SCHOOL BELONGINGNESS AND EDUCATIONAL MOTIVATION

AMONG HISPANIC STUDENTS

A Thesis

by

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ABSTRACT

The present study sought to identify factors that may explain why Hispanic students drop out of high school. Research suggests that school belonging and motivation for educational attainment are consistent predictors of academic outcomes including high school dropout for Hispanic students (Aviles, Guerrero, Howarth, & Glenn, 1999; Fall & Roberts, 2012; González & Padilla, 1997; Goodenow, 1993; Ibañez, Kuperminc, Jurkovic, & Perilla, 2004). Furthermore, school belonging has been found to be a stronger predictor of academic outcomes for Hispanic English Language Learners (ELLs) compared to Hispanic non-ELLs (Schwartz, Zamboanga, & Hernandez Jarvis, 2007; Guglielmi, 2012). The current studies sought to examine the factor structure of the Psychological Sense of School Membership scale (PSSM; Goodenow, 1993), a school belonging measure, and the Adolescent Motivation for Educational Attainment Questionnaire (AMEAQ; Cham et al., 2014), an education motivation measure, for use in Hispanic middle and high school populations to later identify factors that may explain why Hispanic students drop out of school. Specifically, the extent to which school belonging in late elementary school predicts school belonging and motivation for educational attainment measures in late middle school was analyzed in a sample of Hispanic students. Group differences in school belonging and motivation for educational attainment between Hispanic ELLs and Hispanic non-ELLs were also considered. Participants were drawn from a larger sample of 784 children from three school districts in Texas participating in a longitudinal study, resulting in a sample size of 293 students

at Time 1 (grade 1) of data collection. Students completed the Psychological Sense of School Membership Scale at Time 5 and 9 and the Adolescent Motivation for Educational Attainment Questionnaire at Time 9 of the study. Consistent with the present study's hypothesis, school belonging in late elementary school predicted motivation for educational attainment in late middle school ($p<.01$). Additionally, ELL status at Time 1 predicted school belonging in late middle school ($p<.01$), but not in late elementary school.

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This work was supervised by a dissertation committee consisting of Cynthia Riccio, Ph.D., committee chair, and Sara Castro-Olivo, Ph.D., co-chair, and Myeongsun Yoon, Ph.D., of the Department of Educational Psychology and Gabriela Zapata, Ph.D. of the Department of Hispanic Studies.

All other work conducted for the dissertation was completed by the student independently.

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1. INTRODUCTION

Hispanic students consistently have had the highest high school dropout rate in the U.S. for the last 50 years (Alfaro & Umaña-Taylor, 2015). In 2015, the U.S. Department of Education reported Hispanic student dropout rates of 12%, compared to 5% for White students, and 7% for Black students for the 2012- 2013 academic year. Hispanic English Language Learners (ELLs) are even more at-risk with 59% dropping out of school (Fry, 2003). These rates are a concern for educators, policymakers, and the U.S. public because of the growing population of Hispanic youth enrolled in schools (Laird, Lew, Debell, & Chapman, 2006) and the increasing demands for a more educated workforce (Freeman & Simonsen, 2015; Rumberger, 2011).

As a result, policymakers developed legislation that target these issues including the Every Student Succeeds Act which requires states to allocate economic resources toward schools with high dropout rates and where specific subgroups of students are demonstrating an achievement/attainment gap (Executive Office of the President, 2015). Therefore, understanding the factors and processes associated with high school dropout and its path is essential for the development of effective policies and programs aimed at preventing the high dropout phenomenon of Hispanic ELL students (Brewster & Bowen, 2004).

Dropping out of high school is not an isolated event but is characterized by a path that begins during elementary school by indicators of disengagement, alienation, and unsuccessful school experiences (Alexander, Entwisle, & Horsey, 1997; Cham, Hughes,

West, & Im, 2015; Hughes, Im, Kwok, Cham, & West, 2014; Janosz, Archambault, Morizot, & Pagani, 2008). Among Hispanic students, a lack of English-language ability is strongly associated with dropping out of high school. Specifically, research has shown that of the 14 percent of Hispanic 16- to 19-year-olds with limited English language proficiency, 59 percent dropout of school prematurely (Fry, 2013). Furthermore, as discussed below, previous research findings provide support for the association between motivation for educational attainment, as well as feelings of school belonging for Hispanic students' dropout rates. In addition, school belonging has been found to be a stronger predictor of academic outcomes for Hispanic English Language Learners (ELLs) compared to Hispanic non-ELLs.

1.1. Proposed Studies

The current investigation will be composed of three articles to examine the relationship between school belonging and achievement motivation in Hispanic English Language Learners (ELLs) compared to Hispanic non-ELLs. All three studies will involve secondary data analysis of data from Project Achieve, a research project that was supported by a grant to Jan Hughes, Texas A&M University, from the National Institute of Child Health and Human Development (R01 HD3936).

1.1.1. Article 1: Assessment of Hispanic Students' Sense of School Belongingness

In order to best interpret the results of Article 3, it is important to consider how the constructs of interest were measured. In particular, no research has established the validity of the Spanish version of the Psychological Sense of School Membership Scale (PSSM; Goodenow, 1993) for use with Hispanic students. Further, establishing the

psychometric properties of this measure of sense of belongingness is of practical importance as the measure could be used for screening and diagnostic purposes. Assessing these properties would be especially important among samples of students who struggle the most in schools. Using the same Hispanic student sample from the previous study, who completed the Spanish version of the PSSM, the current study will assess the psychometric properties of the scale at Time 5. The specific aims of the current study are to assess the dimensionality of the scale by fitting a bifactor model which assumes that items load on a single general factor in addition to loading onto group factors including belonging, rejection, and acceptance.

1.1.2. Article 2: Assessment of Hispanic Students' Motivation for Educational Attainment

In order to further interpret the results of Article 3, it is important to consider how the constructs of interest were measured. In particular, no research has established the equivalence of the Adolescent Motivation for Educational Attainment Questionnaire (AMEAQ, Cham et al., 2014) for use with Hispanic students. Given the extensive empirical evidence supporting the association between academic motivation and academic outcomes as well as how motivation variables are undermined in Hispanic students, establishing the psychometric properties of scales that measure motivation for educational attainment within this group is of practical importance. The same sample of Hispanic students from the previous studies were used to assess the psychometric properties of the AMEAQ at Time 9. The specific aims of the current study are to assess the dimensionality of the scale by fitting a bifactor model which assumes that items load

on a single general factor in addition to loading onto group factors including teacher educational expectations, peer educational aspirations, and value of education.

1.1.3. Article 3: School Belongingness and Educational Motivation Among Hispanic Students

Research suggests that school belonging and motivation for educational attainment are consistent predictors of academic outcomes including high school dropout for Hispanic students (Aviles, Guerrero, Howarth, & Glenn, 1999; Fall & Roberts, 2012; González & Padilla, 1997; Goodenow, 1993; Ibañez, Kuperminc, Jurkovic, & Perilla, 2004). Furthermore, school belonging has been found to be a stronger predictor of academic outcomes for Hispanic ELLs compared to Hispanic non-ELLs. In the current study, the extent to which school belonging in late elementary school predicts school belonging and motivation for educational attainment measures in late middle school was analyzed in a sample of Hispanic students. Group differences in school belonging and motivation for educational attainment between Hispanic ELLs and Hispanic non-ELLs were also considered. Participants were drawn from a larger sample of 784 children from three school districts in Texas participating in a longitudinal study, resulting in a sample size of 293 Hispanic students at Time 1 (grade 1) of data collection. Students completed the Psychological Sense of School Membership Scale at Time 5 and 9 and the Adolescent Motivation for Educational Attainment Questionnaire at Time 9 of the study.

The main focus of study 1 was to examine the relationship between two variables that have previously shown to be associated with high school dropout rates in Hispanic students: motivation for educational attainment and school belonging. Specifically, in

this study we examined the extent to which school belonging in late elementary grades predicts school belonging and motivation for educational attainment measures in late middle school among Hispanic students (ELLs and non-ELLs). In addition, the study seeks to identify within group differences in school belonging and motivation for educational attainment between Hispanic ELLs and Hispanic non-ELLs.

2. ARTICLE 1: ASSESSMENT OF HISPANIC STUDENT'S SENSE OF SCHOOL BELONGINGNESS

2.1. Introduction

Sense of belongingness to social groups is considered a universal need (Arslan & Duru, 2017; Baskin, Quintana, & Slaten, 2014; Baumeister & Leary, 1995; Osterman, 2000). Specifically, Maslow (1968), hypothesized that all animals, including humans, have the need "to herd, to flock, to join, and to belong" (p. 20). In his attachment theory, Bowlby (1973) also posited the need for individuals to form and maintain relationships. Individuals form social relationships readily with others who they are exposed to frequently or those with whom they share common experiences (Baumeister & Leary, 1995).

Students' sense of belongingness in schools, in particular, also has been studied extensively and has been grounded in various theoretical frameworks (Phan, 2013; Osterman, 2000). School belongingness has been defined as the extent to which students feel accepted, respected, and valued by others in their school environment (Goodenow, 1993). From a self-determination theoretical standpoint, for example, when students' basic needs of autonomy, competence, and relatedness are met in schools, they will have a greater interest and appreciation for their learning and school (Deci, Vallerand, Pelletier, & Ryan, 1991; Vitoroulis et al., 2012). This theoretical framework therefore underscores the importance of interpersonal relationships in schools, a component of school belonging, on academic outcomes. Social motivation theories further posit that,

when students' basic needs are met and they feel supported by social agents from their school, they will develop a positive sense of school membership, which in turn will promote academic effort and persistence (Legault, Green-Demers, & Pelletier, 2006).

2.1.1. School Belongingness and Academic Outcomes

Research findings support the association between school belongingness and academic outcomes including academic achievement and motivation, absenteeism and dropping out of school (Adelabu, 2007; Anderman, 2003; Booker, 2006; Gillen-O'Neel & Fuligni, 2003; Sanchez, Colon, & Esparza, 2005). For example, students who experience a low sense of belonging to their school are more likely to isolate themselves and withdraw from peers and school activities resulting in lower levels of academic efficacy and achievement (Arslan & Duru, 2017; Osterman, 2000).

High sense of belongingness, on the other hand, is associated with prosocial behaviors including following class rules (Wentzel, 2006) as well as a decreased likelihood in absenteeism and school drop-out (Nichols, 2008). Similarly, students who enjoy academic tasks and perceive them as interesting and useful have a greater sense of belonging at school (Anderman, 2002; Furrer & Skinner, 2003). These results therefore suggest that higher levels of sense of school belongingness is a protective factor against negative academic outcomes (Anderman, 2002; Arslan & Duru, 2017; Baskin et al., 2014; McNeely, Nonemaker, & Blum, 2002; Napoli et al., 2003).

2.1.2. School Belongingness for Hispanic Students

Associations between sense of school belongingness and academic outcomes tend to be stronger in Hispanic students when compared to white or African American

students (Battistich et al., 1995; Goodenow & Grady, 1993; Griffith, 2000). Ethnic minority students are more likely to feel disconnected from their schools due to cultural factors including the incongruence between school values and their own values and beliefs (Ibañez, Kuperminc, Jurkovic, & Perilla, 2004). Alfaro, Umaña-Taylor, and Bámaca (2006) theorized that this incongruence may be due to Hispanic cultures' collectivistic values. Specifically, they theorized that members of collectivistic cultures tend to perceive themselves more as a part of social relationships and consider their actions as largely affected by the perceived thoughts and behaviors of others. Hispanic students therefore tend to be more susceptible to perceptions of belongingness in schools (Markus & Kitayama, 2010).

School composition also has been associated with feelings of belonging in minority students. Specifically, in schools with higher percentages of ethnic minority students, Hispanic and African American students reported greater levels of belonging than their white peers (Goodenow, 1993; Griffith, 2000). Furthermore, Hispanic 9th graders attending schools with fewer same-ethnic peers reported lower levels of school belonging compared to when they were in middle schools with more same-ethnic peers (Benner & Graham, 2009). Transitioning into schools with more members of their same ethnic group can therefore be a protective variable for Hispanic students (Morales-Chicas & Graham, 2015).

2.1.2.1. Academic Outcomes

In Hispanic students, low levels of sense of school belongingness are related to lower school grades, achievement motivation, academic engagement, and dropping out

of school (Aviles, Guerrero, Howarth, & Glenn, 1999; González & Padilla, 1997; Goodenow, 1993; Hernández et al., 2016; Ibañez et al., 2004; Sanchez et al., 2005). Sense of school belongingness also has indirect effects on academic outcomes for Hispanic students. For example, a low sense of belonging in Hispanic youth is associated with higher levels of acculturative stress which in turn is predictive of low school performance (Ibañez, Kuperminc, Jurkovic, & Perilla, 2004**;** Roche & Kuperminc, 2012). Belongingness further predicts levels of self-esteem in Hispanic students, a variable that has been found to be highly predictive of achievement in Hispanic ELL students when compared to non-Hispanic ELL students (Guglielmi, 2012; Schwartz, Zamboanga, & Hernandez Jarvis, 2007).

2.1.3. School Belongingness Assessment and Interventions

To promote school completion and students' academic engagement in schools, researchers have underscored the importance of school climates that foster both student identification and active participation in schools (Finn, 1989, Hagborg, 1998). Goodenow (1993) suggested that by assessing sense of school belongingness in students, schools can identify those who are at risk for poor school adjustment and dropping out. Assessing these variables may be specifically useful among groups of students who are more likely to experience a lower sense of school belonging and who have higher rates of dropping out of school, including ethnic minority students as well as middle and high school students (Wang & Holcombe, 2010; Whitlock, 2006).

In addition to assessing sense of school belonging among minority groups, researchers have investigated the effects of implementing interventions that promote

meaningful relationships between students and school faculty in schools on academic outcomes. Check and Connect (Christenson, Stout, & Pohl, 2012), for example, an intervention where at-risk students meet regularly with mentors who monitor various student performance variables, has been found to improve academic outcome variables including school retention for Hispanic students (Stout & Christenson, 2009). These results therefore suggest that sense of school belongingness can be a protective factor against school dropout for Hispanic students.

2.1.3.1. The Psychological Sense of School Membership (PSSM) Scale Previous Studies

The PSSM scale was developed by Goodenow (1993). Goodenow based the scale on Wehlage et al.'s (1989) definition of school membership, a construct composed of four components including (a) attachment, defined as the positive reciprocal teacher and student relations, (b) commitment, defined as complying with school's rules and demands, (c) involvement, defined as the active participation in school activities and school tasks, and (d) belief, defined as valuing and trusting the institution. Early findings with the use of the PSSM scale identified a four-factor model, consistent with Wehlage et al.'s (1989) theoretical model (Hagborg, 1998).

The PSSM scale consists of 18 items with a 5-point Likert-type scale (1 = not at all true, 5 = very true). Example items include "I feel like a real part of this school" and "It is hard for people like me to be accepted here." The PSSM scale yields one total score that assesses students' sense of school belongingness. Goodenow (1993), reports

Cronbach's alphas between .78 and .95 for the PSSM scale total score across ethnicities, including Hispanic Americans, in the U.S.

Empirical research, however, does not support the unidimensionality of the scale nor does it support the appropriateness of a PSSM scale total score (Abudakar et al., 2015). For example, in their review of 42 studies that assessed the factorial structure of the PSSM scale, Abubakar et al. (2015) reported two to three factors underlying the PSSM scale. The first factor analysis conducted for the PSSM scale in a sample of U.S. white middle and high school students identified three common factors including belonging, rejection, and acceptance (Hagborg, 1998). Additionally, in their study with Australian high school students, You et al. (2011) identified three factors identified as caring relationships with teachers, acceptance, and rejection for the PSSM scale. To date, no study has assessed the factor structure of the PSSM scale in a sample of Hispanic middle school students.

2.1.4. Study Purpose

Researchers have consistently found a strong association between Hispanic students' sense of school belonging and academic outcomes (Aviles, Guerrero, Howarth, & Glenn, 1999; González & Padilla, 1997; Goodenow, 1993; Hernández et al., 2016; Ibañez et al., 2004; Sanchez et al., 2005). Establishing the psychometric properties of sense of belongingness scales, therefore, is of practical importance as these scales can be used for screening and diagnostic purposes. For example, these scales can be of great utility among groups of students who struggle the most in schools, are at risk of

dropping out of high school, and may therefore benefit from interventions promoting a positive sense of school belongingness.

In the current study, the PSSM scale's reliability and delineate its factor structure was analyzed in a sample of Hispanic students. The specific aims of the current study are to examine the factor structure of the PSSM scale and validity by conducting an exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) for Hispanic students. Specifically, the current study will assess the dimensionality of the scale by fitting a bifactor model, which assumes that items load on a single general factor in addition to loading onto specific factors. Based on a review of the literature, it is hypothesized that two to three factors will underlie the questionnaire responses including belonging, rejection, and acceptance.

2.2. Method

2.2.1. Participants

Participants for the current study were 262 Hispanic students who were drawn from a larger sample of 784 children participating in a longitudinal study examining the impact of grade retention on academic outcomes. Participants from the longitudinal study were recruited across two consecutive cohorts in first grade during the fall of 2001 and 2002 from three school districts in Texas. To be considered for the larger study, participants had to obtain a score below the median score for their school district on a state-approved, district-administered measure of literacy, speak either English or Spanish, and not have been previously retained or identified for special education

services. The interested reader can review Hughes and Kwok (2006) for more information on the recruitment process of the larger longitudinal study.

Data were collected over the span of nine years but not all participants continued in the study throughout. For the purposes of the current study, out of the 784 participants in the larger study at Time 1 (T1), only Hispanic students were considered, resulting in a sample size of 262 students at Time 5 (T5) when the school belonging measure was administered. At T5, two students were in 3rd grade, 71 in 4th grade, and 189 in 5th grade. Demographics for T1 and T5 are provided in *Table 1* in *Appendix A*.

Assessments were conducted by monolingual and bilingual (English/Spanish) graduate and undergraduate students who had received a minimum of 18 hours of classroom instruction each semester on the administration and scoring procedures of said assessments. Trainees were also required to pass practice examinations on each measure. In addition, assessment protocols were checked and corrected on a weekly basis (Hughes & Kwok, 2006).

2.2.2. Measures

2.2.2.1. Demographic Information

At T1 of the study, parents were mailed questionnaires which included items on demographic variables including language spoken in the home. If students were enrolled in bilingual education or spoke any Spanish, as reported by their teachers, both English and Spanish versions of the parent questionnaire where mailed to their home. Information regarding student's grade placements and special or bilingual education

enrollment were obtained annually through school records and teacher reports (Hughes & Kwok, 2006).

2.2.2.2. English and Spanish Language Proficiency

The Woodcock-Muñoz Language Survey (WMLS, Woodcock & Muñoz-Sandoval, 1993) is a standardized, nationally norm-referenced individually administered measure of language proficiency in English and Spanish measuring the areas of reading, writing, listening, and comprehension. The current study used the WMLS Broad Spanish and English Ability standard scores. These scores were collected at T1 and T5 of the study.

Research supports the reliability and construct validity of the WMLS scores. For example, internal consistency reliability coefficients for the WMLS subtests scores vary from .76 to .97. Furthermore, the WMLS English version shows acceptable concurrent validity with other measures of English language including the Wechsler Intelligence Scale for Children-III Verbal IQ and the Differential Ability Scales Verbal Ability score (Woodcock & Muñoz- Sandoval, 1993).

2.2.2.3. Student-Reported School Belonging

The PSSM scale (Goodenow, 1993) was used to assess students' perceptions of school belonging. Students indicated their agreement, using a 5-point Likert-type scale (1 = not at all true; 5 = very true) to 18 items. The current study used both the English and a Spanish version of the PSSM scale. The Spanish version of the PSSM scale used in the current study was translated from the English version and back-translated into English to ensure its validity (Hughes, Im, & Allee, 2015).

2.2.3. Procedures

The larger longitudinal study was approved by both the University Institutional Review Board and each school district's research advisory committee. In order to determine participants' English and Spanish proficiency, they were individually administered the WMLS by trained bilingual examiners. Sense of school belongingness was assessed by research staff at T5 through individual interviews using the PSSM scale. Spanish or English versions of the PSSM scale were administered based on students' proficiency scores on the WMLS. Interviews were conducted in settings outside the classroom including the library or counselor's office (Hughes, Im, & Allee, 2015). Approval was obtained through the University Institutional Review Board to use archival data and conduct secondary analysis for the current study. To conduct the statistical analyses for current study, de-identified data were extracted from the master files.

2.2.4. Planed Analyses

Although the PSSM scale has been widely used to assess sense of school belonging, there is sparse literature on its specific use in with Hispanic middle school students. An EFA was therefore conducted with the 18 items from the PSSM measured at T5 with a sample of Hispanic students to examine the factor structure of the PSSM scale and validity among this population. To extract the latent variables, the EFA was conducted using principal-components factor analysis. In addition, an oblique rotation was used to allow for underlying factors to be correlated. Subsequently, internal consistency was measured using Cronbach's alpha to assess the reliability of the entire

18-item scale, as well as the reliability of the factor model obtained through the EFA. To determine the model of best fit using fit statistics, including chi-square, Bentler comparative fit index (CFI), root mean square error of approximation (RMSEA), and a standardized root mean square residual (SRMR), two-factor and three-factor CFA were conducted. A general specific model, which included a general factor of students' sense of school belonging, and specific factors retained from the CFA was tested.

2.2.5. Results

2.2.5.1. Exploratory Factor Analysis (EFA)

An EFA was conducted on the 18 items using principal-component factor analysis followed by an oblique rotation. Factor loadings for the EFA are provided in *Table 2* in *Appendix B*. Using the Kaiser criterion (Braeken & Van Assen, 2017), which suggests to retain those factors with eigenvalues equal or higher than one, a four-factor measurement model was extracted with the following eigenvalues: 4.14, 3.54, 1.98, and 1.54. All 18 PSSM scale items loaded onto one of the four factors with loading values above .30. Item 9 "Teachers here are not interested in people like me" was the only item that loaded onto Factor 4. Previous studies have found that Item 9 is related to the items that loaded onto Factor 3, indicating perceptions of rejection (Abubakar et al., 2015; Hagborg, 1998; You et al., 2011). As a result, based on previous theoretical support and the insufficient number of primary loadings on Factor 4, a three-factor model was tested.

A fixed factor analysis with an oblique rotation (F=3) was performed with the 18 items. Based on item content and a review of the literature, the three factors were identified as Relationships at School (Factor 1), Belonging (Factor 2), and Rejection

(Factor 3). Notably, Item 9 loaded onto Factor 3. Additionally, Item 10 "I am included in lots of activities in this school" cross-loaded onto Factor 1 ($r = .31$) and Factor 2 ($r = .29$). The Minimum Average Partial Correlation revealed that four factors would yield the smallest average partial correlation. A fixed factor analysis with an oblique rotation (F=2) was therefore performed to test a two-factor model, indicating that these two factors accounted for 73.95% and 19.95% of the variance.

2.2.5.2. Confirmatory Factor Analysis (CFA)

To determine the model of best fit using fit statistics, two-factor and three-factor CFA were conducted. Specifically, chi-square, Bentler comparative fit index (CFI), root mean square error of approximation (RMSEA), and a standardized root mean square residual (SRMR) were calculated. CFI values around .95 suggest a good model fit, while RMSEA and SRMR values below .05 indicate a good fit.

Initially, a two-factor CFA yielded X^2 (134) = 343.85, $p < 0.001$, CFI = 0.81, RMSEA = 0.08, and SRMR = 0.08. A three-factor CFA yielded improved results, with X^2 (101) = 155.23, $p < 0.001$, CFI = 0.94, RMSEA = 0.05, and SRMR = 0.06. Based on these comparison results, it was determined that the three-factor model best fit the data. Standardized rotated factor loadings for the three-factor model are reported in *Table 4* in *Appendix D*. Subsequently, a general specific model, which includes a general factor of students' sense of school belonging, and specific factors of Relationships in School (Factor 1), Belonging (Factor 2), and Rejection (Factor 3), was tested and yielded a good fit with X^2 (116) = 186.40, $p < 0.001$, CFI = 0.94, RMSEA = 0.05, and SRMR = 0.05.

The standardized factor loadings for the bifactor model are reported in *Table 5* in *Appendix E.*

2.3. Discussion

The current study sought to examine the factor structure of the PSSM for use in Hispanic middle school populations. To date, no study has assessed the factor structure of the PSSM scale in a sample of Hispanic middle school students, that is more likely to experience a lower sense of school belonging and have higher rates of dropping out of school. EFA results from the current study support the multi-dimensionality of students' sense of school belonging. Based on results from a review by Abudakar et al. (2015), it was hypothesized that the three underlying factors would be belonging, rejection, and acceptance. Consistent with this hypothesis, a three-factor model was found to best fit the data; however, the factors yielded were Relationships in School, Belonging, and Rejection. These factors were similar to those reported in You et al.'s (2011) study.

Consistent with You et al.'s (2011) findings, the current study identified a factor related to students perceived interpersonal relationships at school. Specifically, the Relationships in School factor included items regarding positive reciprocal teacher and student relations including feelings of recognition (i.e., "People here notice when I am good at something," "People here know I can do work," and "Other students in this school take my opinion seriously"), respect (i.e., "I am treated with as much respect as other students" and "The teachers here respect me"), and support (i.e., "There's at least one teacher or adult in this school I can talk to if I have a problem" and "I can really be myself in this school").

Additionally, our analyses revealed a Belonging structure with items related to acceptance and inclusion (i.e., "I feel like a real part of this school," "I feel proud of belonging in this school," and "I am included in lots of activities at this school"). Finally, the last underlying factor was related to feelings of Rejection (i.e., "It is hard for people like me to be accepted here," "Sometimes I feel as if I don't belong here," and "I feel very different from most other students here." These results are consistent with Hagborg (1998) and You et al.'s (2011) studies which identified a factor related to Belonging and Rejection.

Subsequent confirmatory factor analyses revealed that a bifactor model, which includes a general factor of students' sense of school belonging, and the specific factors of Relationships in School (Factor 1), Belonging (Factor 2), and Rejection (Factor 3), fit the data. These findings are consistent with self-determination and social motivation theories, which explain the relation between students' interpersonal relationships in schools and their sense of school belonging (Deci, Vallerand, Pelletier, & Ryan, 1991; Legault, Green-Demers, & Pelletier, 2006; Vitoroulis et al., 2012). A good fit with the general specific factor model therefore suggests that a general or total score of sense of school belonging can be used with the current population.

2.3.1. Practical Implications and Findings

Students' sense of school belonging is associated with academic outcomes (Adelabu, 2007; Anderman, 2003; Arslan & Duru, 2017; Booker, 2006; Furrer & Skinner, 2003; Gillen-O'Neel & Fuligni, 2003; Osterman, 2000; Sanchez, Colon, & Esparza, 2005) and prosocial behaviors (Nichols, 2008; Wentzel, 2006). These

associations tend to be even stronger in Hispanic students when compared to White or African American students (Battistich et al., 1995; Goodenow & Grady, 1993; Griffith, 2000) due to cultural factors including the incongruence between school values and their cultural emphasis on relationships and collectivistic values (Alfaro, Umaña-Taylor, and Bámaca, 2006; Ibañez, Kuperminc, Jurkovic, & Perilla, 2004; Markus & Kitayama, 2010) and school composition (Benner & Graham, 2009; Goodenow, 1993; Griffith, 2000; Morales-Chicas & Graham, 2015). By using a scale like the PSSM that is valid with the current population, school staff can identify Hispanic students who report a low sense of school belonging and identify those who are at risk for poor school adjustment and dropping out. With this information, schools can focus on fostering both student identification and active participation in schools through interventions, like Check and Connect (Christenson, Stout, & Pohl, 2012), in order to promote school completion and students' academic engagement.

2.3.2. Limitations and Future Directions

Despite the strength of the large longitudinal sample of students in the current study, it is important to remember that participants were selected on the basis of being academically at risk at T1. As such, results may not generalize to Hispanic students with higher academic skills and further replication with other samples is recommended to generalize findings. Because academic achievement has been found to be associated with school belonging variables for students (Aviles, Guerrero, Howarth, & Glenn, 1999; González & Padilla, 1997; Goodenow, 1993; Ibañez et al., 2004), Hispanic students who are already academically at risk may have different experiences than

Hispanic students who are not struggling academically. In addition, the current study utilized data gathered at T5 of the longitudinal study, therefore limiting the findings to late elementary school grades. To obtain more insightful information and generalize findings, students' sense of school belonging should be assessed across a wider time frame.

2.3.3. Conclusion

The high rate of Hispanic student dropout continues to be a critical issue facing educators and the society in general. Previous research provide strong evidence of the relationship between students' sense of school belonging and academic outcomes including school retention within samples of Hispanic students. Given this relationship, school staff can use valid measures like the PSSM to identify Hispanic students who report a low sense of school belonging and intervene in ways that promote their interpersonal relationships in schools, feelings of belonging and inclusion, and decrease feelings of rejection in order to promote school completion and students' academic engagement.

2.4. References

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3. ARTICLE 2: ASSESSMENT OF HISPANIC STUDENTS' MOTIVATION FOR EDUCATIONAL ATTAINMENT

3.1. Introduction

In the U.S., Hispanic students are projected to make up 25% of the population of public schools by 2025 (President's Advisory Commission on Educational Excellence for Hispanic Americans, 2000). Despite these growing numbers, Hispanic students continue to have the highest high school dropout rate in the U.S. (U.S. Department of Education, 2015) with only 51-54% graduating from high school and 8% pursuing higher education (Castellanos & Gloria, 2007). Understanding the variables that influence, motivate, and drive Hispanic students' academic success and motivation is therefore critical and of practical importance (Easley, Bianco, & Leech, 2012).

Education motivation, for example, is associated with the student's intention and decision to drop out of school (Alivernini & Lucidi, 2011; Caprara et al., 2008; Fall & Roberts, 2012; Legault, Green-Demers & Pelletier, 2006), academic effort and engagement, and grade point averages (GPAs; Cham, Hughes, West, & Im, 2015; Colon & Sanchez, 2010). Cham et al. (2015), defined motivation for educational attainment as a construct characterized by the dynamic relationship between variables including competence and effort beliefs, social support for educational attainment, and perceived value of education as associated with various academic outcomes.

Socio-cultural theorists posited that motivational variables are closely associated with an individual's culture (Fuller & Garcia Coll, 2010). For example, given that

Hispanic cultures endorse collectivistic values and value communalism and interdependence, Hispanic students' motivation may be undermined by U.S. school's individualistic values that promote competition and self-assertion (Crosnoe, 2009). Futher, Hispanic students' education motivation may be undermined by negative stereotypes held by social agents in their schools regarding their academic abilities (Valencia & Johnson, 2006).

Adolescents experience significant developmental changes, decreases in self-esteem and academic effort and grades, as well as increasingly complex social relations (Burchinal, Roberts, Zeisel, & Rowley, 2008; Duchesne, Ratelle, Poitras, & Drouin, 2009; Eccles et al., 1993). For Hispanic students, specifically, the transition to adolescence also is associated with a decrease in motivation-related factors, including interest in school and intrinsic motivation (Epstein & McPartland, 1977; Harter, 1981; Morales-Chicas & Graham, 2015; Wilkins & Kuperminc, 2010; Witherspoon & Ennett, 2011). Assessing and intervening in motivational factors during this time for Hispanic students is therefore critical.

3.1.1. Conceptual Background

The self-system model of motivational development (Connell & Wellborn, 1991) and self-determination theories (Deci & Ryan, 2000) provide theoretical models for the relationship between motivational variables and their effect on academic outcomes. Specifically, these theories posit that social support from parents, teachers, and peers, shape students' academic competence beliefs and their value for education, in addition to their feelings of school belonging. Empirical evidence provides further support for these

models. For example, students' perceptions of social support predict self-efficacy variables as well as their level of academic engagement and achievement (Fall & Roberts, 2012). Teacher and peer support, specifically, are stronger predictor of school engagement than demographic risk variables for students (Murdock, 1999). Furthermore, parent support predicts students' 5-year trajectories for educational attainment (Tynkkynen, Tolvanen, & Slamela-Aro, 2012).

In addition to this, the expectancy-value theory posits that when students believe that their capability of engaging in behaviors will be conducive to academic achievement and they value academic success, they are more likely to invest energy in academic tasks (Bandura, Barbaranelli, Caprara, & Pastorelli, 1996; Cham, Hughes, West, & Im, 2015; Eccles & Wigfield, 1995). The model also specifies how contextual factors influence adolescents' motivation. Specifically, it suggests that parents are children's primary socializing agents and continue to be essential throughout their development. The model also posits that cultural practices and ethnic stereotypes also shape adolescents' motivational beliefs (Eccles & Wigfield, 1995).

3.1.2. Dimensions of Motivation for Educational Attainment

Cham et al. (2015) identified three dimensions underlying motivation for educational attainment including competence and effort beliefs, social support for educational attainment, and perceived value of education. Empirical evidence supports the dynamic relationship among these factors (Fall & Roberts, 2012; Gunderson, Ramirez, Levine, & Beilock, 2012). Furthermore, associations between these variables and academic outcomes have been extensively investigated in educational contexts

(Alfaro & Umaña-Taylor, 2015; Cham et al., 2015; Deci & Ryan, 2000; Gunderson et al., 2012; Pintrich, 2003; Wigfield, Cambria, & Eccles, 2012).

3.1.2.1. Value of Education

Student's perceived value of educational achievement is one of the strongest and most consistent predictors of academic effort and engagement (Cham et al., 2015). Across ethnic groups, students who have a high economic value of education have better educational outcomes when compared to students who have a low economic value of education (Steinberg, Dornbusch, & Brown, 1997). For example, female students who report higher economic value of education tend to have higher GPAs (Colon & Sanchez, 2010). Ogbu (1994) theorized that minority groups' value of education may be undermined by society's economic reality. For example, on average, Hispanics are more likely to be unemployed and earn less than Whites with equal education (Current Population Survey, 2002). These statistics therefore may undermine Hispanics' students' value for education as well as their academic achievement.

3.1.2.2. Competence and Effort Beliefs

Students' competence and effort beliefs, including perceptions of academic ability, are associated with achievement motivation related outcomes including effort persistence as well as goal-setting (Cham et al., 2015; Deci & Ryan, 2000; Pintrich, 2003; Wigfield et al., 2012). If students attribute their achievements to controllable, internal factors, including effort, instead of uncontrollable factors, they are more likely to succeed academically (Weiner, 2010). Furthermore, competence and self-efficacy mediate the direct effects of ability in academic areas including mathematics

performance (Stevens, Olivárez, Lan, & Tallent-Runnels, 2004). Hispanic students are more likely to endorse lower levels of self-efficacy when compared to White students (Stevens et al., 2004). Researchers theorize that lower self-efficacy among Hispanic students may be due to stereotypes including the negative opinion of the intellectual abilities of minority groups (Good, Aronson, & Inzlicht, 2003; Valencia & Johnson, 2006) as well as the stereotype that the Hispanics do not value educational attainment (Valencia & Johnson, 2006).

3.1.2.3. Social Support for Educational Attainment

Hispanic cultures value the importance of extended kin networks and relationships outside the family. Therefore, the impact of parents and teachers is important to consider relative to Hispanic student's academic outcomes (Cooper, 1999; Diaz Soto, 1989). Research suggests that academic support from teachers and parents is associated with academic motivation in Hispanic students (Alfaro & Umaña-Taylor, 2015; Eccles, Lord, & Midgley, 1991; Newman et al., 2000; Plunkett & Bámaca-Gómez, 2003; Plunkett, Henry, Houltberg, Sands, & Abarca-Mortensen, 2008). For example, Plunkett and Bámaca-Gómez (2003) found that parents' academic advice, as well as their encouragement to engage in educational activities, was predictive of academic motivation for Hispanic students.

U.S. educational policies seek to promote parent involvement in education. For example, The No Child Left Behind Act (2002) requires school staff, along with parents, to develop written policies for parental involvement at state and local district and school levels (Hill & Torres, 2010). Nevertheless, practices to engage families for whom

English is a second language are lacking. Specifically, after engaging in basic acts of parental engagement, including parent-teacher conferences, Latino parents report feeling confused and incompetent (Carreon, Drake, & Barton, 2005; Trumbull, Rothstein-Fish, & Hernandez, 2003).

3.1.2.4. Relationship Among Factors

Empirical research also provides support for the dynamic relationship between these variables that make up the education motivation construct. Social support from parents and teachers has been found to be associated with student's own beliefs about their abilities. For example, higher levels of support from teachers and adults at home are associated with higher levels of perceived competence among high school students (Fall & Roberts, 2012). Additionally, students with lower self-efficacy in academic areas including science, are more likely to have a lower regard for the value of learning as well as engaging in science classwork (Aschbacher, Ing, & Tsai, 2014).

3.1.3. The Adolescent Motivation for Educational Attainment Questionnaire (AMEAQ)

Cham et al. (2014) developed the AMEAQ to assess adolescents' motivation for educational attainment. The initial scale developed by the researchers consisted of 21 items that were drawn from three subscales of the Educational Motivation Questionnaire (Murdock, 1999), which measure students' educational motivation. These 21 items had the strongest relation to teacher's reports of student engagement in school, student's perceived economic value of education, teachers' competence support, and peers' educational aspirations (Cham et al. 2014, Murdock, 1999). Fifteen items were further

developed to assess students' perceived competence, expectations for graduation from high school and enrollment in post-secondary education, and perceptions of parents' and friends' expectations for educational attainment (Cham et al., 2014). The measure asked adolescents to indicate the degree to which they agree or disagree with statements using a 5-point scale (1 = *strongly disagree*, 5 = *strongly agree*). Example items include "Graduating from high school is not as important to me as getting a good paying job" and "My parents expect me to go to college."

Cham et al. (2014) conducted exploratory (EFA) and confirmatory factor analyses (CFA) using the same longitudinal sample from the current study. Results from these analyses indicated that four items had low factor loadings on all factors or had substantial cross loadings on secondary factors, so they were deleted. The resulting final scale consisted of 32 items. In regards to the scale's factor structure, EFA results identified four factors underlying the test items. Subsequent CFA provided support for a bifactor model for the AMEAQ consisting of a general factor of basic educational motivation and three specific factors including teacher educational expectations, peer educational aspirations, and value of education. The General factor was found to be predictive of academic outcomes including behavioral engagement in the classroom as well as grades (Cham et al. 2014, Murdock, 1999).

3.2. Study Purpose

Hispanic students consistently have had the highest high school dropout rate in the U.S. (U.S. Department of Education, 2015). It is therefore critical to identify and understand the variables that influence, motivate, and drive Hispanic students' academic

success (Easley, Bianco, & Leech, 2012). Given the extensive empirical evidence supporting the association between academic motivation and academic outcomes, as well as how motivation variables are undermined in Hispanic students, establishing the psychometric properties of scales that measure motivation for educational attainment within this group is of practical importance. The current study therefore employed the AMEAQ scale, with a sample of Hispanic students to investigate the scale's reliability and delineate its factor structure. The specific aims of the current study are to assess the dimensionality of the scale by fitting a bifactor model that assumes that items load on a single general factor in addition to loading onto group factors including teacher educational expectations, peer educational aspirations, and value of education.

3.3. Methods

3.3.1. Participants

The current study drew participants from a sample of 784 children who were part of a longitudinal study. The purpose of the longitudinal study was to examine the impact of grade retention on various academic outcomes. Participants were recruited across two sequential cohorts in first grade during the fall of 2001 and 2002 from three school districts in Texas. Eligibility criteria for the longitudinal study included: participants had to obtain a score below the median score for the school district on a state-approved, district-administered measure of literacy, had to speak either English or Spanish, they could not have been identified for special education services, other than speech and language, or been previously retained in first grade (for more details on the

recruitment process of the 784 participants, the interested reader can review Hughes & Kwok, 2006).

The longitudinal study was approved by the University Institutional Review Board and the research advisory committee from each school. Subsequently, approval was obtained from the University Institutional Review Board to conduct secondary analyses with the archival data from the longitudinal study. The data used for the current study were extracted from the master files and were de-identified.

Data were collected over nine years but not all students continued to participate in the study over this time. Assessments were conducted by graduate and undergraduate students who had received 18 hours of training on assessment administration and scoring. Trainees also were required to pass practice examinations on each measure they administered and their protocols were checked and corrected on a weekly basis (Hughes & Kwok, 2006).

Out of the 784 participants from the longitudinal study, the current study only considered Hispanic students at Time 9 (T9) when the education motivation scale was administered. The sample for the current study therefore consisted of 189 students. At that time, 7 students were enrolled in 7th grade, 54 in 8th grade, and 139 in 9th grade. . In addition to this, one of these students was enrolled in a Bilingual Education program. Demographics for Time 1 (T1) and T9 are provided in *Table 1* in *Appendix A*.

3.3.2. Measures

3.3.2.1. Demographic Information

At T1, parents were mailed questionnaires assessing demographic variables including the language spoken in the home. English and Spanish versions of these questionnaires were mailed to families of students who were enrolled in bilingual education or spoke any Spanish, as reported by their teachers. Information on students' grade placement and enrollment in special or bilingual education classrooms were obtained through school records and teacher reports.

3.3.2.2. Student-Reported Motivation for Educational Attainment

The AMEAQ was used to assess student's motivation for educational attainment at T9 of the study. The development of the scale as well as the conceptualization of the general factor and the three specific factors of the AMEAQ were presented in the Introduction.

3.3.3. Procedures

If students met eligibility criteria for the longitudinal study, consent forms were sent home for parents to sign. Parents were told that the purpose of the study was to learn about variables related to children's academic success and adjustment in school. A total of 784 parents provided consent at T1 of the longitudinal study. At T9 of the longitudinal study, students who continued to be enrolled in the project were administered the AMEAQ individually at their school.

3.3.4. Planned Analyses

A confirmatory factor analysis was conducted with the 32 items from the AMEAQ measured at T9 with the sample of 189 Hispanic students to test the fit of the proposed bifactor model using STATA 15.0 (StataCorp, 2017). To extract the latent variables, an EFA was conducted using principal-components factor analysis. In addition, an oblique rotation was used to allow for underlying factors to be correlated. Subsequently, internal consistency was measured using Cronbach's alpha to assess the reliability of the entire 32-item scale, as well as the reliability of the factor model obtained through the EFA. To determine the model of best fit using fit statistics, including chi-square, Bentler comparative fit index (CFI), root mean square error of approximation (RMSEA), and a standardized root mean square residual (SRMR), a four-factor CFA was conducted. A general specific model, which included a general factor of students' sense of education motivation, and specific factors retained from the CFA was tested.

3.4. Results

3.4.1. Exploratory Factor Analysis (EFA)

An EFA was conducted on the 32 items using principal-component factor analysis followed by an oblique rotation. Factor loadings for the EFA are provided in *Table 6* in *Appendix F*. Using the Kaiser criterion (Braeken & Van Assen, 2017), which suggests to retain those factors with eigenvalues equal or higher than one, a seven-factor measurement model was extracted with the following eigenvalues: 6.65, 5.77, 5.48, 5.23,

5.16, 4.17, and 4.08. All 32 PSSM scale items loaded onto one of the seven factors with loading values above .13.

Consequently, the Minimum Average Partial Correlation revealed that four factors would yield the smallest average partial correlation. A fixed factor analysis with an oblique rotation (F=4) was performed with the 32 items. Based on item content and a review of the literature, the four factors were identified as School Competence and Effort Beliefs (Factor 1), Teacher Educational Expectations (Factor 2), Peer Aspirations (Factor 3), and Value of Education (Factor 4).

3.4.2. Confirmatory Factor Analysis (CFA)

To determine the model of best fit using fit statistics, a four-factor CFA was conducted. Specifically, chi-square, Bentler comparative fit index (CFI), root mean square error of approximation (RMSEA), and a standardized root mean square residual (SRMR) were calculated. CFI values around .95 suggest a good model fit, while RMSEA and SRMR values below .05 indicate a good fit.

The four-factor CFA yielded X^2 (428) = 1868.55, $p < 0.001$, CFI = 0.81, RMSEA = 0.08, and SRMR = 0.07. Based on these results and similar findings from Cham et al. (2014), it was determined that the four-factor model was adequate although not fully consistent with what was expected for the data. Standardized variance, standard error, and confidence intervals for each item within its factor are reported in *Table 8* in *Appendix H*.

Subsequently, a general specific model, which includes a general factor of education motivation, and specific factors of School Competence and Effort Beliefs

(Factor 1), Teacher Educational Expectations (Factor 2), Peer Aspirations (Factor 3), and Value of Education (Factor 4), was tested and yielded a good fit with X^2 (433) = 1574.83, $p < 0.001$, CFI = 0.85, RMSEA = 0.07, and SRMR = 0.06. The standardized factor loadings for the bifactor model are reported in *Table 9* in *Appendix I*.

3.5. Discussion

The current study sought to examine the factor structure of the AMEAQ for use in Hispanic middle school populations. Using the same longitudinal sample from the current study, Cham et al. (2014) conducted EFA and CFA and identified four factors underlying the test items as well as support for a bifactor model for the AMEAQ. Specifically, they identified a general factor of basic educational motivation and three specific factors including teacher educational expectations, peer educational aspirations, and value of education. Based on these previous findings, it was hypothesized that a bifactor model with a general factor and three specific factors would be found. However, a four-factor model was found to best fir the data; with a factor related to student's school competence and effort beliefs. This factor had been previously identified in Cham et al. (2014)'s EFA findings.

Consistent with previous findings (Cham et al., 2014, Murdock, 1999), the current study identified factors related to teacher educational expectations, peers' educational aspirations, and value of education. Items underlying the Teacher Educational Expectations factor were related to perceived teacher's high school graduation and college enrollment expectations (i.e., "My teachers believe that I will graduate from high school," and "My teachers don't think I'll go to college.") and

beliefs related to the student's academic competence (i.e., "My teachers think I'm smart."). Items that loaded onto the Peer Educational Aspirations factor assessed perceived peers' likelihood of graduating or dropping out of school (i.e., "Most of my good friends will get a high school diploma," and "Most of my good friends will quit high school when they are old enough") and going to college (i.e. "Most of my good friends plan to go to college" and "Lots of my good friends won't be able to go to college"). The Value of Education factor addressed students' beliefs regarding the social or economic benefits of education. Items in this factor included the perceived relationship between education and getting a job (i.e., "If I get bad grades, I can still get a good job," and "If I work hard in school, I will get a better job than kids who don't try hard."), earning money (i.e., "I can make good money without an education," and "I will make more money someday if I do well in school."), and being successful (i.e., "I could be successful in life without an education," and "School is not that important for future success.").

Additionally, our analyses revealed a School Competence and Effort Beliefs factor with items related to perceived self-efficacy beliefs related to high school and college (i.e., "I am confident that I will graduate from high school," and "I am confident that I will go to college."), knowledge about high school, college, and vocational school ("I know what courses I need to take to graduate from high school", "I know what courses and grades it takes to get into the vocational school or college I want to enter", and "I know how much it costs to go to vocational school or college."). In addition to this, consistent with Cham et al.'s (2014) findings, items related to parent educational

expectations loaded onto this factor (i.e., “My parents expect me to graduate from high school” and “My parents expect me to go to college.”).

Subsequent confirmatory factor analyses revealed that a bifactor model, which includes a general factor of students’ educational motivation, and the specific factors of School Competence and Effort Beliefs (Factor 1), Teacher Educational Expectations (Factor 2), Peer Aspirations (Factor 3), and Value of Education (Factor 4), fit the data. These findings are consistent with motivational development and self-determination theories as well as the expectancy-value theory, defining student’s educational motivation as a multi-dimensional construct encompassing student’s competence and effort beliefs, their value of education, as well as their peer and teacher supports for educational attainment (Bandura, Barbaranelli, Caprara, & Pastorelli, 1996; Cham et al., 2015; Connell & Wellborn, 1991; Deci & Ryan, 2000; Eccles & Wigfield, 1995). A good fit with the general specific factor model therefore suggests that a general or total score of education motivation can be used with the current population.

3.5.1. Practical Implications of Findings

The results from the current study are relevant findings for educational practice as students’ educational motivation is associated with school dropout (Alivernini & Lucidi, 2011; Caprara et al., 2008; Fall & Roberts, 2012; Legault, Green-Demers & Pelletier, 2006) and academic effort and engagement (GPAs; Cham et al., 2015; Colon & Sanchez, 2010). Promoting student’s educational motivation may therefore lead to more favorable academic outcomes. This is especially important for Hispanic students who are at risk for adverse academic outcomes and who experience lower levels of

educational motivation due to the mismatch between their culture's collectivistic values and U.S. school's individualistic values as well as negative stereotypes that may be held by social agents in their schools regarding their academic abilities (Crosnoe, 2009; Valencia & Johnson, 2006).

Information obtained from measures like the AMEAQ, that are valid with the current population, can assist school staff in identifying Hispanic students who endorse low levels of educational motivation and who might be at risk of adverse educational outcomes including dropping out of school. As a result, schools can focus on improving school wide perceptions of the value of education as well as students' knowledge related to college and vocational schools and competence and effort beliefs. For example, schools can implement interventions like the Check and Connect (Christenson, Stout, & Pohl, 2012), where they pair students with mentors who can assess and monitor these factors.

3.5.2. Limitations and Future Directions

Educational motivation was assessed at T9 of the larger study, limiting the findings to early high school years when students may be barely beginning to learn about college or thinking about their professional aspirations. In addition, participants from the current study were selected on the basis of being academically at risk at T1 of the larger longitudinal study, presenting challenges to the generalizability of the results to all Hispanic students. Specifically, given the association between academic achievement and student's competence and effort beliefs (Cham et al., 2015; Deci & Ryan, 2000; Pintrich, 2003; Stevens et al., 2005; Wigfield et al., 2012), the current sample may have

different experiences and perceptions than students who are not struggling academically. Further replication with other samples across a wider time frame is therefore recommended to generalize findings.

3.5.3. Conclusion

Despite being a growing population in U.S. public schools, Hispanic students continue to have high dropout rates. In addition, research suggests that they face unique challenges that may undermine their educational motivation. Given the extensive findings suggesting that educational motivation promotes favorable academic outcomes, including academic effort and engagement, drop-out, and grade point averages, valid measures that assess education motivation within Hispanics is therefore of practical importance. Schools can utilize measures like the AMEAQ to identify students with low levels of education motivation that might be at risk for adverse educational outcomes and implement school wide or individual interventions to promote students' perceived value of education as well as their competence and effort beliefs.

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4. ARTICLE 3: SCHOOL BELONGINGNESS AND EDUCATIONAL MOTIVATION AMONG HISPANIC STUDENTS

4.1. Impact and Implications Statement

This study suggests that ELL status predicted feelings of school belonging at late middle school but not late elementary grades, indicating that as students enter middle school, their ELL status is more likely to influence their feeling of being accepted and valued by their school context. Additionally, school belonging at later elementary grades predicted school belonging and motivation for educational attainment as students transition to high school.

4.2. Introduction

Hispanic students consistently have had the highest high school dropout rate in the U.S. for the past 50 years (Alfaro & Umaña-Taylor, 2015). The U.S. Department of Education (2015) reported Hispanic student dropout rates of 12%, compared to 5% for White students, and 7% for Black students in 2013. Hispanic English Language Learners (ELLs) are even more at-risk with 59% dropping out of school (Fry, 2003). These rates are a concern for educators, policymakers, and the U.S. public because of the growing population of Hispanic youth enrolled in schools (Laird, Lew, Debell, & Chapman, 2006) and the increasing demands for a more educated workforce (Freeman & Simonsen, 2015; Rumberger, 2011). As a result, policymakers developed legislation that target these issues including the Every Student Succeeds Act which requires states to target economic resources toward schools with high dropout rates and where specific

subgroups of students are struggling (Executive Office of the President, 2015). Therefore, understanding the factors and processes associated with high school dropout and its path is essential for the development of effective policies and programs aimed at preventing Hispanic student dropout (Brewster & Bowen, 2004).

4.2.1. Outcomes Associated with High School Dropout

Dropping out of high school is associated with negative social and financial outcomes (Stark, Noel, & McFarland, 2015). For example, students who drop out of high school are unlikely to have the minimum skills and credentials to function in today's workplace (Laird et al., 2006) and experience higher unemployment rates than adults who complete high school (Stark et al., 2015; U.S. Department of Labor, 2015). Furthermore, when employed, students who drop out tend to make less money on average than those who complete high school (Freeman & Simonsen, 2015; Rumberger, 2011).

Education attainment is also a strong predictor of health (Cutler & Lleras-Muney, 2006). Students who drop out are more likely to experience poorer mental and physical health compared to individuals who finish high school (Stanard, 2003). Additionally, these students make up a high percentage of the nation's institutionalized population (Stark et al., 2015) and are more likely to suffer from depression than individuals who complete high school (Freeman & Simonsen, 2015; Rumberger, 2011).

In addition to issues faced at an individual level, individuals who drop out high school prematurely have been found to be at a higher risk for relying in social welfare, which drains the country's economic resources. Specifically, research has found that

individuals who drop out prematurely cost the U.S. economy approximately $250,000 over their lifetime in terms of social services, lost wages, and taxes (Stark et al., 2015). Additionally, they are more likely to engage in delinquent behavior, serve time in jail, and abuse substances (Freeman & Simonsen, 2015; Rumberger, 2011; Stanard, 2003). More concerning, the disadvantaged position of the older generation of students who drop out is passed on to younger generations, making it difficult to break the inter-cohort transmission of lack of educational attainment (Saenz & Siordia, 2012).

4.2.2. Factors Related to Hispanic Students' Dropout Rates

Dropping out of high school is not an isolated event but is characterized by a path that begins during elementary school by indicators of disengagement, alienation, and unsuccessful school experiences (Alexander, Entwisle, & Horsey, 1997; Cham, Hughes, West, & Im, 2015; Hughes, Im, Kwok, Cham, & West, 2014; Janosz, Archambault, Morizot, & Pagani, 2008). Among Hispanic students, limited English language proficiency is strongly associated with dropping out of high school. Specifically, the 14 percent of Hispanic 16- to 19-year-olds with limited English language proficiency have a dropout rate of 59 percent (Fry, 2013). Furthermore, as discussed below, previous research findings provide support for the association between motivation for educational attainment as well as feelings of school belonging for Hispanic students' dropout rates (Aviles, Guerrero, Howarth, & Glenn, 1999; Fall & Roberts, 2012; González & Padilla, 1997; Goodenow, 1993; Ibañez, Kuperminc, Jurkovic, & Perilla, 2004).

4.2.2.1. Motivation for Educational Attainment

Motivation for educational attainment is a construct characterized by the dynamic relationship between variables including competence and effort beliefs, social support for educational attainment, and perceived value of education (Cham et al., 2014). The self-system model of motivational development provides a theoretical model for the relationship between motivational variables and their effect on academic outcomes. Specifically, this model posits that individuals possess an innate need to connect and interact with others, and that the relationship of a given social context, including peer or teacher support, and an individual's self-system processes, including feelings of school belonging, are influenced by how well a social context meets these basic needs (Connell & Wellborn, 1991). Studies have provided empirical support for the self-system model. For example, Fall & Roberts (2012) found that students' perceptions of social support predicts self-perception variables, including identification with the school and competence beliefs, predicted their level of academic engagement and achievement as well as their decision to drop out of high school.

The socio-cultural theory proposes that motivation results from students' attempt to make meaning of their everyday life experiences based on culturally based knowledge, practices, and values (Fuller & Garcia Coll, 2010). Therefore, Hispanic students' motivation may be undermined by the mismatch between their culture's collectivistic values and the U.S. culture's individualistic values (Crosnoe, 2009). For example, U.S. schools with individualistic cultures may promote competition and self-assertion, whereas collectivistic cultures value collaboration (Trumbul & Rothstein-

Fisch, 2011). Additionally, Hispanic students' motivation may be undermined by negative stereotypes about their academic abilities and the commonly held perception that their culture does not value educational attainment (Valencia & Johnson, 2006).

4.2.2.2. School Belonging

School belonging is defined as the extent to which students feel accepted, respected, and valued by others in the school environment (Goodenow, 1993). From a self-determination theoretical standpoint, when students' basic needs of autonomy, competence, and relatedness are met in schools, they will have a greater interest and appreciation for their learning and school (Deci, Vallerand, Pelletier, & Ryan, 1991; Vitoroulis et al., 2012). This theory underscores the importance of the quality of interpersonal relationships in schools, a specific component of school belonging, on academic outcomes.

School belonging is a predictor of academic outcomes especially for ethnic minority students because they are more likely to experience alienation due to factors including the incongruence between school values and their own values and beliefs (Ibañez, Kuperminc, Jurkovic, & Perilla, 2004). For example, in Hispanic students, low levels of sense of school belonging are related to lower school grades, achievement motivation, dropping out of school (Aviles, Guerrero, Howarth, & Glenn, 1999; González & Padilla, 1997; Goodenow, 1993; Ibañez et al., 2004).

In addition to this, low feelings of school belonging are related to higher levels of acculturative stress, which in turn are also predictive of low school performance among Hispanic youth (Ibañez, Kuperminc, Jurkovic, & Perilla, 2004**;** Roche & Kuperminc,

2012). School belonging also predicts feelings of self-esteem in Hispanic students, a variable that is highly predictive of achievement in Hispanic ELL students when compared to non-Hispanic ELL students (Schwartz, Zamboanga, & Hernandez Jarvis, 2007; Guglielmi, 2012).

4.2.2.3. Motivation for Educational Attainment and School Belonging

Researchers have relied on theoretical models to explain the relation between motivation variables, including achievement expectation and academic engagement, and school belonging, a construct that encompasses students' feelings of closeness to their teachers, their emotional attachment to their school, and their commitment to conventional school goals (Hernández, Robins, Widaman, & Conger, 2016). Social motivation theories, for example, posit that when students' needs are met and they experience support from social agents from their school, they will develop a positive sense of school membership, promoting greater academic effort and persistence (Legault, Green-Demers, & Pelletier, 2006).

Empirical research also provides evidence of the dynamic relationship between motivation for academic attainment and school belongingness in samples of Hispanic students. School belongingness has been found to predict both academic outcome and achievement expectations for middle school students of Mexican-origin in the U.S. (Hernández et al., 2016) and academic engagement among Hispanic students (Sanchez, Colon, & Esparza, 2005). Researchers theorize that, because Hispanic cultures endorse collectivistic goals, Hispanic students may be more susceptible to perceptions of school climate, including school belonging (Alfaro, Umaña-Taylor, & Bámaca, 2006). When

studying the differences among minority groups, for example, Goodenow and Grady (1993), found that school belongingness correlated more strongly to academic motivation in Latino students compared to African American students.

4.2.2.4. Transition to Middle School and High School

School belonging decreases after students' transition to middle school and continues to decrease throughout middle school (Wang & Holcombe, 2010; Whitlock, 2006) as well as during students' transition to and during their first year of high school (Witherspoon & Ennett, 2011). The stage-environment fit theory (Eccles et al., 1993) explains that this decline occurs because early adolescents experience a mismatch between their developmental needs and the demands placed by their schools and families. For example, the increase in school size in middle and high school years may undermine the sense of community in schools, making it difficult for students to form close relationships with peers and teachers (Eccles & Roeser, 2009). Furthermore, during this transition, students experience developmental changes, increasingly complex social relations, as well as a decrease in self-esteem and academic effort and grades (Burchinal, Roberts, Zeisel, & Rowley, 2008; Eccles et al., 1993; Duchesne, Ratelle, Poitras, & Drouin, 2009).

Due to the unique circumstances that Hispanic students may face in schools, the degree to which school belonging is associated with academic achievement in the transition to adolescence is of practical importance (Hernández et al., 2016). For Hispanic students, when compared to other minority students, the transition to middle and high school is associated with increases in stress levels and decreases in grade

averages (Akos & Galassi, 2004) as well as a decrease in motivation-related factors, including interest in school and intrinsic motivation, and feelings of school belonging (Epstein & McPartland, 1977; Harter, 1981; Morales-Chicas & Graham, 2015; Wilkins & Kuperminc, 2010; Witherspoon & Ennett, 2011).

As they transition out of elementary school, Hispanic ELL's face even greater academic difficulties than their non-ELL peers. Specifically, in high school, Hispanic ELL's have lower grade point averages and earn fewer course credits than non-ELL students (Jesse, Davis, & Pokorny, 2004; National Center for Education Statistics, 2011). These difficulties may be associated to the decline in academic supports for ELL students after elementary school. In Texas, for example, bilingual instruction is not offered after the fifth grade and students are enrolled in all-English instruction with no primary language support in middle school (Palmer, 2011). For Hispanic students, researchers have identified protective factors that increase motivation during their transition from middle to high school. Specifically, when Hispanic students perceive academic climates that are less focused on grades, on the other hand, they reported feeling more motivated to master academic tasks (Kumar, 2006).

4.2.3. Study Purpose

Given the existing research, various factors may contribute to the high dropout rates for Hispanic students with critical periods around the time of transitions. The overall purpose of this study is to identify potential factors that may explain why Hispanic students drop out of high school as they transition from elementary to middle school and then high school. Research suggests that school belonging and motivation

for educational attainment are predictors of academic outcomes including high school dropout for Hispanic students (Cham et al., 2014; Guglielmi, 2012; Schwartz et al., 2007). Furthermore, school belonging has been found to be a stronger predictor of academic outcomes for Hispanic English Language Learners (ELLs) compared to Hispanic non-ELLs (Guglielmi, 2012; Schwartz et al., 2007).

This study therefore analyzes the relation between two variables associated with high school dropout rates in Hispanic students: motivation for educational attainment and school belonging. Specifically, for Hispanic students, to what extent does school belonging in late elementary grades predicts school belonging and motivation for educational attainment measures as they leave middle school and enter high school. In addition to this, the present study seeks to identify within group differences in school belonging and motivation for educational attainment between Hispanic ELLs and Hispanic non-ELLs.

4.3. Method

4.3.1. Participants

Participants were drawn from a larger sample of 784 children participating in a longitudinal study, which examined the impact of grade retention on academic achievement. These participants were recruited from three school districts in Texas across two sequential cohorts in first grade during the fall of 2001 and 2002 (T1). School District A (student population = 13,558) had an ethnic distribution of 38% White, 37% Latino, 25% African American, and less than 1% other. District B (student population = 24,429) had an ethnic distribution of 35% White, 30% Latino, 30% African

American, and 5% other. District C (student population = 7,424) had an ethnic distribution of 67% White, 12% Latino, 12% African American, and 9% other (For more details on the recruitment process of the 784 participants, the interested reader can review Hughes and Kwok, 2006).

To be eligible to participate in the larger longitudinal study, children had to obtain a score below the median score for their school district on a state-approved, district-administered measure of literacy, speak either English or Spanish, not be identified for special education services other than speech and language, and not have been previously retained in first grade. The larger longitudinal study was approved by the University Institutional Review Board as well as each school district's research advisory committee. Use of the archival data and secondary analysis for this study also was approved by the University Institutional Review Board. De-identified data needed to address the research questions were extracted from the master files.

For the purposes of this study, out of the 784 participants in the larger study, only Hispanic students were considered, resulting in a sample size of 293 students at T1 (grade 1) of data collection. Of these 293 students, 153 (52.22%) were male. Their mean age at entrance to first grade was 6.57 (SD=0.38) and their mean score for intelligence, as measured with the Universal Nonverbal Intelligence Test (UNIT; Bracken & McCallum, 1998), was 94.3 (SD=13.72). Additionally, 114 of these students (38.91%) were considered ELL based on Bilingual Education Status which indicated their enrollment in their school's Bilingual Education program. Demographics for T1 are provided in *Table 1* in *Appendix A*.

Trained graduate and undergraduate students who had demonstrated proficiency in administration conducted all assessments. Specifically, prior to administering measures in the school, trainees received a minimum of 18 hours of classroom instruction each semester, passed practice examinations on each measure, and their protocols were checked and corrected on a weekly basis (Hughes and Kwok, 2006). Data were collected longitudinally; however, not all students continued in the study over the nine years considered in this study. At Time 5 (T5), data were available for 262 students; at Time 9 (T9), data were available for 196 students. At T5, two students were in 3rd grade, 71 in 4th grade, and 189 in 5th grade. Of these students, 74 (28.24%) were enrolled in a Bilingual Education program. At T9, 7 students were in 7th grade, 54 in 8th grade, and 139 in 9th grade. Of these students, one was enrolled in a Bilingual Education program. Demographics for T5 and T9 are provided in *Table 1* in *Appendix A*.

4.3.2. Measures

4.3.2.1. Cognitive Ability

The UNIT (Bracken & McCallum, 1998) is a standardized, nationally norm-references individually administered measure of cognitive ability for children and adolescence. The UNIT's administration and response formats are entirely nonverbal to provide a fair assessment to individuals who may be disadvantaged by traditional verbal and language-loaded measures (Bracken & McCallum, 1998). Reliability coefficients for the subtests scores range from .64 to .85. and validity studies show strong concurrent and predictive validity with other measures of intelligence including the WISC-III (Hooper

& Bell, 2006). The abbreviated version of the UNIT was used at T1 with results provided here for descriptive purposes.

4.3.2.2. Proficiency

The Woodcock-Muñoz Language Survey (WMLS, Woodcock & Muñoz-Sandoval, 1993) is a standardized, nationally norm-referenced individually administered measure of language proficiency in English and Spanish measuring reading, writing, listening, and comprehension. The WMLS Broad Spanish and English Ability standard scores were used in this study. Internal consistency reliability coefficients for the WMLS subtests scores vary from .76 to .97. Furthermore, the WMLS English version shows acceptable concurrent validity with other measures of oral language and verbal ability including the Wechsler Intelligence Scale for Children-III Verbal IQ and the Differential Ability Scales Verbal Ability score. Research supports the reliability and construct validity of the WMLS scores (Woodcock & Muñoz- Sandoval, 1993). These scores were collected at T1, T5, and T9 of the study.

4.3.2.3. Student-Reported Motivation for Educational Attainment

Cham et al. (2014) drew 20 items from 3 subscales of the Educational Motivation Questionnaire (Murdock, 1999) to develop the Adolescent Motivation for Educational Attainment Questionnaire (AMEAQ), which measures students' educational motivation and the specific factors including teacher educational expectations, peer aspirations, and value of education. Exploratory and confirmatory factor analyses indicate high correlations between each of the four distinct constructs measuring motivation for educational attainment by the AMEAQ. In addition to this, study findings provide

support for the criterion-related validity of the interpretation provided by the bifactor model of the AMEAQ (Cham et al., 2014). Students were asked to indicate the degree to which they agreed or disagreed to statements using a 5-point scale (1 = *strongly disagree*, 5 = *strongly agree*). Example items include "Graduating from high school is not as important to me as getting a good paying job" and "My parents expect me to go to college". This measure was used at T9 of the study.

4.3.2.4. Student-Reported School Belonging

The Psychological Sense of School Membership Scale (PSSM, Goodenow, 1993) was used to assess students' perceptions of school belonging including perceived acceptance and support from teachers and peers, feelings of inclusion, respect, and encouragement for participation. This scale consists of 18 items with a 5-point Likert-type scale (1 = *not at all true*, 5 = *very true*). Example items include "I feel like a real part of this school" and "It is hard for people like me to be accepted here." In assessing its reliability, Goodenow (1993), reports Cronbach's alphas between .78 and .95 across ethnicities, including Hispanic Americans, in the U.S. High test-retest reliability coefficients (.78) across 4 weeks are also reported by Hagborg (1998). Cronbach's α across three longitudinal measurement waves for the current sample ranged from 0.81 to 0. 91 (median = 0.89) (Hughes, Im, & Allee, 2015). Scores on this scale are moderately correlated with students' perceived level of teacher support and academic self-efficacy (Hughes, 2011; Hughes et al., 2011).

4.3.2.5. Demographic Information

At baseline, parents were mailed questionnaires which included items on demographic variables including language spoken in the home. Parents of students enrolled in bilingual education and students who spoke any Spanish, according to teachers, were mailed both English and Spanish versions of the questionnaire. Information on student grade placement each year and enrollment in special or bilingual education classrooms were obtained annually from school records and teacher information.

4.3.3. Procedures

Assessments were conducted annually for 9 years, beginning in Grade 1. Research staff individually assessed IQ at T1 only. If children or their parents spoke any Spanish, students were individually administered the WMLS by bilingual (English/Spanish) examiners to determine the child's language proficiency in English and Spanish. All measures were administered in the language in which the student demonstrated greater language proficiency.

Research staff assessed students' perception of school belonging in individual interviews at school using the PSSM at T5 and T9, with a minimum of eight months separating each annual assessment. Students more proficient in Spanish than English, based on performance on the WMLS, were administered the school belonging measure in Spanish by bilingual examiners. This version was translated into Spanish from the English version and back-translated into English to ensure its validity (Hughes, Im, & Allee, 2015). At T9, students completed the AMEAQ.

4.3.4. Planned Analyses

Linear regression analyses were conducted using SPSS Statistics software to test if ELL status at T1 significantly predicted school belonging, as measured by the PSSM, at T5 and T9, as well as motivation for educational attainment, as measured by the AMEA, at T9. To examine the extent to which school belonging at T5 predicted school belonging and motivation for educational attainment at T9, two three-stage hierarchical linear regression analyses were conducted. To control for student characteristics, gender, grade, ELL status, and special education status were entered in stage 1 of both regression analyses. Additionally, school characteristics, including school and class percent Hispanic were entered in stage 2 of both regression analyses.

4.4. Results

The present study hypothesized that ELL status at T1 would predict school belonging at T5 and T9 as well as motivation for educational attainment at T9. To test this hypothesis, three linear regression analyses were conducted. The results presented in *Table 10* in *Appendix J* indicate that ELL status at T1 only predicted school belonging at T9 [$F(1,178)=7.541$, $p<.01$; $R^2 = .041$]; however, ELL status at T1 was not predictive of school belonging at T5 or motivation for educational attainment at T9.

It was hypothesized that school belonging at T5 would predict school belonging at T9 and motivation for educational attainment at T9. A three-stage hierarchical regression model was conducted with school belonging at T9 as the dependent variable. Student characteristics were entered in stage 1 of the regression, school characteristics

were entered in stage 2, and school belonging at T5 was entered in stage 3 of the regression. See *Table 11* in *Appendix K* for regression results.

The results from the regression revealed that at stage 1, Student Characteristics contributed significantly to the regression model [F (4,130) = 5.45, p<0.01)] and accounted for 14% of the variation in school belonging at T9. Adding School Characteristics to the model did not explain any additional variance in school belonging at T9 (p = .99). Finally, the addition of school belonging at T5 explained an additional 7% of the variation in school belonging at T9 and this change in R^2 was significant [F (1,127) = 12.427, p <.01].

4.4.1. School Belonging and Motivation for Educational Attainment

To test if school belonging at T5 predicted motivation for educational attainment at T9, a three-stage hierarchical regression model was conducted with motivation for educational attainment at T9 as the dependent variable. Similar to the previous model, student characteristics were entered in stage 1, school characteristics were entered at stage 2, and school belonging at T5 was entered in stage 3 of the regression. See *Table 12* in *Appendix L* for regression results.

The results from the regression revealed that at stage 1, Student Characteristics did not contribute significantly to the regression model (p=.09). Similarly, entering School Characteristics to the model did not explain any additional variance in school belonging at T9 (p = .27). In contrast, entering school belonging at T5 to the model, explained an additional 3% of the variation in school belonging at T9, and this change in R^2 was significant [F (1,126) = 4.239, p <.05].

4.5. Discussion

The current study found that ELL status in early elementary (Time 1) predicted feelings of school belonging at late middle school but not late elementary grades. This finding suggests that during middle school, student's ELL status is more likely to influence their feeling of being accepted and valued by their school context. This may be due to the lack of curricular support for ELL students after elementary school as well as the increase in school size in middle school years which has been shown to undermine students' sense of community in schools (Eccles & Roeser, 2009). These results are consistent with previous research suggesting that after elementary school, Hispanic ELL students experience a decrease in feelings of school belonging (Epstein & McPartland, 1977; Morales-Chicas & Graham, 2015).

Additionally, the study found that school belonging at later elementary grades predicted school belonging and motivation for educational attainment as students prepare to transition to high school. These findings are consistent with previous studies suggesting that having a sense of school belonging and forming an attachment to others in schools, is associated with variables of motivation for educational attainment, including teacher educational expectations, peer aspirations, and value of education (Goodenow & Grady, 1993; Hernández et al., 2016; Legault et al., 2006; Sanchez et al., 2005). Furthermore, the present findings suggest that school belonging in elementary grades is predictive of student's sense of belonging in middle school, indicating it is a stable construct across time.

Student characteristics, including gender, grade, ELL status, and special education, were also found to predict school belonging as students transition to high school. School characteristics, including school and class percent Hispanic, on the other hand, were not predictive of school belonging or motivation for educational attainment as students transition to high school. These findings diverge from those reported in previous studies, which suggested that transitioning into schools with more members of their same ethnic group can be a protective factor for Hispanic students influencing their connectedness to the school (Benner & Graham, 2009; Morales-Chicas & Graham, 2015). These divergent findings may be due to differences in study samples. Specifically, Benner & Graham's (2009) study sample only included Latino students from metropolitan schools in Los Angeles, California, who were enrolled in non-English language learner English classes. Furthermore, Morales-Chicas & Graham (2015) only included Latino female 6th grade students in their sample.

4.5.1. Implications

The findings in this study have broader implications. First, results suggest that student's feelings of school belonging at elementary grades is an important variable that influences students' feelings of being valued and accepted by their school, as well as their motivation to achieve as they transition to high school. Second, these findings indicate that students ELL status in first grade predicts their feelings of school belonging in late middle school; suggesting that the lack of curricular support that ELL students experience as they transition to middle school may be an important component in their feeling valued and supported by their schools.

Study findings point to the potential of interventions in primary grades for reducing Hispanic student's achievement disparities and high school dropout rates (Hughes & Kwok, 2007). Because English-language ability as well as school belonging has been found to predict other variables, including academic achievement and high school dropout rates in Hispanic ELL students (Aviles et al., 1999; Fry, 2013; González, & Padilla, 1997; Goodenow, 1993; Ibañez et al., 2004), professionals should revisit their policies on curricular support for ELL students during their transition to high school or identify other means of promoting their feelings of being valued and respected in their school context early on. Check and Connect (Christenson & Reschly, 2010), for example, has been found to be an effective intervention in promoting meaningful relationships between students and school faculty and consequently improving academic outcome variables including school retention for Hispanic students.

4.5.2. Limitations and Future Directions

Despite the strength of this large longitudinal sample of children, it is important to remember that participants were selected on the basis of being academically at risk at T1, results may not generalize to Hispanic students with higher academic skills and further replication with other samples is recommended to generalize findings. Because academic achievement has been found to be associated with school belonging and motivation variables for students (Aviles, Guerrero, Howarth, & Glenn, 1999; González & Padilla, 1997; Goodenow, 1993; Ibañez et al., 2004), Hispanic students who are already academically at risk may have different experiences than Hispanic students who are not struggling academically. In addition to this, some students were retained as the

study progressed and were not transitioning to middle or high school at T5 or T9 of the study. Therefore, assessment data gathered from these students would not be pertinent in studying student's experience as they transition to middle or high school.

The current longitudinal analysis was also limited to late elementary and middle school grades, with outcome data at T9. To be able to generalize findings and obtain more insightful information, these variables should be assessed across a wider time frame, possibly including the last years of high school. Factors related to parent expectations also may contribute to school belonging and motivation outcomes for these students. Specifically, research findings support the importance of social support for education as well as educational expectations from parents on academic motivation and aspirations for students (Tynkkynen, Tolvanen, & Salmela-Aro, 2012; Wood, Kurtz-Costes, & Copping, 2011). Furthermore, when analyzing these variables during the last years of high school, additional variables can be incorporated into the models, including high school completion or dropout as outcome variables.

4.5.3. Conclusions

The high rate of Hispanic student dropout continues to be a critical issue facing educators and the society in general. As with previous studies, results corroborate previous research related to the importance of school belonging to motivation for academic achievement. Additional research specific to school belonging at points of transition to middle school and high school is needed to identify those factors and supports that influence school belonging. Similar to universal screening in other areas, screening for student sense of belonging could potentially identify the need for

preventive school-wide or class-wide approaches to increase all students school belonging at all levels of education.

4.6. References

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5. CONCLUSIONS

5.1. Discussion

Hispanic students consistently have had the highest high school dropout rate in the U.S. for the last 50 years (Alfaro & Umaña-Taylor, 2015). For Hispanic students, research suggests that sense of school belonging and motivation for educational attainment are predictors of academic outcomes including high school dropout (Aviles, Guerrero, Howarth, & Glenn, 1999; Fall & Roberts, 2012; González & Padilla, 1997; Goodenow, 1993; Ibañez, Kuperminc, Jurkovic, & Perilla, 2004). Identifying and understanding the variables associated with school dropout is therefore essential for the development of effective policies and programs aimed at preventing the high dropout phenomenon of Hispanic ELL students (Brewster & Bowen, 2004). The current studies sought to examine the factor structure of the PSSM, a school belonging measure, and the AMEAQ, an education motivation measure, for use in Hispanic middle and high school populations to later identify factors that may explain why Hispanic students drop out of school. Specifically, the study analyzed the extent to which school belonging, as measured by the PSSM, in late elementary school predicts school belonging and motivation for educational attainment, as measured by the AMEAQ, in late middle school. In addition, group differences in school belonging and motivation for educational attainment between Hispanic ELLs and Hispanic non-ELLs also were considered.

Results from the study support the multi-dimensionality of students' sense of school belonging. Consistent with You, Ritchey, Furlong, Shocket, and Boman's (2011)

findings, the current study found three factors underlying the PSSM including Relationships in School, Belonging, and Rejection. In addition, subsequent confirmatory factor analyses revealed that a bifactor model, which includes a general factor of students' sense of school belonging, and the specific factors of Relationships in School (Factor 1), Belonging (Factor 2), and Rejection (Factor 3), fit the data. These findings are consistent with self-determination and social motivation theories, which explain the relation between students' interpersonal relationships in schools and their sense of school belonging (Deci, Vallerand, Pelletier, & Ryan, 1991; Legault, Green-Demers, & Pelletier, 2006; Vitoroulis, Schneider, Vasquez, del Pilar Soteras de Toro, & Gonzales, 2012).

Similarly, consistent with previous findings (Cham, Hughes, West, & Im, 2014, Murdock, 1999), motivation for educational attainment was found to be a multi-dimensional construct. Specifically, the current study identified factors related to teacher educational expectations, peers' educational aspirations, and value of education when assessing the factor structure of the AMEAQ. Furthermore, confirmatory factor analyses revealed that a bifactor model, which includes a general factor of students' educational motivation, and the specific factors of School Competence and Effort Beliefs (Factor 1), Teacher Educational Expectations (Factor 2), Peer Aspirations (Factor 3), and Value of Education (Factor 4), fit the data. These findings are consistent with motivational development and self-determination theories as well as the expectancy-value theory, defining student's educational motivation as a multi-dimensional construct encompassing student's competence and effort beliefs, their value of education, as well

as their peer and teacher supports for educational attainment (Bandura, Barbaranelli, Caprara, & Pastorelli, 1996; Cham, Hughes, West, & Im, 2015; Connell & Wellborn, 1991; Deci & Ryan, 2000; Eccles & Wigfield, 1995). A good fit with the general specific factor model for both PSSM and AMEAQ measures suggests that a general or total score of sense of school belonging and education motivation can be used with the current population.

Using the PSSM, the current study found that ELL status in early elementary (Time 1) predicted school belonging at late middle school but not late elementary grades, suggesting that student's ELL status during middle school is more likely to influence their feeling of being accepted and valued by their school context. These findings might explain why after elementary school, Hispanic ELL students experience a decrease in feelings of school belonging (Epstein & McPartland, 1977; Morales-Chicas & Graham, 2015).

Student characteristics, including gender, grade, ELL status, and special education, were found to predict school belonging as students transition to high school. In addition, school belonging at later elementary grades predicted school belonging and motivation for educational attainment, measured by the AMEAQ, as students prepare to transition to high school. Results therefore provide evidence for the stability across time for the construct of school belonging. Additionally, current findings support previous research findings showing that variables of school belonging, including positive relationships with others in schools, are associated with dimensions of education motivation, including teacher educational expectations, peer aspirations, and value of

education (Goodenow & Grady, 1993; Legault et al., 2006; Sanchez, Colon, & Esparza, 2005).

Diverging from previous findings from Benner and Graham (2009) and Morales-Chicas & Graham (2015), the current study found that school characteristics, including school and class percent Hispanic, were not predictive of school belonging or motivation for educational attainment as students transition to high school. These divergent findings may be explained by differences in study samples. Benner and Graham (2009), for example, only included Latino students from metropolitan schools in Los Angeles, California, who were enrolled in non-English language learner English classes in their study sample and Morales-Chicas and Graham (2015) only included Latino female 6th grade students in their sample.

5.2. Implications

The current findings have broader implications for school policy and practice. Given that the associations between school belonging, education motivation, and academic outcomes tend to be strong in Hispanic students (Battistich, Solomon, Kim, & Watson, 1995; Goodenow & Grady, 1993; Griffith, 2000), scales like the PSSM and AMEAQ that are valid with the current population, can aid school staff in identifying Hispanic students who report a low sense of school belonging or education motivation and might therefore be at risk for poor school adjustment and dropping out. Information obtained from these scales can also aid in identifying specific dimensions of school belonging and education motivation that a student endorses as the lowest and develop interventions targeting these areas.

Second, results suggest that students' feelings of school belonging at elementary grades is an important variable influencing their feelings of being valued and accepted by their school, as well as their motivation to achieve as they transition to high school. These results underscore the potential of interventions in primary grades for preventing and reducing Hispanic student's negative academic outcomes (Hughes & Kwok, 2006). High quality relationships with caring adults and non-parental adults in existing social networks have been found to significantly influence Hispanic student's academic outcomes and educational values (Anderson, Sánchez, & McMahon, 2019; Bowers et al., 2014; Zimmerman, Bingenheimer, & Behrendt, 2005). Interventions that promote these high-quality relationships can therefore be implemented to improve academic outcomes. The Check and Connect (Christenson & Reschly, 2010), for example, has been found to be an effective intervention in promoting meaningful relationships between students and school faculty and consequently improving academic outcome variables including school retention for Hispanic students.

Third, these findings suggest that during middle school, student's ELL status is more likely to influence their feeling of being accepted and valued by their school context. This may be due to the lack of appropriate curricular support for ELL students after elementary school as well as the increase in school size in middle school years which has been shown to undermine students' sense of community in schools (Eccles & Roeser, 2009). Research has demonstrated that ELL students often receive inadequate language instruction due to lack of appropriate teacher preparation as well as academic curricula based on ineffective language program models including Structured English

Immersion (SEI; Cruze, Cota, & Lopez, 2019; Lucas, Villegas, & Freedson-Gonzalez, 2018). Cruze, Cota, & López (2019) provided several recommendations to address these issues affected Hispanic student's equitable educational access including requiring advanced certificate for ELL teachers as well as replacing SEI programs with a new model based on language acquisition theories and empirical research.

5.3. Limitations and Future Directions

The current study has potential limitations. First, although the large sample size allowed us to find significant relationships from the data, it is important to remember that participants were selected on the basis of being academically at risk at T1, limiting the generalizability of findings. Specifically, results may not generalize to Hispanic students with higher academic skills and further replication with other samples is recommended to generalize findings and validate measures. Given the associations between academic achievement, school belonging, and motivation variables for students (Aviles, Guerrero, Howarth, & Glenn, 1999; González & Padilla, 1997; Goodenow, 1993; Ibañez et al., 2004), Hispanic students who are already academically at risk may have different experiences than Hispanic students who are not struggling academically. Furthermore, some students were retained as the study progressed and were not transitioning to middle or high school at T5 or T9 of the study. Therefore, assessment data gathered from these students would not be pertinent in validating measures or studying student's experience as they transition to middle or high school.

The current longitudinal analysis was also limited to late elementary and middle school grades, with outcome data at T9. To be able to validate measures and generalize

findings these variables should be assessed across a wider time frame. Specifically, it would be beneficial to include the last years of high school.

Furthermore, when analyzing these variables during the last years of high school, additional variables can be incorporated into the models, including high school completion or dropout as outcome variables. In addition, the current study only included self-reported data. For the future and given that factors related to parent and teacher expectations also contribute to school belonging and motivation outcomes for these students (Tynkkynen, Tolvanen, & Salmela-Aro, 2012; Wood, Kurtz-Costes, & Copping, 2011), it might be helpful to include parent and teacher measures to assess their perceptions of student's feelings of belonging and education motivation.

5.4. Conclusion

Hispanic student's high dropout rate continues to be a critical issue facing educators and the U.S. society. Present results provide evidence for the validity of school belonging and education motivation scales for use with Hispanic students. In addition, study findings corroborate previous research findings related to the association between school belonging and education motivation for Hispanic students.

Additional research specific to school belonging at points of transition to middle school and high school is needed to identify those factors and supports that influence school belonging and education motivation. Similar to universal screening in other areas, screening for student sense of belonging could potentially identify the need for preventive school-wide or class-wide approaches to increase all students school belonging at all levels of education.

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APPENDIX A

TABLE 1 DEMOGRAPHICS SUMMARY

Variable	*T1 (N=293)*	*T5 (N=262)* *N (%)*	*T9 (N=189)*
Gender			
Female	140 (47.80)	124 (47.33)	88 (46.56)
Male	153 (52.20)	138 (52.67)	101 (53.44)
ELL-Bilingual Education Status[1]			
	114 (39.20)	74 (28.90)	1 (0.60)
Receiving SPED Services[1]			
	17 (6.00)	20 (7.50)	5 (3.20)
Economically Disadvantaged[1]			
	232 (81.70)	215 (87.40)	149 (77.20)
		Mean (SD)	
Age	6.57 (0.39)	10.57 (0.37)	14.54 (0.35)
Grade	1	4.71 (0.47)	8.69 (0.49)
UNIT Total Score	94.3 (13.72)		
Percent Hispanic in School	41.65 (18.96)	-	-
WMLS-English[2]	-	82.47 (13.57)	88.21 (7.84)
WMLS-Spanish[2]	-	96.51 (12.94)	91.58 (5.66)
School Belonging T5		3.9 (0.59)	
School Belonging T9			9.91 (1.00)
Educational Motivation T9			3.73 (0.69)

Notes. [1]Confirmed status; [2]N= 81 at T5 and 19 at T9; UNIT = Universal Nonverbal Intelligence Test; WMLS = Woodcock Muñoz Language Survey

APPENDIX B

TABLE 2 FACTOR LOADINGS OF THE FOUR-FACTOR MEASUREMENT MODEL IN EFA

Item	*Description*	*Factor 1*	*Factor 2*	*Factor 3*	*Factor 4*
PSSM1	I feel like a real part of this school.	0.04	**0.67**	0.17	-0.34
PSSM2	People here notice when I am good at something.	**0.75**	-0.04	-0.00	-0.1
PSSM3	It is hard for people like me to be accepted here. (RC)	0.02	0.03	**0.56**	0.36
PSSM4	Other students in this school take my opinion seriously.	**0.65**	-0.1	0.03	-0.16
PSSM5	Most teachers at this school are interested in me.	**0.5**	0.17	-0.27	0.15
PSSM6	Sometimes I feel as if I don't belong here. (RC)	0.02	0.15	**0.75**	-0.07
PSSM7	There's at least one teacher or adult in this school I can talk to if I have a problem.	**0.41**	0.14	-0.32	-0.1
PSSM8	People at this school are friendly to me.	**0.47**	0.23	0.09	0.12
PSSM9	Teachers here are not interested in people like me. (RC)	0.07	0.2	0.06	**0.68**
PSSM10	I am included in lots of activities at this school.	0.3	**0.49**	-0.18	-0.36
PSSM11	I am treated with as much respect as other students.	**0.63**	0.04	0.15	0.03
PSSM12	I feel very different from most other students here. (RC)	0.08	-0.05	**0.75**	-0.01
PSSM13	I can really be myself at this school.	**0.53**	-0.01	0.26	-0.11
PSSM14	The teachers here respect me.	**0.36**	0.28	-0.04	0.22
PSSM15	People here know I can do work.	**0.57**	0.13	-0.02	0.27
PSSM16	I wish I were in a different school. (RC)	-0.14	**0.83**	0.05	0.24
PSSM17	I feel proud of belonging to this school.	0.13	**0.8**	-0.00	0.04
PSSM18	Other students here like me the way I am.	**0.58**	0.01	0.06	0.43

APPENDIX C

TABLE 3 ALPHA COEFFICIENT AND AVERAGE ITER-ITEM CORRELATIONS FOR EACH FACTOR, AND THE 18-ITEM UNIDIMENSIONAL MODEL OF THE PSSM

Factor/Model	*α*	*Average Inter-Item Correlation*
Factor 1 (Relationships in School)	.80	.40
Factor 2 (Belonging)	.71	.71
Factor 3 (Rejection)	.61	.42
18-item model	.83	.29

Notes. PSSM = Psychological Sense of School Membership

APPENDIX D

TABLE 4 STANDARDIZEDIZED ROTATED FACTOR LOADINGS BASED ON FIXED NUMBER OF FACTORS (F=3) WITH OBLIQUE ROTATION FOR 18 ITEMS FROM THE PSSM (N=253)

Item	*Factor 1 (Relationships in School)*	*Factor 2 (Belonging)*	*Factor 3 (Rejection)*
PSSM1		0.49	
PSSM2	0.59		
PSSM3			0.55
PSSM4	0.43		
PSSM5	0.5		
PSSM6			0.63
PSSM7	0.35		
PSSM8	0.60		
PSSM9			0.39
PSSM10	0.31*	0.19*	
PSSM11	0.61		
PSSM12			0.57
PSSM13	0.44		
PSSM14	0.57		
PSSM15	0.67		
PSSM16		0.71	
PSSM17		0.94	
PSSM18	0.62		

*PSSM9 cross loaded into Factor 1 and Factor 2

APPENDIX E

TABLE 5 STANDARDIZEDIZED FACTOR LOADINGS OF THE BIFACTOR MODEL FOR 18 ITEMS FROM THE PSSM (N=253)

Standardized factor loadings of the bifactor model for 18 items from the PSSM (N=253).

Item	*Specific Factor 1 (Belonging)*	*Specific Factor 2 (Acceptance)*	*Specific Factor 3 (Rejection)*	*General Factor (Sense of School Belonging)*
PSSM1		0.32		0.37
PSSM2	0.52			0.40
PSSM3			0.42	0.31
PSSM4	0.38			0.29
PSSM5	0.45			0.34
PSSM6			0.57	0.28
PSSM7	0.35			0.20
PSSM8	0.25			0.55
PSSM9			0.16	0.41
PSSM10	0.49*	0.33*		0.21
PSSM11	0.28			0.53
PSSM12			0.64	0.18
PSSM13	0.21			0.39
PSSM14	0.17			0.55
PSSM15	0.22			0.64
PSSM16		0.44		0.56
PSSM17		0.67		0.67
PSSM18	0.17			0.63

*PSSM9 cross loaded into Factor 1 and Factor 2

APPENDIX F

TABLE 6 FACTOR LOADINGS OF THE SEVEN-FACTOR MEASUREMENT MODEL IN EFA FOR THE AMEAQ

Factor Loadings of the Seven-Factor Measurement Model in EFA.

Item	*Description*	*Factor 1*	*Factor 2*	*Factor 3*	*Factor 4*	*Factor 5*	*Factor 6*	*Factor 7*
1	I am confident that I will graduate from high school.	**0.63**	-0.04	0.34	0.03	-0.04	0.06	-0.01
2	I know what courses I need to take to graduate from high school.	**0.70**	-0.02	-0.02	0.13	0.21	-0.01	0.00
3	I am on track to graduate from high school.	**0.74**	-0.02	-0.06	0.03	0.05	0.17	-0.09
4	Nothing will get in the way of my graduating from high school.	**0.65**	-0.06	0.15	-0.02	0.13	0.06	-0.08
5*	Graduating from high school is not as important to me as getting a good paying job.	-0.02	**0.46**	-0.12	-0.17	0.15	-0.25	-0.10
6	My parents expect me to graduate from high school.	0.18	0.07	**0.80**	0.08	-0.10	0.03	0.05
7	I am confident that I will go to college.	0.22	-0.09	**0.51**	0.02	0.12	0.13	-0.13
8	My parents expect me to go to college.	-0.11	-0.03	**0.88**	0.00	0.07	0.00	-0.07

9	Nothing will get in the way of my going to college.	0.16	-0.15	**0.51**	0.00	0.25	0.06	-0.08
10	I have started gathering information about vocational schools or colleges.	0.00	-0.06	0.12	-0.04	**0.81**	0.03	0.01
11	I know what courses and grades it takes to get into the vocational school or college I want to enter.	0.09	-0.07	-0.03	0.06	**0.77**	0.08	0.02
12	I know how much it costs to go to vocational school or college.	0.05	0.09	-0.04	0.03	**0.82**	-0.07	-0.05
13	My teachers expect that I will do well in the future.	-0.03	-0.02	-0.02	0.06	0.05	**0.81**	-0.04
14	I am one of the students teachers believe will be successful.	0.02	-0.01	0.01	-0.02	-0.02	**0.89**	0.04
15	My teachers believe that I will graduate from high school.	0.12	0.04	0.07	-0.02	-0.05	**0.71**	-0.15
16	My teachers think I'm smart.	-0.02	0.02	-0.04	0.00	0.03	**0.87**	0.05
17*	My teachers don't think I'll go to college.	0.01	**0.13**	-0.07	-0.01	0.06	-0.58	0.12
18*	Most of my good friends will quit high school when they are old enough.	0.04	0.09	0.01	0.10	0.02	0.06	**0.83**
19	Most of my good friends plan to go to college.	0.06	0.00	0.06	0.06	**0.18**	0.07	-0.62

20	Most of my good friends won't drop out.	0.08	**0.18**	-0.08	0.17	0.06	0.07	-0.69
21	Most of my good friends will get a high school diploma.	**0.14****	**0.14****	0.04	0.07	0.06	0.13	-0.63
22*	I don't think many of my friends will graduate from high school.	0.11	0.09	-0.17	0.00	0.07	-0.05	**0.73**
23*	Lots of my good friends won't be able to go to college.	-0.10	0.15	0.04	0.02	0.06	-0.01	**0.68**
24	I don't think education will guarantee that I get paid well.	0.13	**0.56**	-0.07	-0.11	-0.08	-0.03	0.16
25	I can make good money without an education.	-0.05	**0.72**	-0.06	-0.04	-0.01	0.06	0.03
26	Many of the things we do in school seem useless to me.	0.02	**0.64**	0.04	0.04	-0.23	-0.18	-0.10
27	If I get bad grades, I can still get a good job.	0.04	**0.70**	-0.03	0.00	-0.05	-0.09	0.01
28	I could be successful in life without an education.	-0.04	**0.67**	-0.00	-0.19	0.00	0.03	0.07
29	I know many people who have done well in life with little education.	-0.33	**0.62**	0.13	0.08	0.19	0.08	0.09
30	School is not that important for future success.	0.02	**0.51**	-0.15	-0.25	0.00	-0.07	0.12
31*	I will make more money someday if I do well in school.	0.06	0.00	-0.02	**0.88**	-0.03	0.02	0.03

32*	If I work hard in school, I will get a better job than kids who don't try hard.	-0.05	-0.07	0.04	**0.86**	0.03	-0.01	-0.02

Notes. * = reverse-coded items; Factor loadings > 0.29 are bolded.

APPENDIX G

TABLE 7 ALPHA COEFFICIENT AND AVERAGE INTER-ITEM CORRELATIONS FOR EACH FACTOR, AND THE 18-ITEM UNIDIMENSIONAL MODEL OF THE AMEAQ

Factor/Model	*α*	*Average Inter-Item Correlation*
Factor 1 (Competence and Effort Beliefs)	.89	.34
Factor 2 (Teacher Educational Expectations)	.93	.26
Factor 3 (Peer Aspirations)	.86	.42
Factor 4 (Value of Education)	.84	.37
32-item model	.93	.26

Notes. AMEAQ = The Adolescent Motivation for Educational Attainment Questionnaire

APPENDIX H

TABLE 8 STANDARDIZED ROTATED FACTOR LOADINGS BASED ON FIXED NUMBER OF FACTORS (F=4) WITH OBLIQUE ROTATION FOR 32 ITEMS FROM THE AMEAQ (N=486)

Item	*Factor 1 Competence and Effort Beliefs*	*Factor 2 Teacher Educational Expectations*	*Factor 3 Peer Aspirations*	*Factor 4 Value of Education*
1	0.75			
2	0.66			
3	0.71			
4	0.77			
5*				0.53
6	0.59			
7	0.81			
8	0.60			
9	0.77			
10	0.55			
11	0.58			
12	0.41			
13		0.81		
14		0.84		
15		0.76		
16		0.75		
17*		-0.61		
18*			0.67	
19			-0.75	
20			-0.65	
21			-0.72	
22*			0.72	
23*			0.67	
24				0.60
25				0.67
26				0.58
27				0.64
28				0.74
29				0.49
30				0.74
31*				-0.48

32*	-0.52

Notes. AMEAQ = The Adolescent Motivation for Educational Attainment Questionnaire, * = reverse coded items.

APPENDIX I

TABLE 9 STANDARDIZED FACTOR LOADINGS OF THE BIFACTOR MODEL

FOR 32 ITEMS FROM THE AMEAQ

Item	*Factor 1 Competence and Effort Beliefs*	*Factor 2 Teacher Educational Expectations*	*Factor 3 Peer Aspirations*	*Factor 4 Value of Education*	*General Factor*
1	-0.07				0.76
2	0.22				0.63
3	0.09				0.70
4	0.07				0.74
5*				0.40	-0.39
6	-0.17				0.83
7	-0.04				0.83
8	-0.13				0.63
9	0.03				0.77
10	0.57				0.51
11	0.65				0.53
12	0.58				0.36
13		0.61			0.55
14		0.68			0.54
15		0.46			0.61
16		0.58			0.48
17*		-0.32			-0.51
18*			0.66		-0.35
19			-0.43		0.59
20			-0.44		0.45
21			-0.42		0.56
22*			0.58		-0.47
23*			0.53		-0.43
24				0.45	-0.39
25				0.59	-0.37
26				0.44	-0.39
27				0.56	-0.35
28				0.63	-0.41
29				0.44	-0.26
30				0.50	-0.54
31*				-0.22	0.43
32*				-0.27	0.44

APPENDIX J

TABLE 10 SCHOOL BELONGING AND EDUCATIONAL MOTIVATION BY ELL-BILINGUAL EDUCATION STATUS

	Hispanic ELL	*Hispanic non-ELL*			
	Mean (SD)		*F*	*p*	*r*
School Belonging T5	3.96 (0.52)	3.87 (0.63)	1.32	0.25	NS
School Belonging T9	3.86 (0.67)	3.63 (0.7)	5.24	0.02	.167
Educational Motivation T9	9.95 (0.91)	9.87 (1.08)	0.295	0.59	NS

Notes. *r* = significance of three regression analyses; ELL = English Language Learner.

APPENDIX K

TABLE 11 PREDICTION OF SCHOOL BELONGING AT T9

Variable	*Model 1* *B*	*Model 2* *B*	*Model 3* *B*	*95% CI*	
				Lower	*Upper*
Model 1: Student Characteristics	-.34	-.34	-.3	-.61	-.19
Gender T1					
Grade T5	-.01	-.01	-.07	-.36	.15
ELL-Bilingual Education Status T1	.2	.19	.16	-.03	.48
SPED Status	.04	.04	.05	-.3	.54
Model 2: School Characteristics		.00	-.05	-.01	.01
School % Hispanic T1					
Class % Hispanic T1		.01	.03	-.00	.01
Model 3			.29	.15	.52
School Belonging at T5					
R^2 Change	.15	.00	.08		
F Change	5.55	.003	12.43		

Notes. ELL= English Language Learner; CI= Confidence Interval; Confidence Intervals apply to Model 3.

APPENDIX L

TABLE 12 PREDICTION OF EDUCATIONAL MOTIVATION AT T9

Variable	*Model 1* *B*	*Model 2* *B*	*Model 3* *B*	*95% CI*	
				Lower	*Upper*
Model 1: Student Characteristics	-.217	-.226	-.203	-.784	-.064
Gender T1					
Grade T5	.080	.063	.027	-.364	.497
ELL-Bilingual Education Status T1	.043	.084	.065	-.287	.564
SPED Status	.068	.052	.056	-.473	.942
Model 2: School Characteristics		.192	.161	-.004	.022
School % Hispanic at T1					
Class % Hispanic at T1		-.135	-.120	-.012	.004
Model 3			.182	.013	.643
School Belonging at T5					
R^2 Change	.061	.019	.030		
F Change	2.098	1.321	4.239		

Notes. ELL= English Language Learner; CI= Confidence Interval; Confidence Intervals apply to Model 3.

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