysis and a qualitative analysis of the findings. In the quantitative analysis, the researcher analyzed the answers from seventeen research questions answered by participants regarding middle school math teachers teaching NCHT. The qualitative analysis focused in more detail on the teacher's instructional endorsement of Haitian Creole. A summary ends the chapter.

Quantitative Findings and Analysis

In this section, the researcher explores the relationship between middle school math teachers' personal and professional background and constructs and their appraisals of NCHT's learning outcomes. The mathematics teachers' personal backgrounds include their fluency in Haitian Creole. Their professional background includes their years of experience teaching mathematics, as well as their years of academic preparation in teaching mathematics in Haitian Creole, and their constructs include their personal teaching efficacy, their approaches to instruction, their perception of administrative pressure to prepare for high stakes testing, and their instructional endorsement of Haitian Creole.

The researcher used Fisher exact tests when at least 20% of the cells in the crosstabs had expected frequencies that were less than 5. She reported results of Chi-square tests of independence when less than 20% of the cells in the crosstabs had expected frequencies that were less than 5. The researcher reported crosstabs only for findings that were at least marginally statistically significant ($p < .1$).

Research Question #1: Is There an Association Between Mathematics Teachers' Mastery Approach to Instruction and Their Instructional Endorsement of Haitian Creole?

The researcher did not seek to answer this question because she removed the MAI scale from the analysis.

Research Question #2: Is There an Association Between Mathematics Teachers' Performance Approach to Instruction and Their Instructional Endorsement of Haitian Creole?

The proportion of high-performance teachers who declared strong endorsement in comparison to the proportion of high-performance teachers who declared weak endorsement did not differ significantly. $p = .47$. There is no statistically significant evidence of an association between teachers' performance approach to instruction and their instructional endorsement of Haitian Creole.

Research Question #3: Is There an Association Between Mathematics Teachers' Personal Teaching Efficacy and Their Instructional Endorsement of Haitian Creole?

The proportion of high-PTE teachers who declared strong endorsement in comparison to the proportion of high-PTE teachers who declared weak endorsement did not differ significantly ($p = .21$). There is no statistically significant evidence of an association between teachers' personal teaching efficacy and their instructional endorsement of Haitian Creole.

Research Question #4: Is There an Association Between Mathematics Teachers' Mastery Approach to Instruction and Their Appraisals of NCHT Learning Outcomes?

The researcher did not seek to answer this question because she removed the MAI scale from the analysis.

Research Question #5: Is There an Association Between Mathematics Teachers' Performance Approach to Instruction and Their Appraisals of NCHT Learning Outcomes?

The proportion of high-performance teachers who thought that NCHT were improving in comparison to the proportion of high-performance teachers who thought NCHT were doing poorly did not differ significantly, $p = .47$. There is no statistically significant evidence of an association between mathematics teachers' performance approach to instruction and their appraisals of NCHT learning outcomes.

Research Question #6: Is There an Association Between Mathematics Teachers' Personal Teaching Efficacy and Their Appraisals of NCHT Learning Outcomes?

The proportion of high-PTE teachers who thought NCHT were improving in comparison to the proportion of high-PTE teachers who thought NCHT were doing poorly did not differ significantly, $p = .21$. There is no statistically significant evidence of an association between teachers' personal teaching efficacy and their appraisals of NCHT learning outcomes.

Research Question #7: Is There an Association Between Mathematics Teachers' Gender and Their Instructional Endorsement of Haitian Creole?

The proportion of male teachers in comparison to the proportion of female teachers who declared strong endorsement of Haitian Creole did not differ significantly, $p = .18$. There is no statistically significant evidence of an association between mathematics teachers' gender and their instructional endorsement of Haitian Creole.

Research Question #8: Is There an Association Between Mathematics Teachers' Gender and Their Appraisals of NCHT Learning Outcomes?

The proportion of female teachers in comparison to the proportion of male teachers who thought NCHT were improving did not differ significantly, $p = 1$. There is no statistically significant evidence of an association between mathematics teachers' gender and their appraisals of NCHT learning outcomes.

Research Question #9: Is There an Association Between Mathematics Teachers' Fluency in Haitian Creole and Their Instructional Endorsement of Haitian Creole?

Table 2
Results of Fisher Exact Test and Descriptive Statistics for Instructional Endorsement of Haitian Creole by Level of Fluency in Haitian Creole

IEHC	Fluency in Haitian Creole		
	High	Low	No
Strong	9 (90%)	0 (0%)	1 (12%)
Weak	1 (10%)	2 (100%)	7 (88%)

Note: IEHC = Instructional Endorsement of Haitian Creole. Strong = IEHC is greater than or equal to 3.4. Weak = IEHC is less than 3.4. No = Teachers totally disagreed or disagreed that they were fluent in Haitian Creole. Low = Teachers somewhat agreed that they were fluent in Haitian Creole. High = Teachers agreed or totally agreed that they were fluent in Haitian Creole. Numbers in parentheses indicate column percentages.
 $p < .01$.

Table 2 shows that 90% of high fluency teachers, compared to 0% of the low fluency teachers, and 12% of the no-fluency teachers, declared strong IEHC. Furthermore, 10% of the high-fluency teachers, compared to 100% of the low-fluency teachers and 88% of the no-fluency teachers, declared weak IEHC, $p < .01$. There is statistically significant evidence of an association between mathematics teachers' fluency in Haitian Creole and their instructional endorsement of Haitian Creole.

Research Question #10: Is There an Association Between Mathematics Teachers' Fluency in Haitian Creole and Their Appraisals of NCHT Learning Outcomes?

Table 3
Results of Fisher Exact Test and Descriptive Statistics for Teachers' Appraisals of NCHT Mathematics Learning Outcomes by Fluency in Haitian Creole

AMLO	Fluency in Haitian Creole		
	High	Low	No
Improving	8 (80%)	0 (0%)	2 (25%)
Doing Poorly	2 (20%)	2 (100%)	6 (75%)

Note: AMLO = Teachers' appraisals of NCHT learning outcomes. Improving = NCHT were appraised at Levels 2 or 3 in math. Doing Poorly = NCHT were appraised at Level 1 in math. No = Teachers totally disagreed or disagreed that they were fluent in Haitian Creole. Low = Teachers somewhat agreed that they were fluent in Haitian Creole. High = Teachers agreed or totally agreed that they were fluent in Haitian Creole. Numbers in parentheses indicate column percentages.

$p = .02$

Table 3 shows that 80% of high fluency teachers, in comparison to 0% of the low fluency teachers and 25% of the no-fluency teachers, appraised NCHT as improving in math. In addition, 20% of high fluency teachers, compared to 100% of low fluency teachers, and 75% of the no-fluency teachers, appraised NCHT as doing poorly in math, $p = .02$. There is statistically significant evidence of an association between mathematics teachers' fluency in Haitian Creole and their appraisals of NCHT learning outcomes.

Research Question #11: Is There an Association Between Math Teachers' Years of Experience and Their Instructional Endorsement of Haitian Creole?

Table 4
Results of Fisher Exact Test and Descriptive Statistics for Teachers' Instructional Endorsement of Haitian Creole by Years of Experience Teaching Mathematics.

IEHC	Years of Experience Teaching Mathematics	
	Less Than Ten Years	Ten Years or More
Strong	0 (0%)	10 (67%)
Weak	5 (100%)	5 (33%)

Notes: IEHC = Instructional Endorsement of Haitian Creole. Strong = IEHC is greater than or equal to 3.4. Weak = IEHC is less than 3.4. Numbers in parentheses indicate column percentages.
 $p = .03$

Table 4 shows that none of the participants with less than 10 years of experience declared strong IEHC while 67% of those who have taught math for 10 years or more declared strong IEHC. In addition, all the teachers who have taught math for less than 10 years declared weak IEHC compared to 33% of teachers who have taught math for ten years or more, $p = .03$. There is statistically significant evidence of an association between mathematics teachers' years of experience and their instructional endorsement of Haitian Creole.

Research Question #12: Is There an Association Between Math Teachers' Years of Experience and Their Appraisals of NCHT Learning Outcomes?

The proportion of more experienced teachers who thought NCHT were improving in comparison to the proportion of more experienced teachers who thought NCHT were doing poorly did not differ significantly ($p = 1$). There is no statistically significant evidence of an association between teachers' years of experience and their appraisals of NCHT learning outcomes

Research Question #13: Is There an Association Between Math Teachers' Years of Academic Preparation to Teach Math in Haitian Creole and Their Instructional Endorsement of Haitian Creole?

Table 5

Results of Fisher Exact Test of Independence and Descriptive Statistics for Teachers' Instructional Endorsement of Haitian Creole by Years of Academic Preparation to Teach Mathematics in Haitian Creole

IEHC	Years of Academic Preparation to Teach Mathematics in Haitian Creole	
	Long Term	Short Term
Strong	9 (90%)	1 (10%)
Weak	1 (10%)	9 (90%)

Note: IEHC = Instructional Endorsement of Haitian Creole. Strong = IEHC is greater than or equal to 3.4. Weak = IEHC is less than 3.4. Long Term = Two years or more of training to teach mathematics in Haitian Creole. Short Term = No training or less than two years of training to teach mathematics in Haitian Creole. Numbers in parentheses indicate column percentages.
 $\chi^2 (1) = 12, p < .01$.

Table 5 shows that 90% of teachers with long-term preparation, compared to 10 percent of teachers with short-term preparation, declared strong endorsement of Haitian Creole. In addition, 10% of teachers with long-term preparation, compared to 90 percent of teachers with short-term preparation, declared weak endorsement of Haitian Creole, $\chi^2 (1) = 12, p < .01$. There is statistically significant evidence of an association between mathematics teachers' years of academic preparation to teach math in Haitian Creole and their instructional endorsement of Haitian Creole.

Research Question #14: Is There an Association Between Math Teachers' Years of Academic Preparation to Teach Math in Haitian Creole and Their Appraisals of NCHT Learning Outcomes?

Table 6

Results of Chi-square Test of Independence and Descriptive Statistics for Teachers' Appraisals of NCHT's Mathematics Learning Outcomes by Years of Academic Preparation to Teach Mathematics in Haitian Creole

AMLO	Years of Academic Preparation to Teach Mathematics in Haitian Creole	
	Long Term	Short Term
Improving	8 (80%)	2 (20%)
Doing Poorly	2 (20%)	8 (80%)

Note: Long Term = Two years or more of training to teach mathematics in Haitian Creole. Short Term = No training or less than two years of training to teach mathematics in Haitian Creole. AMLO = Teachers' appraisals of NCHT learning outcomes. Improving = NCHT were appraised at Levels 2 or 3 in math. Doing Poorly = NCHT were appraised at Level 1 in math. Numbers in parentheses indicate column percentages.

$\chi^2(1) = 7.2, p < .01$

Table 6 shows that 80% of teachers with long-term preparation appraised NCHT as improving, compared to 20 percent of teachers with short-term preparation. In addition, 20% of teachers with long-term preparation appraised NCHT as doing poorly, compared to 80 percent of teachers with short-term preparation, $p < .01$. There is statistically significant evidence of an association between math teachers' years of academic preparation to teach math in Haitian Creole and their appraisals of NCHT learning outcomes.

Research Question #15: Is There an Association Between Math Teachers' Perceived Administrative Pressure to Prepare for High Stakes Testing and Their Instructional Endorsement of Haitian Creole?

The proportion of high-pressure teachers who declared strong endorsement in comparison to the proportion of high-pressure teachers who declared weak endorsement did not differ significantly, $p = 1$. There is no statistically significant evidence of an association between mathematics teachers' perceived administrative pressure to prepare for high stakes testing and their instructional endorsement of Haitian Creole.

Research Question #16: Is There an Association Between Math Teachers' Perceived Administrative Pressure to Prepare for High Stakes Testing and Their Appraisals of NCHT Learning Outcomes?

The proportion of high-pressure teachers who thought NCHT were improving in comparison to the proportion of high-pressure teachers who thought NCHT were doing poorly did not differ significantly, $p = 1$. There is no statistically significant evidence of an association between mathematics teachers' perceived administrative pressure to prepare for high stakes testing and their appraisals of NCHT learning outcomes.

Research Question #17: Is There an Association Between Math Teachers' Instructional Endorsement of Haitian Creole and Their Appraisals of NCHT Learning Outcomes?

Table 7
Results of Chi-square Test of Independence and Descriptive Statistics for Appraisals of NCHT Mathematics Learning Outcomes by Instructional Endorsement of Haitian Creole

AMLO	IEHC	
	Strong	Weak
Improving	7 (70%)	3 (30%)
Doing Poorly	3 (30%)	7 (70%)

Note: IEHC = Instructional Endorsement of Haitian Creole. Strong = IEHC is greater than or equal to 3.4. Weak = IEHC is less than 3.4. AMLO = Teachers' appraisals of NCHT learning outcomes. Improving = NCHT were appraised at Levels 2 or 3 in math. Doing Poorly = NCHT were appraised at Level 1 in math. Numbers in parentheses indicate column percentages.
 $X^2 (1) = 3.2, p = .07$

Table 7 shows 70% of strong-endorsement teachers compared to 30% of weak-endorsement teachers think that NCHT were improving. In addition, 30% of strong-endorsement teachers, compared to 70% of weak endorsement teachers think that NCHT were doing poorly, $X^2 (1) = 3.2, p = .07$. There is a marginally statistically significant evidence of an association between mathematics teachers' instructional endorsement of Haitian Creole and their appraisals of NCHT learning outcomes.

Qualitative Findings and Analysis

In this section, the researcher presents an overview of the interviewees' personal and professional background and reports findings from the interviews. She then conducted an analysis of the teachers' instructional endorsement of Haitian Creole in terms of its cognitive, behavioral, and affective components,

Interview Participants

Interviewee TE03

TE03 is a 31-40-year-old female teacher with less than ten years of experience teaching mathematics. She said that she had no fluency in Haitian Creole and said that she received no training to teach mathematics in Haitian Creole. She appraised NCHT mathematics learning outcomes at level 1. Findings from the quantitative analysis revealed that she declared weak instructional endorsement of Haitian Creole.

Interviewee TE08

TE08 is a 41-50-year-old male teacher who is highly fluent in Haitian Creole and has been teaching math for ten years or more. He received two years or more of academic preparation to teach math in Haitian Creole, and appraised NCHT mathematics learning outcomes at level 1. Findings from the quantitative analysis revealed that he declared strong instructional endorsement of Haitian Creole.

Interviewee TE12

TE12 is a female teacher with high fluency in Haitian Creole who is at least 51 years old. She has been teaching mathematics for ten years or more, and she received at least two years of academic training to teach math in Haitian Creole. She appraised NCHT mathematics learning outcomes at level 2. Findings from the quantitative analysis revealed that she declared weak instructional endorsement of Haitian Creole.

Interviewee TE13

TE13 is a 41-50-year-old male teacher who has been teaching math for ten years or more and is highly fluent in Haitian Creole. He received training for at least two years to teach mathematics in Haitian Creole and appraised NCHT mathematics learning outcomes at level 2. Findings from the quantitative analysis revealed that he declared strong instructional endorsement of Haitian Creole.

Interviewee TE14

TE14 is a male teacher who is at least 51 years old, and who has been teaching math for ten years or more. He is highly fluent in Haitian Creole and received at least two years of academic preparation to teach math in Haitian Creole. This teacher appraised NCHT mathematics learning outcomes at level 2. Findings from the quantitative analysis revealed that he declared strong instructional endorsement of Haitian Creole.

Interviewee TE18

TE18 is a female teacher who is at least fifty years old and has been teaching math for at least ten years. She said she had no fluency in Haitian Creole, and she received no training to teach mathematics in Haitian Creole. The teacher appraised NCHT mathematics learning outcomes at level 1. Findings from the quantitative analysis revealed that she declared weak instructional endorsement of Haitian Creole.

Interviewee TE19

TE19 is a 41 to 50-year-old female teacher with at least 10 years of experience teaching mathematics. She is highly fluent in Haitian Creole and has received at least two years of training to teach mathematics in Haitian Creole. She appraised NCHT mathematics learning

outcomes at level 2. Findings from the quantitative analysis revealed that she declared strong instructional endorsement of Haitian Creole.

Interviewees' Instructional Endorsement of Haitian Creole (IEHC)

The researcher used the IEHC questionnaire to gauge each teacher's level of endorsement of Haitian Creole. The researcher gauged their IEHCs qualitatively based on three components - cognitive, affective, and behavioral IEHC. The researcher considered teachers to declare strong cognitive IEHC if their statements suggested that new-comer Haitian teens understood mathematics better in Haitian Creole than in English, or that teaching mathematics in Haitian Creole helped NCHT's English language development. The researcher considered teachers to have strong affective IEHC if they made statements suggesting that they were comfortable with students communicating in Haitian Creole in their classrooms or that Haitian Creole was important when teaching NCHT. The researcher considered teachers to have strong behavioral IEHC if they made statements suggesting one of the following in their mathematics classrooms: NCHT use Haitian Creole to communicate with Haitian peers during classroom activities, they provide feedback to their new-comer Haitian teens in Haitian Creole, or they distribute materials that are written in Haitian Creole to their new-comer Haitian students during math lessons and activities.

She considered teachers to have weak cognitive IEHC if they made at least one statement suggesting that NCHT did not understand mathematics better in Haitian Creole than in English or that teaching mathematics in Haitian Creole did not help NCHT's English language development. The researcher considered teachers to have weak affective IEHC if they made at least one statement suggesting that they were not comfortable with students communicating in Haitian Creole in their classrooms or that Haitian Creole was not important when teaching

NCHT. The researcher considered teachers to have weak behavioral IEHC if they made at least one statement suggesting any of the following: in their mathematics classrooms, NCHT did not use Haitian Creole to communicate with Haitian peers during classroom activities; or they did not provide feedback to their new comer Haitian teens in Haitian Creole; or they did not distribute materials that are written in Haitian Creole to their new-comer Haitian students during math lessons and activities.

Determining Whether Interviewees Declared Strong or Weak IEHC

The researcher used the tabulate command in Stata, along with the iweight option, to calculate the importance weight of each component of each interviewee's IEHC. Importance weights, or iweights, help determine how important an observation is in an analysis. From the result, the researcher derived three coefficients that helped determine the highest possible value for each component of any interviewee's IEHC. These coefficients are .33, .39 and .28 for the cognitive, affective and behavioral IEHC, respectively. With 5 being the highest value on the IEHC scale, the highest values for the three components of any interviewee's IEHC were the following: highest cognitive IEHC = $.33 \times 5$ or 1.65, highest affective IEHC = $.39 \times 5$ or 1.95, and highest behavioral IEHC = $.28 \times 5$ or 1.4. In fact, $1.65 + 1.95 + 1.4 = 5$, which is the highest value an IEHC can have. The researcher excluded all weak components by setting them to zero and added the values of the strong components to obtain the strength of each interviewee's IEHC. Like the quantitative analysis, the researcher considered an IEHC weak if it was less than the median IEHC, which was 3.4. The researcher considered an IEHC strong if it was greater than or equal to 3.4. The researcher calculated the IEHC of any interviewee who declared weak cognitive IEHC by adding the highest affective to the highest behavioral IEHC, which was

1.95+1.4 or 3.35. Since 3.35 is less than 3.4, the researcher gauged as weak the IEHC of any interviewee whose cognitive component score was zero.

The researcher calculated the IEHC of any interviewee who declared weak affective IEHC by adding the highest cognitive to the highest behavioral IEHC, which was 1.65+1.4 or 3.05. Since 3.05 is less than 3.4, the researcher gauged as weak the IEHC of any interviewee whose affective component score was zero.

The researcher calculated the IEHC of any interviewee who declared weak behavioral IEHC by adding the highest cognitive to the highest affective IEHC, which was 1.65+1.95 or 3.6. Since 3.6 is greater than 3.4, the researcher gauged as strong the IEHC of any interviewee whose behavioral IEHC was the only component whose score was zero.

To summarize, the researcher gauged as strong the IEHCs of interviewees whose three IEHC components are strong or whose behavioral IEHC was the only zero component. The researcher gauged as weak the IEHC of any interviewee whose three IEHC components are weak or whose either affective IEHC or cognitive component score was zero.

Interviewees Who Declared Strong Instructional Endorsement of Haitian Creole

TE08's cognitive IEHC is strong because he explained that teaching in Haitian Creole helps NCHT understand the material and makes them feel less anxious. His affective IEHC is strong because he talked about his own experiences of anxiety as a newcomer himself in an English only classroom when he just came to the United States, and how important it is for teachers to communicate with NCHT in Haitian Creole so that the students feel comfortable and less anxious. His behavioral IEHC is strong because his statements suggest that he teaches and provides translation, materials, and feedback in Haitian Creole. Overall, TE08's IEHC is strong

because all three components of his IEHC are strong. These findings support those from the quantitative results that TE08 declared strong instructional endorsement of Haitian Creole.

TE14 declared strong cognitive IEHC because he argued that “[s]tudents could learn mathematics totally in Kreyòl. They don’t need the development of English fluency, which takes a long time. They could be learning mathematics in Kreyòl while learning English.”. He declared strong affective IEHC because he argued that NCHT have already acquired mathematical concepts in their home language and “translating into a new language is a demand that is made of the child and understanding the material in a new language is an additional demand.” His behavioral IEHC is strong because his statements suggested that he taught and provided materials and feedback in Haitian Creole. Overall, TE14’s IEHC is strong because all three components of his IEHC are strong. These findings support those from the quantitative results that TE14 declared strong instructional endorsement of Haitian Creole.

TE19 declared strong cognitive IEHC because she explained that using Haitian Creole to teach NCHT helps decrease misinterpretation and prevents the loss of meaning that occurs during translation. She declared strong affective IEHC because she said that she believed in using Haitian Creole in her classroom. She declared strong behavioral IEHC because her statements suggested that she taught and provided materials and feedback to NCHT in Haitian Creole. Overall, TE19’s IEHC is strong because all three components of her IEHC are strong. These findings support those from the quantitative results that TE19 declared strong instructional endorsement of Haitian Creole.

Interviewees Who Declared Weak Instructional Endorsement of Haitian Creole

TE03 declared weak cognitive IEHC because her statements did not suggest that teaching NCHT in Haitian Creole helped them with their English language development. Speaking of the

language to use for feedback, she said, "... but if you do it in just Haitian, then they are not learning the English component which I think they need to do better." She declared strong affective IEHC because her statement suggested that Haitian Creole translations help NCHT understand her lessons. Her behavioral IEHC is strong because her statement suggested that she planned seating arrangements that facilitated communication in Haitian Creole in her classroom. Overall, TE03's IEHC is weak because of her weak cognitive IEHC. These findings support those from the quantitative results that TE03 declared weak instructional endorsement of Haitian Creole.

TE12 declared strong cognitive IEHC because her statements suggested that NCHT understand math better in Haitian Creole than in English. In her comments regarding communication among peers in Haitian Creole in the classroom, she stated: "They can use Haitian Creole for understanding..." She declared weak affective IEHC because she was very restrictive in the way she viewed the importance of Haitian Creole in her classroom. She declared strong behavioral IEHC because her statements suggested that she paired NCHT to facilitate communication in Haitian Creole in her classroom and provided written feedback in Haitian Creole to NCHT. Overall, TE12's IEHC is weak because of her weak affective IEHC. These findings support those from the quantitative results that TE12 declared weak instructional endorsement of Haitian Creole.

TE13 declared weak cognitive IEHC because although he acknowledged that NCHT could learn math totally in Haitian Creole, he said that he did not see how teaching in Haitian Creole helped NCHT develop English fluency. His affective IEHC is weak because he did not view Haitian Creole as an important mode of communication in his classroom. He said that whenever he asks NCHT a question in Haitian Creole, he expects them to answer in English.

His behavioral IEHC is strong because he planned seating arrangements that facilitated communication in Haitian Creole. Overall, TE13 declared weak IEHC because of his weak affective IEHC. These findings did not support the quantitative results where TE13 declared strong instructional endorsement of Haitian Creole.

TE18 declared weak cognitive IEHC because she stated that NCHT did not understand assignments written in Haitian Creole. Her affective IEHC is strong because she said she did not mind if NCHT communicated in Haitian Creole in her classroom. Her behavioral IEHC is weak because her statement suggested that she did not teach or distribute materials which were written in Haitian Creole. Overall, TE18's IEHC is weak because of her weak cognitive and behavioral IEHC. These findings support those from the quantitative results that TE18 declared weak instructional endorsement of Haitian Creole.

Interviewees' Performance Approach to Instruction

Five out of the seven interviewees preferred a high-performance approach to instruction, regardless of whether they declared strong instructional endorsement of Haitian Creole or not. These findings confirm the quantitative results, suggesting that there is no statistically significant evidence of an association between teacher's performance approach to instruction and their IEHC.

Ames and Archer (1988) suggested that people who were performance goal oriented were concerned with the judgments that others made of their ability. TE03's, TE12's, and TE19's statements suggested that they were involved with preparing NCHT so that they could demonstrate their competence via standardized exams. TE08 used the students' levels of performance on standardized tests as a guide to form mixed groups in his classroom. TE13 aimed to help NCHT develop their English fluency so that they could prove their math

competence to their classmates. “He explained: I push them to explain with whatever level of English that they can, so that the others can see that not speaking English doesn’t mean being stupid.”

Interviewees’ Personal Teaching Efficacy

All seven interviewees, whether they declared strong instructional endorsement of Haitian Creole or not, had high personal teaching efficacy. This confirms the quantitative findings that suggested no statistically significant association between teachers’ personal teaching efficacy and their instructional endorsement of Haitian Creole. According to Bandura (1993), “[t]eachers' beliefs in their personal efficacy to motivate and promote learning affect the types of learning environments they create and the level of academic progress their students achieve” (p.117).

TE08’s support to NCHT includes heterogeneous grouping, teaching in Haitian Creole, providing feedback in Haitian Creole, and translating assignments into Haitian Creole on days when he presents lessons in English. He raised the issues surrounding the placement of NCHT in English-only settings and argued that these students cannot learn in a language that they do not understand, for that may make them anxious. He expressed the need for NCHT to have teachers who are fluent in Haitian Creole. His view is shared by Nicolas et al. (2008) who explained that students experience educational withdrawal as a way to cope with “stressful school environments in which they fe[lt] powerless to change the offending situation” (p. 274).

TE14’s support for NCHT includes providing instruction and feedback in Haitian Creole, facilitating transfer of students’ knowledge into English, and providing student centered instruction. He found from his practice, that the NCHT life experience shapes the way they learn mathematics. He explained that there are many of his NCHT who could solve very complex

math problems mentally and could provide the answer verbally in Haitian Creole, but when asked to solve the same problems with pen and paper, they were unable to do the work. TE19's support to NCHT includes providing instruction and feedback in Haitian Creole and facilitating transfer of students' knowledge into English.

TE03's support to NCHT includes sitting them with Haitian students who are fluent in both English and Haitian Creole and having paras translate assignments into Haitian Creole so that the material is accessible to the NCHT in both languages. She raised an issue about the middle school math curriculum translated fully into Spanish, but partly into Haitian Creole, and addressed the need for the full Haitian Creole version to be available. She has a structure in class that encourages NCHT to develop fluency in English. Every time a NCHT participates in a class discussion and says something in English, the entire class applauds.

TE12's support to NCHT includes writing feedback in both languages, differentiated instruction, providing NCHT with visuals and manipulatives, pairing them up, peer tutoring and scaffolding. TE13's support to NCHT includes verbal feedback in both English and Haitian Creole, translation into both English and Haitian Creole, pairing NCHT with a Haitian student who is fluent in both English and Haitian Creole, providing NCHT with remedial assignments based on needs, adapting the curriculum to meet the needs of NCHT who have interrupted formal education (SIFE), and peer tutoring. TE18's support for NCHT is the same for all students. She assesses all students four times during the school year, and, based on the results, she customizes their assignments.

Peer-to-Peer Communication During Classroom Activities

While all interviewees concurred that NCHT need to develop English fluency, those who declared strong IEHC differed from interviewees who declared weak IEHC regarding the role

that Haitian Creole plays in the classroom. Interviewees who declared weak IEHC viewed Haitian Creole as a temporary mode of communication that these students use until they can communicate in English.

Among those who declare strong IEHC, TE08 argued that NCHT do not understand what is going on in a classroom where teachers teach in English and they are anxious, scared, and uncomfortable. TE19 claimed that Haitian students benefited from communicating in Haitian Creole, and that they use examples that are culturally relevant to understand mathematical concepts. TE14 argued that teachers should use Haitian Creole in the classroom when teaching NCHT.

Among those who declared weak IEHC, TE03 viewed NCHT's lack of English fluency as a barrier that prevented them from learning mathematics. Allowing NCHT to communicate with peers in Haitian Creole, in her view, can help remove that barrier. She explained that they are learning math and learning English as well. She added that teachers should use both languages - English and Haitian Creole - to remove the language barrier. TE12 expressed her support for NCHT to communicate in Haitian Creole in the classroom to understand what is presented in English, which, in her opinion, is the academic language that NCHT need to develop to communicate their understanding of math. TE13 stated that communication among peers in Haitian Creole does not always work. He argued that it works when the students are at the same level academically and have a good background in math. But, if the NCHT lacks adequate academic preparation in math, the student who is fluent in both English and Haitian Creole, who is paired with the NCHT, ends up not learning much. TE18 said she did not mind if NCHT communicate in Haitian Creole if that helps them to understand the lessons she presented in English.

Teaching English While Teaching Math

The statements of teachers who declared strong IEHC - TE08, TE14, and TE19 - suggested that they taught math in Haitian Creole and helped students make the transfer into English through lessons and feedback. On the other hand, the statements of teachers who declared weak IEHC suggested that they provided instruction only in English. Among those who are fluent in Haitian Creole, TE12 provided written feedback in both English and Haitian Creole, and TE13 provided oral translations into Haitian Creole during his lessons. Between the two interviewees who are not fluent in Haitian Creole, TE03 relied on students who are fluent in Haitian Creole to provide oral translations or available paras to provide written translation of assignments or feedback.

TE03, TE12, and TE13 believed that they should expose NCHT to English so that they would learn mathematics. TE03 said, “[I]t is about thinking about mathematical concepts and trying to convey your ideas. And the more you speak a foreign language, the easier it is for you to learn it.” These three teachers pair NCHT with a student who speaks both languages. They aim to help NCHT develop competence in both English and math. TE13 explained: “As a math teacher, you are doing two things: you want them to grasp the concepts you are teaching, and at the same time, you want them to pick up the language [English].” TE03 and TE12 are teaching English while teaching math because they want to prepare the students for standardized exams. TE03 explained:

“[H]elping them to develop academic language in English and their fluency in English, I think would serve them well because when they start to take their exams, they have to explain these concepts -it’s a lot of reading, I need to help them be able to meet that challenge.”

Feedback in Haitian Creole

The interviewees differed in their ability to provide feedback in Haitian Creole to NCHT. Interviewees who were academically prepared to teach mathematics in Haitian Creole for two years or more (long-term) did not need help to provide feedback to NCHT in Haitian Creole. These teachers were native speakers who said that they are fluent in Haitian Creole. They received training to teach NCHT. TE08, TE14, and TE19's statements suggested that they presented lessons and provided feedback to NCHT in Haitian Creole. TE12 preferred to write her feedback in both English and Haitian Creole, and TE13 said that he gave oral feedback in Haitian Creole during his lessons.

On the other hand, the interviewees who were not academically prepared to teach mathematics in Haitian Creole (short-term) needed help with translation to provide feedback or were unable to provide feedback in Haitian Creole to NCHT. The short-term category included participants who either received no training or less than two years of training. These interviewees said that they were not fluent in Haitian Creole and that they did not receive training to teach NCHT. TE03 said that she used the help of a paraprofessional, when available, to translate into Haitian Creole feedback that she had written in English for NCHT. TE18 said that she was unable to provide feedback to NCHT in Haitian Creole because she was not fluent in the language. Combs et al. (2005) found that English monolingual teachers who were teaching ELLs "felt particularly handicapped because in addition to feeling unprepared for this sort of teaching, they could not understand or make themselves understood to many of their students" (p. 715).

Math Learning Outcomes: A Language Thing

There is a difference between interviewees' views concerning the reasons why some NCHT do well, while others do poorly, in math. Interviewees who perceived that they were under high levels of administrative pressure to prepare their students for high stakes testing explained NCHT success or failure in terms of innate abilities or outside factors, such as, previous schooling background. Interviewees who perceived a low level of administrative pressure attributed these students' success or failure to language.

Two of the high- pressure interviewees - TE03 and TE12 - said that the reason why some NCHT are improving, while others are doing poorly in math, has to do with the students' ability. They argued that some students are good at math and others are not. These teachers believed that their student's intelligence was fixed (Blackwell et al., 2007). They had a fixed mindset (Dweck, 2006). People with a fixed mindset tend to seek performance goals to gain positive judgments or avoid negative judgments. They tend to avoid risk and show a low level of persistence (Blackwell et al., 2007; Dweck, 2006).

The other three high-pressure interviewees - TE13, TE14, and TE19, said that these students' schooling background from Haiti had much to do with their success or failure in math. TE13 added that the support NCHT have at home from parents and siblings, their work ethic, and the goals these students set for themselves play a role in their success or failure.

The low-pressure interviewees - TE08 and TE18 - attributed the NCHT's outcomes to language. TE18 explained: "...the others that are doing poorly, I think: ... it's a language thing because they probably don't understand. So, if you don't understand the question, then you can't answer it to the best of your ability." Her comments addressed a long researched and debated issue regarding the importance of the student's home language in their education (Cerat, 2011; Collier, 1995; J. Cummins, 1992; DeGraff & Ruggles, 2014; Dejean, 2010; García et al., 2011;

Ovando, 2003; Rossell & Baker, 1996; Skutnabb-Kangas, 2000, 2004; Thomas & Collier, 1997; Willig, 1985). For example, Collier (1995) found that “the most significant student background variable was the amount of formal schooling students have received in their first language” (p.7). She added that when students received their education in a second language, they did well in early years up to second or third grade. But as they moved to higher grade levels and faced increased cognitively demanding tasks, students with little or no academic development in their first language did less and less well.

Summary

In this chapter, the researcher conducted a quantitative and qualitative analysis of the data collected from twenty middle school math teachers who were teaching NCHT in New York and Florida. Among the twenty teachers who completed the survey, seven of them completed interviews. Of those interviewed, one teacher completed the interview online, three teachers participated in telephone interviews, and three teachers participated in face-to face interviews.

The researcher used four scales in the survey: the scales for mastery approach to instruction, performance approach to instruction, personal teaching efficacy (Midgley et al., 2000), and instructional endorsement of Haitian Creole, which the researcher designed for this study. Using the data from this study, the researcher found that the MAI scale was unreliable. Consequently, she removed the MAI scale from the analysis.

The researcher conducted tests of independence using Chi-square when less than 20% of the cells in the crosstabs had expected frequencies that were less than five. Otherwise, she used the Fisher exact test. She reported the results, along with the crosstabs, when the findings were either statistically significant ($p < .05$), or marginally statistically significant ($p < .1$).

Of the seventeen tests conducted she found statistically significant evidence of associations between mathematics teachers' fluency in Haitian Creole and their instructional endorsement of Haitian Creole, between mathematics teachers' fluency in Haitian Creole and their appraisals of NCHT learning outcomes, between mathematics teachers' years of experience and their instructional endorsement of Haitian Creole; between mathematics teachers' years of academic preparation to teach math in Haitian Creole and their instructional endorsement of Haitian Creole, and between math teachers' years of academic preparation to teach math in Haitian Creole and their appraisals of NCHT learning outcomes. In addition, she found that there was marginally statistically significant ($p = .07$) evidence of an association between mathematics teachers' instructional endorsement of Haitian Creole and their appraisals of NCHT learning outcomes.

She conducted a qualitative analysis to explore further the teachers' IEHC through its three components – cognitive, affective and behavioral. She found that one interviewee who declared strong IEHC quantitatively declared weak IEHC qualitatively. She found that interviewees who received academic preparation to teach math in Haitian Creole for two years or more did not need help with translation to provide feedback in Haitian Creole. On the other hand, interviewees who received no academic preparation to teach math in Haitian Creole either needed help with translation to provide feedback or did not provide feedback in Haitian Creole to NCHT.

The researcher found that most of the participants appraised NCHT mathematics learning outcomes at levels 1 or 2. She also found that interviewees who perceived that they were under high levels of administrative pressure to prepare their students for high stakes testing explained NCHT's failure in terms of innate abilities or outside factors. On the other hand, interviewees

who perceived low levels of administrative pressure attributed these students' success or failure to language.

In addition, she found that teachers with strong IEHC who were teaching NCHT focused on teaching them math in Haitian Creole and facilitated the transfer into English through lessons and feedback. On the other hand, teachers with weak IEHC expressed the need to teach English while teaching math. Two of them wanted to prepare the students in both English and math so that they would do well on state exams. One interviewee was concerned that no one had fully translated the curriculum into Haitian Creole, as was done in Spanish. One interviewee was concerned with the stigma NCHT faced for not speaking English. All four interviewees who declared weak IEHC viewed Haitian Creole as a temporary mode of communication. Finally, the researcher found that regardless of whether teachers declared strong or weak IEHC, all seven interviewees stated that there was much that teachers can do to help NCHT do well in math.

A discussion and conclusion will follow in chapter V.

CHAPTER V

DISCUSSION AND CONCLUSION

This chapter discusses the findings of the research whose purpose was to explore whether there was an association between middle school math teachers' personal and professional background and constructs and their appraisals of NCHT's learning outcomes. The researcher began the chapter by discussing the findings from two perspectives – teaching and learning and psychosocial. She continued with an overview of the limitations of the research and considerations for future study. She ended with an overview of the benefits of the research, followed by the study's conclusion.

Teaching and Learning Perspective

Performance Approach to Instruction and Personal Teaching Efficacy

In both the qualitative and quantitative analyses, 90 percent of the participants chose the high performance approach to instruction and 85 percent chose the high personal teaching efficacy, whether they declared a strong IEHC or not. A performance approach to instruction (PAI) refers to teacher strategies that convey to students that the purpose of engaging in academic work is to demonstrate competence. Personal teaching efficacy (PTE) refers to teachers' beliefs that they are contributing significantly to the academic progress of their students and can effectively teach all students. The researcher defined teachers' instructional endorsement of Haitian Creole (IEHC) as an instructional approach that promotes or discourages the use of Haitian Creole in classroom activities. The researcher assumed that the stronger the IEHC, the more the teachers would create opportunities for their students to use Haitian Creole. The weaker the IEHC, the less teachers create such opportunities.

In the study, one interviewee who declared strong IEHC used the students' levels of performance on standardized tests as a guide for mixed groups in his classroom. Two interviewees who declared weak IEHC and one interviewee who declared strong IEHC made statements suggesting that they were preparing NCHT so that they could demonstrate their competence via standardized exams. There is a need for research on the relationship between strong or weak IEHC teachers who are preparing NCHT for high stakes testing, and their performance approaches to instruction.

The Removal of Mastery Approach to Instruction From the Analysis

Mastery approach to instruction refers to teacher strategies that convey to students that the purpose of engaging in academic work is to develop competence (Midgley et al., 2000). The researcher chose the MAI scale as she did the PAI and the PTE scales, not only because their published alphas were adequate, but also because Midgley et al. (2000) reported that these three scales have been refined and tested at all levels from elementary to high school with teacher samples that included 30% minority, who were mostly African American. These scales were well suited for this study because they were based on theoretical models that focused on classroom practices. Most available scales are based on theories suggesting that students' achievement goal orientations originated from within (Dweck & Leggett, 1988; Elliot & McGregor, 2001; Elliott & Dweck, 1988; Harackiewicz, Barron, Tauer, & Elliot, 2002). On the other hand, the scales that the researcher used for mastery approach to instruction, performance approach to instruction, and personal teaching efficacy (Midgley et al., 2000) are based on theories suggesting that students' achievement goal orientation originated from their classroom and school environments. Midgley et al. (2000) listed several researchers who conducted studies in middle school settings using these scales.

Given that investigators should not rely on published alpha estimates and should measure alpha each time the test is administered (Streiner, 2003; Tavakol & Dennick, 2011), the researcher calculated alpha for MAI, PAI, and PTE. Also, she calculated alpha for the IEHC questionnaire that she constructed. She found that the scales for PAI, PTE and IEHC were reliable, but the scale for MAI was not. The low value of alpha may be because the MAI scale has four items, and a small number of items can underestimate reliability (Graham, 2006; Tavakol & Dennick, 2011). Or it may also be because the researcher kept the four questions of the MAI questionnaire together instead of scrambling them among the other questions in the survey. This may have caused social desirability bias to affect the teachers' responses. Fisher (1993) defined social desirability bias as "systematic error in self-report measures resulting from the desire of respondents to avoid embarrassment and project a favorable image to others" (p. 30). The researcher did not modify the scale because the permission that she obtained for the scale did not include an option to make modifications. Therefore, the researcher removed the MAI scale from the analysis.

Teachers' Support and the Absence of Technology

Most of the participants' responses suggested that there is much that they can do to help NCHT achieve success in math. The interviewees suggested many ways to help NCHT, including the use of calculators, manipulatives, pairing, peer tutoring, and so forth. But, none of the interviewees mentioned technology. Kramer-Vida (personal communication, 2017) suggested that there may be several reasons for such an omission. She posed that it may be because the researcher did not ask a question that would generate such a response. Maybe technology is not available in the interviewees' schools. Maybe these teachers need professional development to use technology in their lessons. Maybe they must do what their administrators or

the Board tell them. The best-case scenario would be that the interviewees used technology, but did not mention it in their answers because of the nature of the question. Otherwise, the omission of technology is an area of concern considering how education has shifted in the twenty-first century.

One teacher mentioned that she assessed the students four times during the year and used the results to customize the assignments she gives to her students. This is an old practice in which teachers provide instruction in accordance with a set guideline and a given schedule. At the end of each learning cycle, the teacher evaluates the students and uses the resulting data to classify or rank the students. Reigeluth (2012) addressed the obsolete nature of this approach. He argued that current educational systems need to evolve from a design that was meant for the industrial age to a new design that meets the demands of the information age. He proposed a system that would no longer focus on sorting students, but would rather serve to help maximize their learning. In this new paradigm, teachers are designers of learning tasks who use technology to customize individual learning plans for their students. In this system, students are not passive receivers of knowledge, but are actively working towards attaining a specific goal. This new paradigm revolutionized the role of assessment.

Assessment should serve to help students know how they are doing and where to improve. It should be designed to allow students to assess themselves several times until they see that they have developed mastery of the concepts beyond the surface level that multiple-choice test items typically assess. The Mathematics Association of America is currently hosting online an open source tool for math called WebWork. Educators from all over the United States contribute math questions that are mostly open-ended. As students complete problems that their teachers assigned and enter their responses, the software provides feedback to let them know

whether their response is right or wrong. Students whose answers are wrong are not penalized in any way if their teachers give options to try several times. They can return and revisit their understanding of the material until they get it right. A Haitian Creole question bank on WebWork may be a low-cost option that could serve NCHT well.

In addition, Google has an online tool that helps teachers create interactive lessons and assessments that allow their students to explore, create, collaborate, and acquire knowledge at their own pace. Math lessons that give NCHT the opportunity to create their own Google Slides, for example, where these students can explain mathematical concepts in Haitian Creole and in English, can be more effective than traditional classroom routines because they would capitalize on NCHT's inner motivational resources (Reeve, Deci, et al., 2004b). Reeve and Halusic (2009) proposed that lessons and activities that capitalize on students' inner motivational resources facilitated students' motivation and engagement, which may lead to academic achievement. There is, thus, a need for policies that support the development of adaptive online open source math resources for NCHT, including well-designed math video games.

Gee (2005) proposed, among other features, that well-designed video games should be customizable and interactive, with options for risk-taking. Problems in the games should be well ordered in increasing degrees of challenge that are "pleasantly frustrating" (p. 36). The interactive features of a well-designed math video game should assist students by providing immediate feedback that helps them correct their misconceptions on their own or with their peers, without a teacher' intervention. Well-designed educational video games may help mathematics teachers resolve many complex issues regarding the provision of individualized support for NCHT, including timeliness and relevance of feedback. A gaming environment may be useful by helping NCHT reach adequate levels of mastery of both math and English at their

own pace. Plass et al. (2013) found that students focused on mastery goals while collaboratively playing a math video game. Ke and Abras (2013) found that math video games that have adaptive features and provide visual cues and feedback help students develop mathematical concepts. They proposed that “a game world that appeals to students with diverse learning needs seems to be the one that comprises a simple fantasy with instant and ever-present reward” (p. 239). They suggested that the game have adaptive features and provide visual cues and feedback to help students experience increasing levels of success as they develop mathematical concepts. Ke and Grabowski (2007) reported an “... overall significant effect of game playing on participants’ math performance and math attitudes” (p.254).

Pairing Students

One interviewee found that pairing NCHT with students who are fluent in both English and Haitian Creole can be beneficial only when both students have a good academic background, but that pairing can be detrimental to the English-speaking student if s/he is paired with NCHT who are struggling academically. Henry (personal communication, 2017) found that pairing was successful when he facilitated friendships between English/Spanish speaking students who were studious and a high achieving Spanish speaking newcomer in a middle school setting. Maybe pairing works for average and above average students, but not for students who are struggling academically. Three interviewees said that they paired NCHT with students who are fluent in both English and Haitian Creole so that the student who is fluent in English could help NCHT by translating what is presented in English in class. This type of setting is problematic for the following reasons: These English-speaking students may need help understanding the materials themselves before they can provide a translation because, in recent years, few Blacks/African Americans were scoring at levels three and four in mathematics (NYSED, 2016b, 2017d). The

researcher found from her practice as a former translator of curriculum materials and Regents' exams for the New York State Education Department that teams translate academic texts more accurately than individuals. She also found that good quality translation in academic context involves two steps: first, the academic text is translated; next, the translated version is translated back into the original language to produce a text that is very similar in meaning to the original text. Therefore, academic translation should not be the job of a student.

Math Learning Outcome: A Language Thing

The researcher found that interviewees who perceived that they were under high levels of administrative pressure to prepare their students for high stakes testing explained NCHT's success or failure in terms of innate abilities or outside factors. On the other hand, interviewees who perceived low levels of administrative pressure attributed these students' success or failure to language. One interviewee who declared strong IEHC argued that it is important for teachers who are teaching NCHT to be fluent in Haitian Creole. From the researcher's past experience as a bilingual math teacher in the U.S., she found that her fluency in Haitian Creole helped her to communicate effectively with Haitian new-comers and to accurately gauge the students' areas of strengths and weaknesses in mathematics. It also helped her new-comer Haitian students to understand the lessons and actively participate in classroom activities without concerns about their limited fluency in English. It may be difficult for teachers who do not speak Haitian Creole to teach NCHT. Combs et al. (2005) found that English monolingual teachers who were teaching ELLs "felt particularly handicapped because in addition to feeling unprepared for this sort of teaching, they could not understand or make themselves understood to many of their students" (p. 715). One interviewee who declared weak IEHC and who is not fluent in Haitian

Creole explained that NCHT who are in mainstream classroom may be failing in math because they don't understand English.

Instructional Endorsement of Haitian Creole

It is important for teachers who teach NCHT to have strong instructional endorsement of Haitian Creole because the present study shows that interviewees who declared strong IEHC felt that NCHT learned the lessons better in Haitian Creole than in English. On the other hand, interviewees who declared weak IEHC viewed Haitian Creole as a temporary language that helped NCHT understand what their teachers taught in English. Regardless of the type of program NCHT are enrolled in - transitional bilingual education, dual language programs, or ENL, it is important for teachers to know how important Haitian Creole is in NCHT's education. One interviewee who declared strong IEHC expressed his concerns about teaching NCHT in English:

“If you are teaching Haitian kids who just came to this country and don't speak English, and you only communicate with them in English, ..., they are at a disadvantage; they are going through a lot of anxiety; they are scared; they are uncomfortable; and they are not learning.”

NCHT are at a disadvantage when their teachers teach them in a language that they do not understand. The language barrier keeps them from full participation in classroom discussions and other cognitively and linguistically demanding classroom activities. Speaking of the disadvantages of learning in a new language, an interviewee who declared strong IEHC explained: “translating into a new language is a demand that is made of the child, and understanding the material in a new language is an additional demand.” Teachers with strong cognitive IEHC felt that teaching mathematics in Haitian Creole helped NCHT with their

English language development. One teacher with strong cognitive IEHC explained that “[the students would learn the concept in Kreyòl, and they would make the transfer into English”.

Math teachers who declare strong affective IEHC made statements suggesting that they were comfortable with students communicating in Haitian Creole in their classrooms. Their statements also suggested that they felt that Haitian Creole was important when teaching NCHT. One teacher who declared strong affective IEHC said that “It’s more important that the student [NCHT] understands exactly what the teacher is saying, and Kreyòl is the medium by which these students [NCHT] understand better what is being taught.”

Math teachers who declared strong behavioral IEHC said that they encouraged peer-to-peer communication in Haitian Creole during classroom activities. They said that they provided feedback to their students in Haitian Creole. They agreed that they distributed materials written in Haitian Creole to their new-comer Haitian students during math lessons and activities.

Participants’ Years of Experience Teaching Mathematics

The results suggest that there is evidence of a relationship between teachers’ years of experience teaching math and the strength of their IEHC. This infers that more experienced teachers may be more aware than less experienced teachers of the importance of Haitian Creole in NCHT’s understanding of the materials they are teaching. It also suggests that more experienced teachers are more likely than less experienced teachers to identify Haitian Creole resources that could help NCHT do well in math. The findings imply that schools should modify their placement policies so that NCHT have experienced educators teaching their courses.

Participants’ Fluency in Haitian Creole

The researcher found that mathematics teachers’ fluency in Haitian Creole varies with the strength of their instructional endorsement of Haitian Creole. This implies that teachers who are

more fluent in Haitian Creole may be more able to communicate with NCHT and provide timely feedback than teachers who are less fluent. She also found that mathematics teachers who were more fluent in Haitian Creole appraised NCHT learning outcomes at a higher level than teachers who were less fluent in Haitian Creole. Two of the interviewees addressed the need for teachers who are teaching NCHT to be fluent in Haitian Creole. With such fluency, teachers are better equipped to understand the student's level of understanding or misconceptions. It allows them to provide and receive adequate feedback more accurately. These findings imply that schools should consider assigning NCHT to teachers who are fluent in Haitian Creole.

Participants' Academic Preparation to Teach Math in Haitian Creole

Findings from this research revealed that it is important for teachers who are teaching NCHT to be academically prepared to teach mathematics in Haitian Creole. Such preparation not only helps teachers in the planning and delivery of instruction, but also shapes their attitudes toward Haitian Creole. The researcher found statistically significant evidence that mathematics teachers' years of academic preparation to teach math in Haitian Creole relates to their instructional endorsement of Haitian Creole. Teachers who receive two years or more of academic preparation to teach math in Haitian Creole declare strong IEHC, as opposed to teachers who did not receive such preparation. Teachers who declare strong IEHC are more likely to use Haitian Creole resources to teach NCHT, which can help these students better understand the lessons they are teaching. The researcher found statistically significant evidence that math teachers' years of academic preparation to teach math in Haitian Creole relate to their appraisal levels of NCHT learning outcomes. Teachers who are more prepared to teach math in Haitian Creole appraised NCHT's math learning outcomes at a higher level than teachers with less or no such preparation. Furthermore, interviewees who received academic preparation to

teach math in Haitian Creole for two years or more did not need help with translation to provide feedback in Haitian Creole. On the other hand, interviewees who did not receive academic preparation to teach math in Haitian Creole either needed help with translation to provide feedback or did not provide feedback in Haitian Creole to NCHT. This implies that, ideally, requirements for teacher certifications should include a minimum of two years of academic preparation to teach math in Haitian Creole for middle school math teachers who intend to teach NCHT.

Teaching English While Teaching Math

Among the four interviewees with weak IEHC, three were teaching English while teaching math. One teacher was motivated to teach English while teaching math to reverse the stigma associated with NCHT's lack of fluency in English. His statements suggested that students who were native speakers of English viewed NCHT as being 'stupid' for not knowing English. This issue motivated him to teach NCHT as much English as possible while teaching them math. Two interviewees were teaching English while teaching math because they wanted the students to develop English fluency to do well on the state math exam. These teachers' expectation may lead to disappointment because it takes several years to develop academic fluency in a second language. This shows how important it is for school administrators to know about the strength of their teachers' IEHC to identify areas of need for professional development. Although these teachers seemed to have good intentions, they were trying to solve these important issues the wrong way. One issue dealt with school bullying, where one group of children affected another group of children's self-esteem. The other issue related to policies that expect students who do not understand English to take math exams in English. Resolving these issues requires efforts from school administrators to understand that they should design

school policies that promote an environment where NCHT feel welcome. It also indicates that policy makers need to understand that NCHT need several years to develop academic fluency in English.

Schools where NCHT are in attendance should consider shifting their policies toward teaching math and developing non-punitive assessment in Haitian Creole. In this context, NCHT would be able to easily participate in discussions that require a deeper level of understanding, rather than face language obstacles.

There is a wealth of online resources that can help students learn English while learning math at their own pace such as math lessons by the Khan Academy or Phet math simulations by the University of Colorado. For example, teachers may consider facilitating the development of a friendship between NCHT and students who are proficient in both English and Haitian Creole so that they could create time after school or on weekends to learn math lessons together using Khan Academy. As a follow up, NCHT may consider repeating the same lesson to increase their understanding of the new mathematical concepts at their own pace and to develop proficiency in English in the process. This differs from the process of teaching English while teaching math for two reasons: (a) in the classroom, the amount of time the teacher has available to provide explanation, clarification, or translation to NCHT is limited because they have more material to teach and other students to attend to; and (b) NCHT can replay a lesson that is available in English online over and over to fully understand the material. This process is important because Abedi and Herman (2010) found that ELL students had to take on the “challenges of learning English and U.S. culture, in addition to learning the academic content of subject matter curriculum” (p. 725). This option is not ideal for a student who is new to English, but it serves them better than the English-only classroom experience. Another good option is to have

interactive lessons available online in Haitian Creole. This would allow NCHT to develop a deeper level of understanding of the material because language learning would not interfere. One interviewee was concerned that her curriculum was fully translated into Spanish, but only partially into Haitian Creole. This researcher feels that there is a need to not only make these resources available, but also to make Haitian Creole online resources, including math video games, math simulations, and other activities, available and accessible to NCHT and their parents.

Psychosocial Perspective

Haitians who just arrived in the United States have limited access to information and guidance to navigate this country. These immigrants typically come to the U.S. with various assumptions, coupled with high expectations. Many new immigrant Haitian parents think that all schools are equally capable of preparing their children to succeed academically and achieve social mobility. But studies have found that new immigrant Haitian students face many challenges that have a negative impact on their achievement (Suárez-Orozco, Suárez-Orozco, et al., 2009). For example, one interviewee's statements suggested that student who were native speakers of English viewed NCHT as being 'stupid' for not knowing English. And some interviewees in the study held deficit views of NCHT's home language. Not only is Haitian Creole important for the NCHT academically, it is part of these students' psychological need for relatedness. Relatedness has to do with the students' need for closeness to others, such as, teachers, peers, and so on. Reeve, Deci, et al. (2004a) proposed that students tended to connect to people they thought cared about them, respected them, and embraced their values.

There are many not-for-profit organizations that are helping the Haitian community navigate their way into the new educational system through small programs, such as, ESL courses, GED courses, after school programs, radio broadcasts, legal services, and so on. But most of these programs operate independently. They do not fully address the long-term needs and vision of the U.S., which is to prepare its citizen to compete in a global economy.

There is a need for an organization to create a school-based program whose role is to understand the issues that NCHT and their families are facing from various perspectives. Such a program should provide the school community with technical support that helps to change the attitudes of teachers, administrators, and staff toward Haitian Creole at the school level. Such an initiative would serve to promote a more welcoming environment at the school level for NCHT and their families. Through the school-based program, the organization should help articulate the needs of these students and challenge the negative impact of new policy decisions when parents are not well informed to advocate on behalf of NCHT.

Limitations and Implications for Future Research

This research design has limitations. In this study, the researcher focused on teachers of new-comer Haitian teens. These students come to the U.S. with fluency in Haitian Creole. In Haiti, these students aspired to develop fluency in French to advance academically. Upon entrance into the U.S. school system, these students must shift their linguistic aspiration from French in Haitian schools to English in U.S. schools. In addition, in the school systems in the U.S., there are students from several language groups, such as, Urdu, Jamaican Creole, or Spanish. The study did not focus on teachers' instructional endorsement of these languages. Future research is needed to discover similarities and differences between teachers' instructional

endorsement of Haitian Creole in comparison with their instructional endorsement of other new-comer students' home languages.

The researcher has chosen to work with a small sample size of 20 teachers to protect the respondents' confidentiality. Since there is a limited number of middle school math teachers who are teaching NCHT, the researcher included ten teachers from the state of New York and ten teachers from the state of Florida. This will make it very difficult for the reader of this study to guess which participant provided the data. Although the sample size is small, it is acceptable for this study because of the use of chi square and the Fisher exact test. However, in future studies, a larger sample obtained by random sampling techniques would be more appropriate to insure generalizability. Also, the researcher conducted interviews with seven participants on a one-to-one basis. Future studies should consider conducting focus groups as part of the design.

The variable that represents teachers' academic preparation to teach mathematics in Haitian Creole gauged the numbers of years, but not the content and quality, of participants' training. Nor did it measure the teacher's preparation to teach mathematics as a subject. Future research is needed to explore the relationship between the teachers' academic preparation to teach mathematics and their instructional endorsement of Haitian Creole.

This researcher relied on teachers' self-reports of fluency in Haitian Creole, approaches to instruction, and personal teaching efficacy. Social desirability bias may have affected their responses. A future research design with more accurate means of data collection, such as, teachers' endorsement licenses, teachers' certification to teach mathematics in Haitian Creole, and so on, may improve the accuracy of the findings.

The statistical techniques (chi square and fisher exact tests) are not precise, but acceptable, because of the use of 2X2 and 3X2 contingency tables. Chi square and the Fisher

exact test only show evidence of an association between two categorical variables. Future research with a larger sample size and randomization is needed, not only to confirm the associations, but also to determine the strength and direction of such associations if they exist.

The interviewees revealed many aspects of their practices, such as, teaching English while teaching math, teaching in Haitian Creole, providing translation, and so forth. But none of them mentioned the practice of translanguaging. Baker (2011) defined translanguaging as “the process of making meaning, shaping experiences, and gaining understanding and knowledge through the use of two languages. Both languages are used in a coherent way to organize and mediate mental processes of learning” (p. 288). Many researchers, including Baker (2011), García and Kleifgen (2010), and García, Flores, and Chu (2011), among others, found that immigrant students who are new to English benefit cognitively and linguistically from classroom practices that promote translanguaging. Research is needed to study the IEHCs of teachers who promote translanguaging in comparison to the IEHCs of those who do not promote such practice in their classrooms.

Teachers in the study are from an urban setting. Future studies should consider including teachers in rural and suburban communities where NCHT reside. Also, the research focused only on math teachers of new-comer Haitian teens. Future research is needed to study the instructional endorsement of Haitian Creole of teachers who teach other subjects, such as, science or social studies. Investigators should also consider studies that compare the IEHCs of teachers of new-comer Haitian students in various school environments, including early childhood (birth - grade 2), grades 3-5, high school, vocational programs, and post- high school colleges and universities. In addition, there is a need to study the IEHC of teachers who are teaching students with interrupted formal education (SIFE). Moreover, the teachers’ responses

may have been reactive to the situation they are in, given the context of their school culture. For example, administrators' pressure about high stakes testing accountability may supersede the teachers' own professional opinion about whether they declare strong or weak IEHC. There is also a need for research on teachers' IEHC as it relates to school culture. Furthermore, a study of new-comers' motivation to learn in relation to a school's IEHC would be a compelling line of inquiry. The math focus of the research also affects the generalizability of the findings. Beyond math, there is a dearth of research available on this topic. Despite noted limitations, definite benefits of the study outweigh the scarcity of research on teachers' instructional endorsement of Haitian Creole.

Research Benefits

This research, which was conducted with a sample that included both non-speakers and speakers of Haitian Creole, makes an important contribution to the literature regarding teachers' beliefs and practices when working with NCHT. The *Instructional Endorsement of Haitian Creole* questionnaire can be used in a wide range of contexts, including research and professional development, to address issues associated with teachers' instructional beliefs about Haitian Creole. The evidence of relationships among the variables in the study serve as an opportunity for this researcher to continue this work. This process may help fill the void that exists in the literature concerning teaching and learning experiences involving NCHT.

Conclusion

The purpose of the present study was to explore the relationship between middle school math teachers' personal and professional background and constructs and their appraisals of NCHT's learning outcomes. The mathematics teachers' personal backgrounds include their fluency in Haitian Creole. Their professional background includes their years of experience

teaching mathematics, as well as their years of academic preparation in teaching mathematics in Haitian Creole, and their constructs include their personal teaching efficacy, their approaches to instruction, their perception of administrative pressure to prepare for high stakes testing, and their instructional endorsement of Haitian Creole.

In chapter one the researcher underscored the fact that the literature about Haitian immigrant children's achievement in the United States and elsewhere is very limited, and, there is also limited information regarding teachers' viewpoints about these students' achievement in relation to teachers' practices with NCHT. Given the fact that many of these students are facing obstacles that are affecting their academic achievement in the United States, it is important to understand the underlying issues that may affect the teaching and learning processes from the teachers' perspective.

In chapter two, the researcher conducted a review of the literature, presenting the experiences of the NCHT from various perspectives, along with a theoretical framework that encompassed the Self-determination, the Achievement Goal, the Teaching Efficacy, and the Self-efficacy theories. From the psychosocial perspective, the literature suggests that NCHT are facing many challenges that are the result of changes associated with the migration experience in the United States. These changes include separation from loved ones that these students left behind, as well as the adaptation that these students need to make in their new environment. These students initially expressed great expectations about their educational opportunities in the United States. But their neighborhood schools do not provide the support necessary to meet their expectations (Suárez-Orozco, Suárez-Orozco, et al., 2009). From the perspectives that are rooted in bilingual education, one major obstacle to quality of education for these students was the approach used to educate them. NCHT usually transfer to mainstream classrooms where they

struggle and earn bad grades. Administrators and guidance counselors ultimately place them in remedial programs.

In chapter three, the researcher presented the study's research design, including the research questions, and a description of the participants, the measures, the procedures, and the research protocol. The questions were intended to measure the math teachers' personal teaching efficacy, their approaches to instruction, their proficiency in Haitian Creole, their instructional endorsement of Haitian Creole, and their appraisals of NCHTs learning outcomes in mathematics. A questionnaire was posted online and offered in paper form, and 20 middle school teachers completed the survey. The researcher used Chi-Square and the exact test to explore the relationships between the teachers' construct variables and these teachers' appraisals of their students' learning outcomes in mathematics.

In chapter four, the researcher conducted a quantitative and qualitative analysis of the data. She found that ten of the twenty participants appraised NCHT learning outcomes at level 1, and seven participants appraised them at level 2. Only three (15%) of the participants appraised NCHT at level 3, and none appraised them at level 4. This implied that the pattern of underachievement of ELLs and African American also applied to NCHT. In addition, of the seventeen tests conducted, the researcher found statistically significant evidence of associations between mathematics teachers' fluency in Haitian Creole and their instructional endorsement of Haitian Creole, between mathematics teachers' fluency in Haitian Creole and their appraisals of NCHT learning outcomes, between mathematics teachers' years of experience and their instructional endorsement of Haitian Creole, between mathematics teachers' years of academic preparation to teach math in Haitian Creole and their instructional endorsement of Haitian Creole, and between math teachers' years of academic preparation to teach math in Haitian

Creole and their appraisals of NCHT learning outcomes. In addition, she found that there was marginally statistically significant ($p = .07$) evidence of an association between mathematics teachers' instructional endorsement of Haitian Creole and their appraisals of NCHT learning outcomes.

She conducted a qualitative analysis to further explore the teachers' IEHC through its three components – cognitive, affective, and behavioral. She found that interviewees who received academic preparation to teach math in Haitian Creole for two years or more did not need help with translation to provide feedback in Haitian Creole. On the other hand, interviewees who did not receive such training, or received it for less than two years, either needed help with translation to provide feedback in Haitian Creole to NCHT or did not provide feedback in Haitian Creole to these students.

The researcher found that interviewees who perceived that they were under high levels of administrative pressure to prepare their students for high stakes testing explained NCHT's success or failure in terms of innate abilities or outside factors. On the other hand, interviewees who perceived low levels of administrative pressure attributed these students' success or failure to language.

In addition, she found that teachers with strong IEHC who were teaching NCHT focused on teaching them math in Haitian Creole and facilitated the transfer into English through lessons and feedback. On the other hand, teachers with weak IEHC expressed the need to teach English while teaching math. Two of them wanted to prepare the students in both English and math so that they would do well on state exams. One interviewee was concerned with the stigma NCHT faced for not speaking English. One interviewee was concerned about the fact that the curriculum was not fully translated into Haitian Creole, as it is in Spanish. All four interviewees

who declared weak IEHC viewed Haitian Creole as a temporary mode of communication. In addition, interviewees who taught in mainstream/English-only settings declared either weak cognitive or weak affective IEHC. On the other hand, interviewees who taught math in Haitian Creole declared strong cognitive and affective IEHC. Finally, the researcher found that regardless of whether teachers declared strong or weak IEHC, all seven interviewees stated that there was much that teachers can do to help NCHT do well in math.

She discussed the findings in chapter five from two perspectives and offered insight for policy, instruction, and professional development. From a teaching and learning perspective, she addressed the need for adaptive online resources, including math simulations and video games, to help NCHT achieve success in both math and English. She discussed the need for teachers to be fluent in Haitian Creole so that they can communicate with NCHT effectively. She argued that when pairing NCHT with students who are fluent in both English and Haitian Creole, the translation that students provide may lack accuracy, and teachers should not rely on students for academic translations. She also addressed the need for teachers' certification to include at least two years of academic preparation to teach math in Haitian Creole.

From a psychosocial perspective, she addressed the need for a school-based organization that could serve to provide technical support to teachers, NCHT, and their families. Such an organization would advocate on behalf of NCHT's parents who lack the information necessary to stand up against school policies that negatively affect their children. Finally, the researcher explained that the study has several limitations and offered several suggestions for future research, but indicated that this study offered great benefit for both the research literature and for professional development activities.

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Appendix A - Letters to Teachers via Email

Dear Colleague:

My name is Nancye Henry-Barthelemy. I am an adjunct lecturer of mathematics at the New York City College of Technology of the City University of New York, and I am completing my doctoral studies at Long Island University, LIU Post Campus. I am currently working on my dissertation, and I am inviting you to be a participant in the *Teaching New-comer Haitian Teens* survey.

This survey was designed to collect information and explore whether there are relationships among variables that represent middle-school math teachers' personal and professional background, their instructional approach, their efficacy beliefs about teaching their students, their instructional beliefs about Haitian Creole, and their appraisals of new-comer Haitian students' levels of mathematics achievement.

I am hoping to obtain information from a wide range of teacher demographics –from new teachers with limited experience teaching mathematics to veteran teachers who have years of experienced in the field. Subsequently, I intend to report the research findings of this dissertation in scholarly professional publications.

Your participation in this study is entirely voluntary and no one will be able to identify you in my resulting dissertation. If you decide to participate in the study, please [click here](#) to begin. It takes about 15 to 20 minutes to complete the 31-item survey questionnaire. I am available to answer any question you may have regarding the questionnaire and the research. You can reach me at (347)993 6340 or nancye.barthelemy@my.liu.edu.

The item #31 in the survey is a question asking you whether you would be interested in participating in an in-person interview which will last about 15 to 30 minutes. If you select “yes” and click next, a contact information page will open where you will be asked to enter your name, email address, and telephone number. Please keep in mind that by providing your contact information, you will allow me to know who you are. But the information you provide will remain strictly confidential. Please click **next** to submit your response when you finish, and to end the session.

If you answer “no” to item #31, you will be prompted to item #32 which is a question asking you whether you want to complete an online interview questionnaire. A “no” answer will take you to the end of the survey. But if you answer “yes” and click next, the online interview questionnaire page will open. It contains six open ended questions which will require 15 to 30 minutes of your time to answer them.

With the hope that you will decide to participate, I thank you very much in advance. If you have any questions, please call me at (347) 993-6340 or the chair of my dissertation committee – Dr. Kramer Vida at 516-299-2210.

Sincerely,

Nancye Henry-Barthelemy

Doctoral Student, LIU Post

Dear colleague:

My name is Nancye Henry-Barthelemy. I am an adjunct lecturer of mathematics at the New York City College of Technology of the City University of New York, and I am completing my doctoral studies at Long Island University, LIU Post Campus. I am currently working on my dissertation, and I thank you for your interest in participating in the Teaching New-comer Haitian Teens survey. For this research, I have defined new-comer Haitian teens as middle school or high school Haitian immigrant students or children of Haitian immigrants who have been in the United States for up to five years.

This survey was designed to collect information and explore whether there are relationships among variables that represent the middle-school math teachers' personal and professional background, their instructional approach, their efficacy beliefs about teaching their students, their instructional beliefs about Haitian Creole, and their appraisals of their new-comer Haitian students' levels of mathematics achievement.

I am hoping to obtain information from a wide range of teacher demographics -from new teachers with limited experience teaching mathematics to veteran teachers who have years of experienced in the field. Subsequently, I intend to report the research findings of this dissertation in scholarly professional publications.

Your participation in this study is entirely voluntary, and no one will be able to identify you in my resulting dissertation because I will use pseudonyms to refer to all participants with no identifiable information. It takes about 15 minutes to complete the survey questionnaire, and 20-30 minutes to complete the optional online or in-person interview questionnaire. I am available to answer any question you may have regarding the questionnaire and the research at 34 7 993 6340.

I thank you very much in advance. If you have any question, please call me at (347) 993-6340 or the chair of my dissertation committee - Dr. Kramer Vida at 516-299-2210.

Sincerely,
Nancye Henry-Barthelemy
Doctoral Student, LIU Post

Appendix B - Permission for using the Patterns of Adaptive Learning Scales**License Agreement #7394-umich**

This license agreement is *completed*.

Pricing Information

Unit Price
\$0.00

Quantity
1

Net Price
\$0.00

Sales Tax
\$0.00

Shipping
\$0.00 None Selected

Total Price
\$0.00

Licensee Information

First Name
Nancye

Last Name
Barthelemy

Email Address
nancye.barthelemy@my.liu.edu

Organization
LIU Post

Title
Doctoral Student

Phone Number
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Appendix C – Mastery Approach to Instruction’s Scale

Patterns of Adaptive Learning Scales (PALS)

Approaches to Instruction

Mastery Approaches

This refers to teacher strategies that convey to students that the purpose of engaging in academic work is to develop competence.

In my classroom:

4. I make a special effort to recognize students' individual progress, even if they are below grade level.
11. During class, I often provide several different activities so that students can choose among them.
13. I consider how much students have improved when I give them report card grades.
26. I give a wide range of assignments, matched to students' needs and skill level.

Alpha: .69

Descriptive Statistics

<u>Items</u> [*]	<u>Mean</u>	<u>Standard Deviation</u>
4	4.31	0.93
11	2.41	1.12
13	3.75	1.11
26	3.22	1.17

Scale

<u>Mean</u>	<u>Standard Deviation</u>	<u>Skewness</u>
3.44	0.76	-0.16

** Numbers refer to the items in the sample teacher survey (see page 52).*

Appendix D - Performance Approach to Instruction's Scale

Patterns of Adaptive Learning Scales (PALS)

Approaches to Instruction

Performance Approaches

This refers to teacher strategies that convey to students that the purpose of engaging in academic work is to demonstrate competence.

In my classroom:

1. I give special privileges to students who do the best work.
9. I display the work of the highest achieving students as an example.
17. I help students understand how their performance compares to others.
19. I encourage students to compete with each other.
21. I point out those students who do well as a model for the other students.

Alpha: .69

Descriptive Statistics

<u>Items</u> [*]	<u>Mean</u>	<u>Standard Deviation</u>
1	2.15	1.34
9	2.19	1.30
17	2.49	1.35
19	1.79	0.93
21	2.42	1.38

Scale

<u>Mean</u>	<u>Standard Deviation</u>	<u>Skewness</u>
2.21	0.85	0.32

* Numbers refer to the items in the sample teacher survey (see page 52).

Appendix E - Personal Teaching Efficacy's Scale

Patterns of Adaptive Learning Scales (PALS)

Personal Teaching Efficacy

This refers to teachers' beliefs that they are contributing significantly to the academic progress of their students, and can effectively teach all students.

2. If I try really hard, I can get through to even the most difficult student.
6. Factors beyond my control have a greater influence on my students' achievement than I do (reversed).
8. I am good at helping all the students in my classes make significant improvement.
18. Some students are not going to make a lot of progress this year, no matter what I do (reversed).
23. I am certain that I am making a difference in the lives of my students.
24. There is little I can do to ensure that all my students make significant progress this year (reversed).
28. I can deal with almost any learning problem.

Alpha: .74

Descriptive Statistics

<u>Items</u> *	<u>Mean</u>	<u>Standard Deviation</u>
2	3.40	1.11
6	2.54	1.02
8	3.64	0.87
18	2.80	1.17
23	3.99	0.93
24	3.99	1.03
28	3.12	1.19

Scale

<u>Mean</u>	<u>Standard Deviation</u>	<u>Skewness</u>
3.36	0.66	-0.12

* Numbers refer to the items in the sample teacher survey (see page 52).

Appendix F - Survey Questionnaire

Appendix F - TEACHING NEW-COMER HAITIAN TEENS SURVEY (Set 1 of 2)

Dear Colleague:

Thank you very much for taking the time to complete the **TEACHING NEW-COMER HAITIAN TEENS** survey. It was designed to collect information and explore whether there are relationships among variables that represent the middle-school math teachers' personal and professional background, their instructional approaches, their efficacy beliefs about teaching their students, their instructional beliefs about Haitian Creole, and their appraisals of new-comer Haitian teens' levels of mathematics achievement.

Your participation in this study is entirely voluntary, and no one will be able to identify you in my resulting dissertation because I will use pseudonyms to refer to all participants, with no identifiable information. Thank you once again for your interest in this project. It is an honor to have you as a participant.

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Nancye Henry-Barthelemy
Doctoral Student, LIU Post

SURVEY QUESTIONS BEGIN

1. Do you teach mathematics in middle school?

- Yes
 No

TEACHING NEW-COMER HAITIAN TEENS SURVEY

2. Do you have one or more new-comer Haitian students in your math class?

Yes

No

TEACHING NEW-COMER HAITIAN TEENS SURVEY

3. What is your gender?

- Male
- Female

4. What is your age range?

- 30 or younger
- 31-40 years old
- 41-50 years old
- 51 or older

5. For how many years have you been teaching mathematics in secondary school?

- Less than ten years
- Ten years more

6. Do you speak Haitian Creole?

- No
- Yes

7. "I am fluent in Haitian Creole." Please indicate the degree to which you agree that this statement applies to you.

- Totally Disagree
- Disagree
- Somewhat Agree
- Agree
- Totally Agree

8. How many years of academic preparation have you accumulated in teaching mathematics in Haitian-Creole?

- Zero
- Less than two years but not zero
- Two years or more

9. At what math test score level would you rate most new-comer Haitian teens in your school?

- Level 1: Students are considered well below proficient in standards for their grade.
- Level 2: Students are partially proficient, with knowledge and skills that are insufficient for their grade.
- Level 3: Students are proficient in standards for their grade.
- Level 4: Excelling in standards for their grade.

10. New-comer Haitian teens understand mathematics better in Haitian Creole than English.

- Totally Disagree
- Disagree
- Somewhat Agree
- Agree
- Totally Agree

11. Teaching mathematics in Haitian Creole hurts new-comer Haitian teens' academic development in the English language.

- Totally Disagree
- Disagree
- Somewhat Agree
- Agree
- Totally Agree

12. I feel more comfortable when all my students express themselves only in English in my classroom.

- Totally Disagree**
- Disagree**
- Somewhat Agree**
- Agree**
- Totally Agree**

13. This is the United States! Haitian Creole has no place in a classroom.

- Totally Disagree**
- Disagree**
- Somewhat Agree**
- Agree**
- Totally Agree**

14. In my mathematics classrooms, new-comer Haitian teens use Haitian Creole to communicate with their Haitian peers during classroom activities.

- Totally Disagree**
- Disagree**
- Somewhat Agree**
- Agree**
- Totally Agree**

15. I provide feedback to my new-comer Haitian teens in Haitian Creole.

- Totally Disagree**
- Disagree**
- Somewhat Agree**
- Agree**
- Totally Agree**

16. I distribute materials that are written in Haitian Creole to my new-comer Haitian students for math lessons and activities.

- Totally Disagree**
- Disagree**
- Somewhat Agree**
- Agree**
- Totally Agree**

17. In my school, teachers are under administrative pressure to prepare their students for standardized exams.

- Totally Disagree**
- Disagree**
- Somewhat Agree**
- Agree**
- Totally Agree**

18. In my classroom, I give special privileges to students who do the best work.

- Totally Disagree**
- Disagree**
- Somewhat Agree**
- Agree**
- Totally Agree**

19. In my classroom, I display the work of the highest achieving students as an example.

- Totally Disagree**
- Disagree**
- Somewhat Agree**
- Agree**
- Totally Agree**

20. In my classroom, I help students understand how their performance compares to others.

- Totally Disagree**
- Disagree**
- Somewhat Agree**
- Agree**
- Totally Agree**

21. In my classroom, I encourage students to compete with each other.

- Totally Disagree**
- Disagree**
- Somewhat Agree**
- Agree**
- Totally Agree**

22. In my classroom, I point out those students who do well as a model for the other students.

- Totally Disagree**
- Disagree**
- Somewhat Agree**
- Agree**
- Totally Agree**

23. In my school, it's easy to tell which students get the highest grades and which students get the lowest grades.

- Totally Disagree**
- Disagree**
- Somewhat Agree**
- Agree**
- Totally Agree**

24. In my school, students who get good grades are pointed out as an example to others.

- Totally Disagree**
- Disagree**
- Somewhat Agree**
- Agree**
- Totally Agree**

25. In my school, students hear a lot about the importance of getting high test scores.

- Totally Disagree**
- Disagree**
- Somewhat Agree**
- Agree**
- Totally Agree**

26. In my school, grades and test scores are not talked about a lot.

- Totally Disagree**
- Disagree**
- Somewhat Agree**
- Agree**
- Totally Agree**

27. In my school, students hear a lot about the importance of making the honor roll or being recognized at honor assemblies.

- Totally Disagree**
- Disagree**
- Somewhat Agree**
- Agree**
- Totally Agree**

28. In my school, students are encouraged to compete with each other academically.

- Totally Disagree**
- Disagree**
- Somewhat Agree**
- Agree**
- Totally Agree**

29. If I try really hard, I can get through to even the most difficult student.

- Totally Disagree**
- Disagree**
- Somewhat Agree**
- Agree**
- Totally Agree**

30. Factors beyond my control have a greater influence on my students' achievement than I do.

- Totally Disagree**
- Disagree**
- Somewhat Agree**
- Agree**
- Totally Agree**

31. I am good at helping all the students in my classes make significant improvement.

- Totally Disagree**
- Disagree**
- Somewhat Agree**
- Agree**
- Totally Agree**

32. Some students are not going to make a lot of progress this year, no matter what I do.

- Totally Disagree**
- Disagree**
- Somewhat Agree**
- Agree**
- Totally Agree**

33. I am certain that I am making a difference in the lives of my students.

- Totally Disagree**
- Disagree**
- Somewhat Agree**
- Agree**
- Totally Agree**

34. There is little I can do to ensure that all my students make significant progress this year.

- Totally Disagree**
- Disagree**
- Somewhat Agree**
- Agree**
- Totally Agree**

35. I can deal with almost any learning problem.

- Totally Disagree**
- Disagree**
- Somewhat Agree**
- Agree**
- Totally Agree**

*** 36. Would you be interested in an in-person follow-up interview?
The interview will last 20 to 30 minutes.**

- YES:** You will be asked to provide your contact information. All information you provide will be kept confidential.
- NO**

Mastery Approach to Instruction

TEACHING NEW-COMER HAITIAN TEENS SURVEY - (Set 2 of 2)

Dear Colleague:

Thank you very much for taking the time to complete the TEACHING NEW-COMER HAITIAN TEENS survey. It was designed to collect information and explore whether there are relationships among variables that represent the middle-school math teachers' personal and professional background, their instructional approaches, their efficacy beliefs about teaching their students, their instructional beliefs about Haitian Creole, and their appraisals of new-comer Haitian teens' levels of mathematics achievement.

Your participation in this study is entirely voluntary, and no one will be able to identify you in my resulting dissertation because I will use pseudonyms to refer to all participants, with no identifiable information. As per our conversation, the following are four additional questions to complete the survey. Thank you once again for your interest in this project. It is an honor to have you as a participant.

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Nancye Henry-Barthelemy
Doctoral Student, LIU Post

SURVEY QUESTIONS BEGIN

1. I make a special effort to recognize students' individual progress, even if they are below grade level.

- Totally Disagree**
- Disagree**
- Somewhat Agree**
- Agree**
- Totally Agree**

2. During class, I often provide several different activities so that students can choose among them.

- Totally Disagree
- Disagree
- Somewhat Agree
- Agree
- Totally Agree

3. I consider how much students have improved when I give them report card grades.

- Totally Disagree
- Disagree
- Somewhat Agree
- Agree
- Totally Agree

4. I give a wide range of assignments, matched to students' needs and skill level.

- Totally Disagree
- Disagree
- Somewhat Agree
- Agree
- Totally Agree

Online Interview Inquiry**Online Interview Inquiry**

* 37. Would you be interested in an online interview? The interview questionnaire contains six open ended questions. It will take about 15 to 30 minutes to type up the answers to these questions.

Yes

No

Appendix G – In-person Interview Contact Information

Appendix G - In-person Interview

Contact information

38. Contact

Name

Email Address

Phone Number

Appendix H – Interview Questionnaire**Appendix H - Interview Questionnaire**

39. Some math teachers think that new-comer Haitian teens who use Haitian Creole to communicate with their Haitian peers during classroom activities develop better understanding of the materials being taught. Others think that such practice is not beneficial to these students' English language development. What is your opinion? Provide one example from your practice if possible.

40. Some math teachers think that new-comer Haitian students understand teachers' feedback better in Haitian Creole. Others think that when the teacher provides feedback in English, it helps the students develop fluency in English. What is your opinion? Provide one example from your practice if possible.

41. Some math teachers give their new-comer Haitian students assignments based on these students' needs and skill levels. Others provide the same material to all students to secure equal educational opportunity. What is your opinion? Provide one example from your practice if possible.

42. Some math teachers think that new-comer Haitian students should develop fluency in English to do well in math. What is your opinion? Provide one example from your practice if possible.

43. Some math teachers think that there is little they can do to help new-comer Haitian students do well in math. What is your opinion? Provide one example from your practice if possible.

44. Why are some new-comer Haitian teens doing well in math while others are doing poorly in math?
