Parent Matters: The Impact of Parental Involvement on Non-Native English Speakers' Postsecondary Education Enrollment

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Abstract

Despite many years and multiple plans by education policymakers and school administrators in the U.S. to achieve educational equity, there is still a wide disparity in the postsecondary education (PSE) rate between non-native English speakers and native English speakers. The current study investigated the extent to which parental involvement factors predict the likelihood of non-native English speakers' PSE enrollment after controlling for socioeconomic status and linguistic factors. To examine the differences in the effects of parental involvement factors on non-native English speakers' PSE enrollment rate, the nationally representative Education Longitudinal Study of 2002 (ELS:2002) dataset and a binary logistic regression model were used. The results of this study provide evidence in support of a conceptual model for parental involvement factors in PSE enrollment and indicated that parent–student involvement (i.e., parents advise students' school work, such as discussing school courses, grades, preparation for ACT/SAT, and other issues about PSE) is the strongest predictor, followed by parent–student involvement regarding non-native English speakers' behavioral problems, as well as home language literacy use. A home language environment factor also suggests that students' native language development can assist and support their second language (L2, i.e., English) learning and development. Implications and recommendations for policymakers, educators, and parents are discussed.

Key Words: longitudinal study, non-native English speakers, parental involvement, postsecondary education, college enrollment, language proficiency

Introduction

Because of the large, growing non-native English speaker population, the academic problems that they encounter have become an important issue in the American educational system. Large numbers of this subgroup of high school students in the U.S. have not acquired sufficient academic English proficiency to perform ordinary classroom work in English (Kanno & Harklau, 2012). Parents and schools need to provide support to help non-native English speakers to achieve academic goals and prepare for postsecondary education (PSE). This is especially true for these students who often experience dissonance between their home and school environments, as well as the challenges of linguistic minority status (Carhill, Suárez-Orozco, & Páez, 2008; Phelan, Davidson, & Yu, 1993). Meeting academic English proficiency is a keystone of academic success that goes far beyond everyday conversational language (Bylund, 2011; Cummins, 1981; Vygotsky, 1978). Research studies have revealed that parental involvement is highly correlated with a greater likelihood of enhanced academic English language proficiency and enrolling in PSE (Cabrera & La Nasa, 2001; Horn, 1998; Hossler, Braxton, & Coopersmith, 1989; Perna, 2000; Perna & Titus, 2005). Parental involvement also correlates with higher eighth grade reading achievement tests (Ho & Willms, 1996) and a lower likelihood of high school dropout and truancy (McNeal, 1999).

This article investigates how different factors regarding parental involvement affect the PSE enrollment of non-native English speakers. It begins by describing this population's low PSE enrollment rates in comparison to native English speakers with a focus on the impact of parental involvement, followed by a brief review of two theoretical frameworks of learning: Vygotsky's sociocultural theory (1978), and Cummins's (1979) cognitive theory. An overview of the aims and research questions are presented, and factors affecting non-native English speakers' PSE enrollment—including socioeconomic factors, linguistic factors, and parental involvement factors—are introduced. The design of the study and the research methodology are then presented. Finally, the findings, implications, and recommendations for future research are discussed.

Literature Review

The population of non-native English speaking students in U.S. schools is continually rising. Of youth growing up in the U.S., 22% have immigrant

parents, and it is projected that by 2040 over one-third will be growing up in immigrant households (Hernandez, Denton, & Macartney, 2007; Slama, 2012). The percentage of non-native English speakers who studied in public school in the U.S. increased from 4.3 million students (9.1%) in school year 2004–05 to 4.6 million students (9.4%) in school year 2014–15 (U.S. Department of Education, 2017). The increasing enrollment of non-native English speakers in the U.S. suggests teachers and policymakers should pay more attention to the unique needs these students face (Abedi, 2004; Woo, 2009).

Studies have shown a large gap between the PSE enrollment of non-native English speakers and native English speakers. Gándara and Rumberger (2009) proposed that "the policy discussion about educational needs of immigrant students is usually limited to remedying their lack of English" (p. 763). However, many research studies have revealed there are multiple factors contributing to non-native English speakers' enrollment in PSE institutions (Kanno & Harklau, 2012). Macias (1993) argued that while a large number of research studies indicate a lack of language proficiency as the cause of low academic achievement, language proficiency should be considered a correlating factor with other sociocultural characteristics that are related to academic achievement. Although non-native English speakers need to enhance their English proficiency, researchers should also consider their different language and cultural backgrounds and family heritage (Woo, 2009). Sociocultural factors, including parental involvement, create complex contexts and affect learning outcomes directly by providing different opportunities and motivation to learn in the home and academic settings (Goldenberg, Rueda, & August, 2006; Woo, 2009). To examine the above issues, this study focuses on parental involvement and examines the extent to which it affects PSE enrollment.

Theoretical Frameworks

To examine the relationship between parental involvement and PSE enrollment by controlling for socioeconomic status (SES) and linguistic factors, this study draws on the work of Vygotsky's (1978) sociocultural theory and Cummins's (1979, 1981) cognitive theory.

Sociocultural Theory

Sociocultural theory is based on the work of Russian psychologist Vygotsky (1978) and represents a fundamentally unique perspective on language learning processes (Lantolf & Thorne, 2006). This theory is grounded in the ontology of the social individual.

Vygotsky proposed two general types of developments within the individual: the natural line of biological maturation and cultural development (Lantolf & Thorne, 2006). The cultural development of the individual is closely connected

to the sociocultural domain, both at the level of general human culture and at the level of specific cultures. Vygotsky recognized that for psychology to understand human mental development and function it would be essential to integrate both biological and cultural developments. According to Vygotsky, these two types of development can explain the unique human forms of thinking (Lantolf & Thorne, 2006). Children are initially under the direct impact of biological inheritance; however, it takes a longer time for children to develop culturally. Cultural development resides primarily in other members of the culture (i.e., parents, older siblings, peers, friends, etc.), but eventually humans are able to develop cultural capacity in order to regulate their own mental activity. The focus of research on ontology is to understand and explain this mental process.

The current study focuses on sociocultural theory and further discusses the concept of social relations. Vygotsky suggested that social relations, through scaffolding from parental involvement, can promote children's academic success. Vygotsky emphasized the complex effects of schooling on cognitive development. Learners' participation in schooling involves learning through sociocultural and institutional engagement scaffolded by parents, teachers, and peers. Vygotsky's findings indicated that learning through participation shapes development.

Sociocultural theory also focused on the effects of academic literacy on thinking (Lantolf & Thorne, 2006). Academic literacy transforms the way individuals think, but this particular literacy is different from everyday literacy and non-literacy practices. Academic literacy is highly valued by particular social groups in a community. It not only transforms individuals' cognitive abilities, but also provokes individuals to negotiate a political and ideological power between communities that value different practices (Scollon, 2002). Academic literacy may not only amplify second language learners' cognitive development, but also the ideological struggles between groups within the culture.

Parental involvement is one of the important elements in social relations which could impact children's academic literacy and performance, such as PSE enrollment (Samson & Collins, 2012). Parents' participation and support can be divided into four domains: parent–school involvement, parent–student involvement, home culture, and home language environment (Finley, 2014; Martins-Shannon & White, 2012; Siwatu, 2011). First, parental involvement practices requiring parent–school interactions, such as volunteering and participating in school meetings, can be understood as a type of social relation and network. Second, parental involvement practices through parent–student interactions, including discussing schoolwork and structuring afterschool time, can be conceptualized as a form of supportive social relation to encourage

students' academic success. Third, home culture refers to parents' norms and values about education and parents' expectations toward education. Parents transmit norms embedded in society and espouse values that impact academic success. Lastly, the home language environment can be regarded as an important learning environment in which parents scaffold and support their children's first (L1) and second language (L2) proficiency and academic success.

Basic Interpersonal Communication Skills (BICS) and Cognitive/Academic Language Proficiency (CALP)

Cummins (1979) proposed two distinct types of language proficiency in Second Language Acquisition (SLA): Basic Interpersonal Communication Skills (BICS) and Cognitive/Academic Language Proficiency (CALP). Making a lesson comprehensible involves assessing a L2 learner's level of academic literacy. Even learners with advanced BICS may have great difficulties in academic areas, such as science, math, and history, that require different types of language skills. Rarely do L2 learners use academic skills while socializing with family and friends. Thus, in order to enhance L2 learners' CALP and academic success, language teachers should work closely with parents and provide direct instruction in academic literacy necessary for students to comprehend content area lessons.

Cummins's theories of BICS and CALP highlighted the importance of language proficiency in terms of L2 learners' academic performance and postsecondary enrollment. Policymakers and teachers can predict with considerable confidence the effects of BICS and CALP on majority and minority students in very different sociocultural contexts (Leyba, 1994). The following section presents reasons why teaching BICS and CALP in bilingual programs is an effective approach for L2 learners and beneficial for their academic access.

First, policymakers and teachers can predict that L2 learners tend to take a longer time to develop grade-appropriate levels of L2 academic or conceptual skills compared to L2 conversational skills. Second, they can predict that for learners from bilingual backgrounds, emphasizing instruction in their L1 will not lower levels of academic performance in their L2, provided the instructional program is effective in developing academic skills in both L1 and L2. This is because there is an interdependence across languages at deeper levels of learners' conceptual and academic functioning. Conceptual knowledge developed in their L1 assists in making input in their L2 comprehensible (Leyba, 1994). Third, they can predict that if the bilingual program is effective in developing L2 learners' academic skills in both languages, cognitive confusion will not result. In effect, L2 learners may benefit from being able to access two linguistic systems. To sum up, Cummins's theory of BICS and CALP provide guidance

for policy and practice in academic settings. These principles offer a reliable basis for the prediction of non-native English speakers' academic outcomes.

The Purpose of the Study

Non-native English speakers have been conceptualized as a single, distinct population in much of the research literature (Lesaux & Geva, 2006). However, these students are diverse and differ widely in terms of SES, sociocultural backgrounds, and the educational and familial contexts in which they develop cognitively (Ready & Tindal, 2006). Non-native English speakers' academic performance and postsecondary degree completion tend to be affected by not only English language proficiency but also by sociocultural characteristics and literacy opportunities they have at home and in school settings. These cultural and structural factors are important in order to understand unique characteristics of such students in distinctive communities (Paik, Rahman, Kula, Saito, & Witenstein, 2017). However, prior research indicates there is little evidence for the impact of sociocultural factors on non-native English speakers' postsecondary enrollment (Townsend, Donaldson, & Wilson, 2005). An additional shortcoming is that most of the research on non-native English speakers' academic performance focuses only on their lack of language proficiency, age, grade point average (GPA) and course-taking patterns (Sorey & Duggan, 2008). Therefore, it is important for researchers to recognize the heterogeneity of non-native English speakers regarding not only their BICS and CALP, but also their sociocultural characteristics, including in terms of parental involvement.

Little research has been conducted to explore the longitudinal impact of parental involvement on high school non-native English speakers' postsecondary enrollment. In order to provide school administrators, teachers, and parents with the guidance necessary to provide appropriate assistance and instruction to non-native English speakers, it is essential to research the impact of parental involvement factors.

This study aims to predict the impact of parental involvement on PSE of high school non-native English speakers. The research questions addressed in this study are:

1. To what extent do parental involvement factors predict the likelihood of non-native English speakers' PSE enrollment, after controlling for socioeconomic and linguistic factors?
2. If parental involvement variables significantly explain postsecondary attendance after controlling for socioeconomic and linguistic factors, which parental involvement variables are most influential?

Methodology

Data

This study used nationally representative data from the Education Longitudinal Study of 2002 (ELS:2002; Ingels et al., 2007). The students surveyed in that dataset were interviewed at four time periods: base year, and three designated follow-up years. The base year data used a nationally representative sample of tenth grade students in 2002. The base year interview was carried out in a nationally representative probability sample of 752 public, Catholic, and other private schools during the spring term of the 2001–02 school year. Of the 17,591 eligible selected students, about 15,362 completed a base year questionnaire for a weighted response rate of 87%. In the base year interview, 13,488 parents, 7,135 teachers, 743 principals, and 718 librarians responded to the questionnaires (Ingels et al., 2007). The first follow-up interview queried 16,500 students, of whom 15,000 students participated, for a weighted response rate of 89%. The second follow-up interview was in 2006, approximately two years after most sample members had graduated from high school. Of 15,900 eligible sample members, 14,200 participated in the second follow-up, for a weighted response rate of 88% (Ingels et al., 2007).[1]

Sample

This study is an expansion of the author's previous dissertation study, adopting the same methodology from previous research investigating the non-native English speaker population overall and different ethnic groups (Yeh, 2014). The sample in this study consisted of the ELS:2002 sophomore cohort of non-native English speakers who were included from the base year survey through the second follow-up, resulting in an analytic sample of 2,586 non-native English speakers from 523 high schools. This represented 13.5% (weighted) of the sophomore cohort base year respondents. This study defines non-native English speakers based on students' responses to the question of whether English is a student's native language or the first language he or she learned to speak as a child. The students who reported that English is not their native language were coded as non-native English speakers. The non-native English speaker population was more likely to be Latino or Asian and to have lower levels of family resources, such as parents' education and income (see Table 1 for both weighted and unweighted means).

Table 1. Weighted Variable Definitions and Descriptive Statistics for Sample

Total (*N* = 2,586) Variable Name	M or % (weighted)	M or % (unweighted)
Demographic		
Hispanic	57.00	46.50
Asian	20.50	38.30
European	18.80	10.10
Black	3.50	4.30

Sample Weight

This study is limited to non-native English speakers who responded in the second follow-up (2006), weighted from Spring 2002 tenth grade students to 2006 (Ingels et al., 2007; Yeh, 2014). These students were part of the sample in 2004 that added to the original. The first follow-up included both students from the base year sample who may also have been enrolled in the twelfth grade in Spring 2004 and who were not in the tenth grade in the U.S. in Spring 2002. These students may have been out of the country or enrolled in school in the U.S. in a grade other than tenth. The ELS:2002 data were weighted using the variable named F2BYWT[2] to yield population estimates. Weighting accounted for differences in sample selection and response rates. The use of weights requires that the sample is limited to those non-native English speakers who were in the 2002 sophomore cohort. The non-native English speakers who did not complete the base year survey were either non-respondents or ineligible. Non-respondents refer to non-native English speakers who were part of the base year (sophomore) cohort but did not respond in 2006. Ineligible non-native English speakers were part of the base year cohort but were ineligible to complete the survey because they were not in the U.S., lacked English language proficiency, or had severe physical or mental disabilities.

Variables

Dependent Variable

At the student level, a single measure of postsecondary school enrollment (Yes = enrolled in PSE / No = did not enroll in PSE) was selected as the outcome (see Table 2). The dependent variable[3] is a measure indicating the level of the respondent's first-attended postsecondary institution between 2004 and 2006. The variable is a two-category measure: (1) did not attend PSE or (2) attended PSE (i.e., two-year or four-year college/university).

Independent Variables

Variable selection for independent variables was based on the theoretical framework presented in Figure 1 (p. 51). In the research questions, non-native English speakers are coded into five categories based on their race/origin: (1) Hispanic (N = 1,201); (2) Asian (N = 991); (3) European (Caucasian, non-Hispanic, N = 260); (4) Black or African American (N = 112); and (5) Native American (N = 22). These sample sizes are the total before applying the weights. For each analysis, the weighted sample sizes will be reported. The following section introduces each independent variable: parental involvement factors, and two sets of covariates (i.e., linguistic, socioeconomic factors; see Table 2).

Table 2. Variable Definitions and Descriptive Statistics: Overall Group (N = 2,586; Yeh, 2014)

Variable Name	Weighted Proportion	SD	Min.	Max.
Demographic				
Hispanic	.589			
Asian	.190			
Black/African American	.058			
Native American	.014			
Parental Involvement (Student level)				
Parent–School Involvement 1	1.28	.43	.28	4.00
Parent–School Involvement 2: Students have problematic behavior at school	1.21	.53	.15	4.00
Parent–School Involvement 3: Parent reports contacting the school for doing volunteer work	1.23	.53	.50	4.00
Parent–Student Involvement Parent–student discussions about education-related issues, and parent's advice for students' school work	2.04	.48	.98	3.02
Home Culture 1: Parent's Educational Expectations	4.95	1.54	.84	7.42
Home Culture 2–GPA: Parent's values/norms toward education: Parent has rules about GPA	.85	.32	.00	1.00

Table 2 continued next page

Table 2, continued

Home Language Environment 1: Students' frequency of native language use	3.23	.92	.92	4.00
Home Language Environment 2: Parent speaks language other than English at home	3.35	.71	.78	4.00
Covariates: SES Factors (School level)				
Mean Income	8.39	1.14	5.58	12.04
Mean Teacher Quality	35.35	19.27	.00	100.00
Covariates: SES Factors (Student level)				
Family Income	7.78	2.50	1.00	13.00
Family Resources: Family has a daily newspaper	.49	.46	.00	1.00
Family has regularly received magazine	.57	.46	.00	1.00
Family has a computer	.77	.38	.00	1.00
Family has access to the internet	.69	.42	.00	1.00
Family has DVD player	.58	.45	.00	1.00
Family has more than 50 books	.64	.44	.00	1.00
Parents' Level of Education	3.07	2.10	1.00	8.00
Covariates: Linguistic Factors (Student level)				
Reading Test Standardized Score (IRT)	45.02	9.99	23.67	75.43
Students' Self-Reported English Ability: 10th grader's English listening skills	1.37	.57	.64	4.00
How well 10th grader speaks English	1.45	.62	.63	4.00
How well 10th grader reads English	1.49	.63	.74	4.00
How well 10th grader writes English	1.57	.69	.92	4.00

Note. Results are weighted (weighted variable= F2BYWT) to yield population estimates.

Parental Involvement

Parental involvement factors are related to a greater likelihood of achieving academic success and enrolling in PSE (Lim, 2010; Perna, 2000; Perna & Titus, 2005). This present study categorized four types of parental involvement factors:

Parent–school involvement. This variable was a composite factor comprising five parent-reported variables that reflect the parental involvement in school organizations and school activities[4]: (1) how often the parent contacted the student's school about doing volunteer work; (2) how often the parent contacted the school about the non-native English speaking student's academic performance since school opened in fall; (3) how often the parent contacted the

school about plans after high school; (4) how often the parent contacted the school about the student's course selection; and (5) how often the parent contacted the school about behavioral problems (see Table 2; Lim, 2010). A factor analysis resulted in combining variables (2), (3), and (4) as one variable.[5] The study used a criterion suggested by Warner (2013) to combine the variables in order to decide which factor loadings were large; a loading was interpreted as large if it exceeded .40 in absolute magnitude.[6] Each item in the Parent–School Involvement variable was rated on a 4-point scale (1 = none; 2 = once or twice; 3 = three or four times; 4 = more than four times).

Parent–student involvement. This variable was a composite factor[7] comprising five parent-reported variables that reflect the parents' involvement in parent–student discussions about education-related issues and parents' advice for students' school work: (1) how often the parent discussed school courses with the student; (2) how often the parent discussed things studied in class with the student; (3) how often the parent discussed grades with the student; (4) how often the parent provided advice about plans for college entrance exams; and (5) how often the parent provided advice about applying to postsecondary school after high school. Each item in the Parent–Student Involvement variable was rated on a 3-point scale (1 = never; 2 = sometimes; 3 = often).

Home culture: Parents' educational expectations and parents' norms or values about education. Parents' educational expectations factor is a composite factor of three parent-reported variables that were measured by (1) how far in school the mother expects the tenth grader to go; (2) how far in school the father expects the tenth grader to go; and (3) family rules for the tenth grader about maintaining a certain grade average. A factor analysis resulted in combining variables (1) and (2) as one variable because the factor loadings reached the criteria.[8] Parent's educational expectations (i.e., how far in school mother wants the tenth grader to go, how far in school father wants the tenth grader to go) are identified as the Home Culture 1 variable, rated on a 7-point scale (1 = less than high school graduation; 2 = high school graduation or GED only; 3 = attend or complete 2-year college/school; 4 = Attend college, 4-year degree incomplete; 5 = Graduate from college; 6 = obtain master's degree or equivalent; 7 = obtain PhD, MD, or other advanced degree). Parent's values/norms toward education (i.e., parent has rules about GPA) are identified as Home Culture 2 which was coded as 0 (No) or 1 (Yes).

Home language environment. The study includes two measures of L1 ability and L1 use: (1) an index representing the non-native English speakers' frequency of native language use at home, and (2) an indicator of if the non-native English speaker's parent uses other languages than English at home. A factor analysis resulted in combining variables (1) and (2) as one variable because the

factor loadings reached the criteria. Each item in the Home Language Environment variable was rated on a 4-point scale (1 = never; 2 = sometimes; 3 = about half of the time; 4 = always or most of time).

Covariates

For the covariates of the model, the study included two categories of variables that were controlled: SES factors and linguistic factors. Because the characteristics of the economic resources that non-native English speakers access may vary and be associated with postsecondary enrollment, the study controlled for a variety of socioeconomic factors. The study controlled for school resources, including: (1) mean income and (2) mean teacher quality. For family variables, SES factors comprised three variables: (1) family income, (2) family resources, and (3) parents' level of education. Regarding linguistic factors, such as English language proficiency, the study includes several measures of English language ability and English language use, including tenth grade reading scores (IRT) and an index representing the non-native English speaker's self-reported English language ability. Both variables are taken from results obtained during the base year survey (Lim, 2010; see the Appendix for more information regarding covariates labels and value scales).

Postsecondary Education Conceptual Model

To conduct the present study, a conceptual model was created based on the existing theoretical and empirical research reviewed above and on the ELS:2002 dataset. The conceptual model is presented in Figure 1. The model is based on the concept that parental involvement, linguistic, and socioeconomic factors affect PSE enrollment. At the student level, parental involvement is a function of resources that non-native English speakers possess in the family environment and academic setting. Furthermore, the covariates linguistic and socioeconomic resources affect each other and influence the predictor, parental involvement.

Analytic Techniques

This research study aims to explore various contextual variables that could impact non-native English speakers' PSE enrollment. The outcome variable is a binary dependent variable of whether non-native English speakers enroll in PSE. The methodology used a binary logistic regression model.[9]

To investigate how parental involvement variables contribute to the likelihood of non-native English speakers' PSE enrollment after controlling for SES and linguistic factors, four models were built to analyze the data. The first model was an unconditional model, which included merely the outcome measure without any independent variables at either the student or school levels.

This model was to provide a standard for comparing with the later models. The second model was a series of SES covariates. This model investigated which SES variables (covariates) were the strongest influences on non-native English speakers' PSE enrollment. The third model was a series of linguistic factors (covariates). This model focused on which linguistic variables had the strongest influences on non-native English speakers' PSE enrollment. The fourth and final model was a series of parental involvement predictors added to the model. These parental involvement factors are: (a) parent–school involvement, (b) parent–student involvement, (c) home culture, and (d) home literacy environment. In the current study, these four different models were analyzed for all study participant non-native English speakers. The statistical model (including formulas and other details) is available from the author upon request.

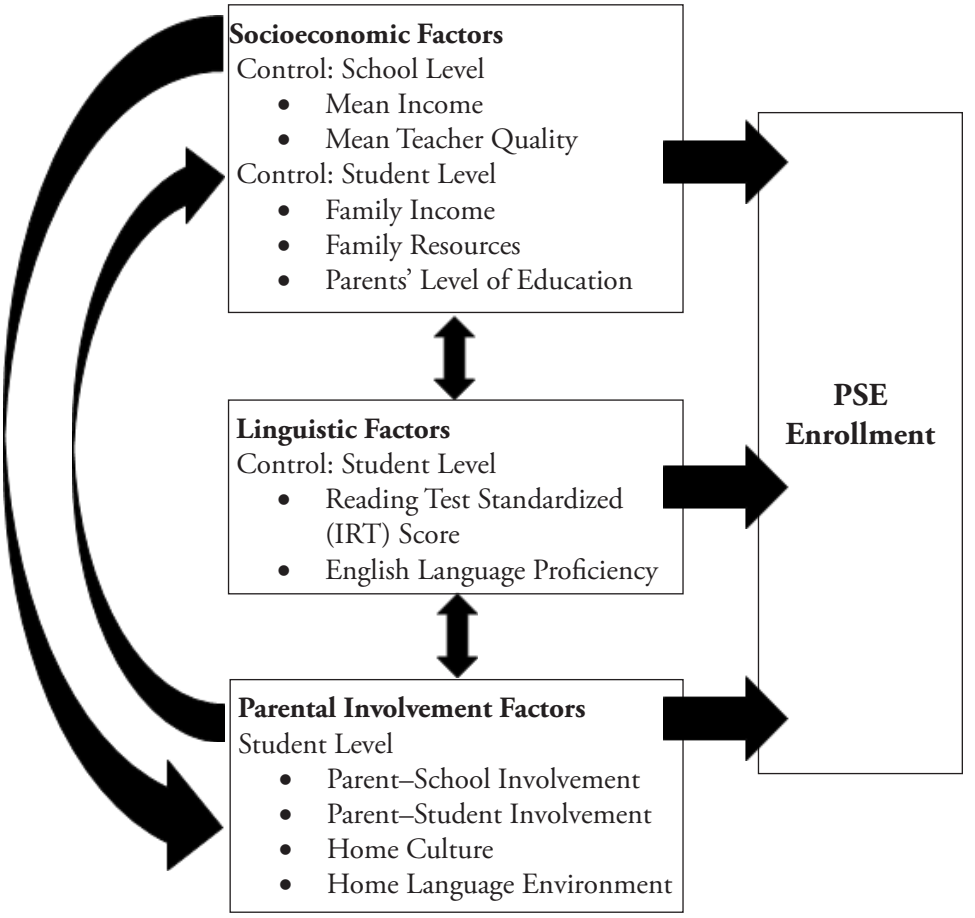

Figure 1. Conceptual Model

Results

Binary Logistic Regression Model

For the descriptive statistics, please see Table 2 for the total sample. A binary logistic regression analysis was performed to explore to what extent parental involvement factors predict the likelihood of non-native English speakers' PSE enrollment after controlling for SES and linguistic factors. Though the focus of sampling was not specific to non-native English speakers, only those who reported that their native language was not English were selected. The outcome variable, whether the student enrolled in PSE, was coded 0 = No and 1 = Yes. A binary logistic regression procedure in SPSS was used to perform the analysis. Data from 2,150 cases were included in this analysis (436 cases were missing the data for the outcome variable from the total of 2,586 cases after applying the weights; Ingels et al., 2007). The interpretation of the binary logit coefficients is facilitated by the use of odds ratios.

A binary logistic regression analysis was performed with an unconditional model (Block 0), which included merely the outcome measure without any independent variables. After this, three blocks were added: (1) 10 SES variables were entered in the first block (Block 1); (2) five linguistic variables were entered in the second block (Block 2); and (3) eight parental involvement variables were entered in the third block (Block 3). The study adopted the methodology from a previous study and used a similar analysis for the results (Yeh, 2014).

The Block 0 results are the null or constant-only model. The null hypothesis for this model is the odds of enrolling in PSE versus not enrolling in PSE for the entire sample is one. The value of B_0 differs significantly from 0 ($B_0 = .67$, Wald χ^2 (1, N = 2,150) = 40239.00, $p < .001$). This explains that the odds of enrolling in PSE for the overall sample differed significantly from 1.00. Specifically, students are almost twice as likely to enroll in PSE in the null model. Model 1 correctly classifies cases 65.80% of the time.

The Block 1 results refer to the second model with the series of SES covariates. The second model compared with a null model was statistically significant, χ^2 (10) = 55408.83, $p < .001$. This result refers to the improvement in model fit as measured by the changes in deviance. This result shows that the 10 SES variables were significantly related to non-native English speakers' enrollment in PSE. Model 2 is superior to the null model (Model 1) in terms of overall model fit, Nagelkerke's R^2 = .17. Model 2 correctly classifies cases 68.50% of the time. The results show the raw score binary logistic regression coefficients (B), standard error of the estimate (S.E.), Wald statistics, and the estimated change in odds of enrolling in PSE (i.e., the odds ratio labeled Exp [B]), along with a

95% CI. For each coefficient, a Wald chi-square was calculated. All coefficients were statistically significant, except "Family Income" (see Table 2). The statistical table for the "Summary of Binary Logistic Regression Model for Predicting PSE Enrollment" is available from the author upon request.

The Block 2 results are results for Model 3 with five linguistic covariates included into the model from the previous block. The third model compared to Model 2 was statistically significant, χ^2 (5) = 30485.65, $p < .001$. This result refers to the improvement in model fit as measured by the changes in deviance. This finding indicates that the five linguistic variables were related to non-native English speakers' PSE enrollment in the presence of SES variables. Model 3 is superior to Model 2 in terms of overall model fit, Nagelkerke's R^2 = .26. Model 3 correctly classifies cases 72.40% of the time. All coefficients were statistically significant, except "How well tenth grade student reads English" (see Table 2).

The Block 3 results are results for Model 4 with a series of parental involvement variables included into the model from Block 2. This last model compared to Model 3 was statistically significant, χ^2 (8) = 19835.64, $p < .001$. This result refers to the improvement in model fit as measured by the changes in deviance. This result reveals that the eight parental involvement variables were related to non-native English speakers' PSE enrollment in the presence of SES and linguistic variables. Model 4 is superior to Model 3 in terms of overall model fit, Nagelkerke's R^2 = .31. Model 4 correctly classifies cases 75.20% of the time. All coefficients were statistically significant, except "Family rules for tenth grade student about maintaining grade average" and "How often parent speaks native language with children" (see Table 2).

The statistically significant odd-ratios indicates that the odds of enrolling in non-native English speakers' PSE relative to not enrolling increased with frequency of the variable Parent–Student Involvement (*OR* = 1.98; 95% CI = [1.95, 2.02]; *Cohen's d* = 0.38).[10] This indicates that the odds of enrolling in PSE were about 1.98 times higher for non-native English speakers whose parents were involved one unit higher in the student's academic life than for non-native English speakers whose parents were not involved in their academic life. This means that non-native speakers whose parents were "somewhat" involved in their children's academic lives were 1.98 times more likely to attend PSE as those whose parents were "not at all" involved. Parent–School Involvement 2: Bad Behavior (*OR* = .57; 95% CI = [.56, .58]; *Cohen's d* = -0.30) shows that the odds of enrolling in PSE were about 1.75 times less for non-native English speakers who had behavior problems per unit in the behavioral problem scale. The third most influential factor is Home Language Environment 1 (*OR* = 1.25; 95% CI = [1.24, 1.26]; *Cohen's d* = 0.12). This means that Home

Language Environment 1 shows that the odds of enrolling in PSE were about 1.25 times higher for non-native English speakers who speak one unit higher on native language with their parents than for those who speak less native language with their parents. This means that non-native speakers whose parents speak their native language with their child to the specified degrees (i.e., sometimes; about half of the time; always or most of time) were 1.25 times more likely to attend PSE than those whose parents "never" spoke their native language with their child. Parent–School Involvement 1 (*OR* = 1.17; 95% CI = [1.15, 1.20]; *Cohen's d* = 0.08) shows that the odds of enrolling in PSE were about 1.17 times higher for non-native English speakers whose parents contacted one unit higher, that is, contacted the school more often for academic performance, plans after high school, and course selection than non-native English speakers' parents who contacted school less. Home Culture 1 (*OR* = 1.09; 95% CI = [1.08, 1.09]; *Cohen's d* = 0.05) means that the odds of enrolling in PSE were about 1.09 times higher for non-native English speakers whose parents have one unit higher on educational expectations than for those whose parents have lower educational expectations. Parent–School Involvement 3: Parent Volunteer (*OR* = 1.07; 95% CI = [1.05, 1.09]; *Cohen's d* = 0.04) shows that the odds of enrolling in PSE were about 1.07 times higher than non-native English speakers' parents who contacted the student's school one unit higher about doing volunteer work than those parents who contacted the school less. In contrast, measures of Home Culture 2 (i.e., family rules for tenth grader about maintaining grade average) and Home Language Environment 2 (i.e., how often parent speaks native language with children) were not significant predictors of enrolling in PSE in the presence of the other predictors.

Discussion

Despite many years and multiple plans by educational policymakers and educators to achieve equal opportunities for students, a wide disparity in PSE enrollment rates between native English speakers and non-native English speakers still exists. Based on Kanno and Cromley's (2015) analysis, 45% of native English speakers enrolled in four-year colleges/universities within two years of high school graduation while only 19% of non-native English speakers enrolled in such universities. That 2015 report supported a previous study analyzing the National Education Longitudinal Study of 1988 (NELS:88); Kanno and Cromley (2013) revealed that within eight years of high school graduation, only one out of eight (12%) non-native English speakers in the sample data had a bachelor's degree. The current study was designed to investigate this serious problem by focusing on parental involvement components that

might potentially contribute to reducing the persisting PSE enrollment gap. To do this, the present study adapted Vygotsky's sociocultural theory (1978) and Cummins's (1979, 1981) cognitive theories. Further, this study developed a conceptual model of the relationships between various factors, such as SES, linguistic proficiency, and parental involvement.

The data confirmed the conceptual model presented in Figure 1. The results showed that, among the eight parental involvement factors, six parental factors were statistically significant predictors of non-native English speakers' PSE enrollment after controlling for SES and linguistic factors. The SES factors and linguistic factors were two groups of strong predictors for PSE enrollment. Therefore, this present study categorized them as co-variates so that the study could identify and focus on the eight parental involvement factors. Among the eight parental involvement factors, two variables were not statistically significant: Home Culture 2 (i.e., family rules for tenth grader about maintaining grade average) and Home Language Environment 2 (i.e., how often parent speaks native language with children).[11] The results will be further discussed in a later section.

In relation to the first research question, the study found evidence in support of the conceptual model based on the theoretical frameworks, and the results revealed that parental involvement factors affected PSE enrollment above and beyond SES and linguistic factors. These results were in line with previous work by Hossler et al. (1989), Perna, (2000), and Perna and Titus (2005), who found that parental involvement factors are related to the likelihood of PSE and attending college/university. The impact of parental involvement factors as influential predictors for non-native English speakers' PSE enrollment also relates to the theoretical framework of sociocultural theory. The present study suggests that social relations, through scaffolding from parental involvement, can promote non-native English speakers' academic success. This means learning takes place when students receive more support from parents and schools working collaboratively because all the students' learning is mediated by social interactions. The nature of learning is derived from interpersonal activity which emphasizes the importance of collaboration.

Among the eight parental involvement factors, six variables were statistically significant predictors of non-native English speakers' PSE enrollment after controlling for SES and linguistic factors. Only two variables were not statistically significant: Home Culture 2 (i.e., family rules for tenth grader about maintaining grade average) and Home Language Environment 2 (i.e., how often parent speaks native language with children).[12] The following discussion will briefly address the three most impactful predictors.

According to the results, the Parent–Student Involvement factor had the largest impact on enrolling in PSE. The results showed non-native English speakers' enrollment was higher if their parents advised their school work, such as discussing school courses, grades, preparation for ACT/SAT, and other issues about PSE. These results were in line with previous work by Jeynes (2011, 2015) and found that Parent–Student Involvement factors are some of the strongest predictors for PSE enrollment. Jeynes' (2015) meta-analyses focused on the relationships between family involvement and academic success revealed that high parental expectations and aspirations and discussing school work were highly predictive of academic success. This finding also supports previous studies reporting that family support and advice motivated students to learn about content-based knowledge which led to academic success (Civil, 2007; Martins-Shannon & White, 2012; Turner et al., 2012).

Parent–School Involvement 2 (i.e., students have problematic behavior at school) had the second strongest impact on enrolling in PSE. The results showed non-native English speakers' enrollment was lower if their parents contacted the school more often regarding behavioral problems at school. This finding supports the previous literature on the importance of parent–school communication. Schools should provide more opportunities for parents to engage in their children's learning process and understand their academic journey (Finley, 2014). Studies also suggested that teachers should contact parents regarding not only students' bad behaviors but also about academic achievement to help students gain a sense of accomplishment and belonging at school (Martins-Shannon & White, 2012; Siwatu, 2011).

Home Language Environment 1 (i.e., non-native English speakers' frequency of native language use) had the third strongest impact on enrolling in PSE. The results show that non-native English speakers' enrollment rate is higher if they spoke their native language with their parents. These findings aligned well with previous literature by Hess and Holloway (1984) and Snow, Burns, and Griffin (1998), who found that home language environment factors are important predictors for PSE enrollment. This result also correlated with Cummins's (1981) theoretical framework of BICS and CALP; for instance, Cummins asserts that in order to achieve a cognitive and academic L2 proficiency, non-native English speakers can acquire and develop their L1 skills. The reason that Home Language Environment 1 and Home Language Environment 2 (i.e., how often parent speaks native language with children; see above) seem to contradict each other might be that Home Language Environment 1 already explained non-native English speakers' PSE enrollment rate. Therefore, Home Language Environment 2 might not be able to contribute to explaining the outcome variable.

Implications

The results provide support for the role of parental involvement programs that are designed to enhance PSE enrollment. This study also suggests that PSE preparation programs should focus on ways to promote parental involvement. Specifically, Parent–Student Involvement factors are related to the likelihood that non-native English speakers enroll in PSE in all race/ethnic-origin groups.

The results of this study have several implications for non-native English speakers' parents and for school policy. Given the findings for Parent–School Involvement variables, it is essential that school administrators and teachers understand the importance of working with parents. For instance, teachers can invite parents to attend school events, be volunteers at schools, or participate in programs that encourage parental involvement in the classroom. Parents should also be aware of children's behavior at school. Furthermore, the Parent–Student Involvement results also suggest the school should encourage parents to assist their children with school work and discuss future academic plans. Parents can be invited to contact the school about the school program, plans after high school, and course selection. For Home Culture variables, parents' educational expectations and values/norms toward education strongly influence PSE enrollment, and teachers can communicate with parents about the importance of conversations at home for students' achievement and future educational plans.

For Home Language Environment variables, non-native English speakers can be encouraged to speak their native language with their parents more often. Furthermore, ESL/EFL administrators and teachers should understand non-native English speakers' L1 and L2 development; they should not limit opportunities for non-native English speakers to learn in their L1 because it may inhibit students' academic and cognitive language development in their L2 (Garcia, 2002). Bylund (2011) supported Garcia's position that placing L2 learners in an English-only instruction class has problematic consequences; L2 learners are disconnected from the literacy knowledge they bring with them to a school setting, therefore restraining the development of their L1 skills. Furthermore, when L2 learners begin to learn the target language, they may already be several years behind their monolingual native speaking peers. Whatever program the student is enrolled in, the teachers and administrators should communicate to parents the significant benefits of students continuing to use their L1 in the home and community.

The current study provides an educational resources model that is more fully conceptualized and aims to provide equal access to PSE among non-native English speakers. Future studies are needed to investigate parental involvement factors within each individual race/ethnic-origin group.

Endnotes

[1]The final follow-up was collected in 2012, but the present study does not include that particular follow-up dataset.
[2]Labelled F2BYWT in ELS:2002 database.
[3]Labeled F2EVERATT in ELS:2002 database.
[4]These variables were already a composite variable by NCES in ELS:2002 database. The study used average to combine them.
[5]The factor analysis is confirmatory. The study used a criterion suggested by Warner (2013) to combine the variables to decide which factor loadings were large; a loading was interpreted as large if it exceeded .40 in absolute magnitude.
[6]The composite variables were made originally by NCES. To assess the dimensionality of a set of 16 items selected from ELS:2002, factor analysis was performed using Principal Axis Factoring (PAF). These 16 items were selected because they are related to parental involvement factors. Only factors with eigenvalues greater than 1 were retained, and varimax rotation was used to obtain these values. After running the factor analysis, four composite variables were created: parent–school involvement, parent–student involvement, home culture, and home language environment.
[7]These variables were already a composite variable by NCES in ELS:2002 database. The study used average to combine them.
[8]These variables were already a composite variable by NCES in ELS:2002 database. The study used average to combine them.
[9]The intraclass correlation coefficient (ICC) in this study is .46 indicating that about 46% of the variance in PSE enrollment is between schools (Raudenbush & Bryk, 2002). Therefore, for this current ELS:2002 study, the author applied variance estimation software in SPSS 20 called complex sample software, because such software is required to compute the standard error of estimates. The study also accounted for the ICC "nesting effect" on variance.
[10]This current study includes Cohen's d effect (odds ratio can be converted to Cohen's d or equivalent, using a method by Chinn, 2000).
[11]Even though the results showed statistical significance, the effect size was considered fairly small/weak (for any results that had an odds ratio under 1.5).
[12]Even though the results showed statistical significance, the effect size was considered fairly small/weak (for any results that had an odds ratio under 1.5).

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Appendix. Descriptive Statistics for Covariates

Variable Name	Labels and Values
SES Factors	
Mean Income	ALLSCHOOLSES Mean total family income from all sources 2001–composite. (1=None; 2=$1,000 or less; 3=$1,001–$5,000; 4=$5,001–$10,000; 5=$10,001–$15,000; 6=$15,001–$20,000; 7=$20,001–$25,000; 8=$25,001–$35,000; 9=$35,001–$50,000; 10=$50,001–$75,000; 11=$75,001–$100,000; 12=$100,001–$200,000; 13=$200,001 or more)

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Mean Teacher Quality	F1A37D % of excellent teachers.
Family Income	BYP85 Total family income from all sources 2001. (1–13) (1=None; 2=$1,000 or less; 3=$1,001–$5,000; 4=$5,001–$10,000; 5=$10,001–$15,000; 6=$15,001–$20,000; 7=$20,001–$25,000; 8=$25,001–$35,000; 9=$35,001–$50,000; 10=$50,001–$75,000; 11=$75,001–$100,000; 12=$100,001–$200,000; 13=$200,001 or more)
Family Resources	Literacy resources: (predictors) BYS84A Family has a daily newspaper. (0=No; 1=Yes) BYS84B Family has regularly received magazine. BYS84C Family has a computer. BYS84D Family has access to the internet. BYS84E Family has DVD player. BYS84H Family has more than 50 books.
Parents' Level of Education	BYP34A Parent's highest level of education completed. (1–8) (Either father, mother, or responding caregivers) (1=did not finish high school; 2=graduated from high school or GED; 3=attended 2-year school, no degree; 4=graduated from 2-year school; 5=attended college, no 4-year degree; 6=graduated from college; 7=completed master's degree or equivalent; 8=completed PhD, MD, advanced degree)
Linguistic Factors: English Language Proficiency (Student level)	
Reading Test Standardized Score (IRT)	BYTXRSTD Reading test standardized score. (1–100) (Min: 22.57; Max: 78.76; Mean: 50.54; Reading standardized T Score)
Non-Native Speaker's Self-Reported English Language Ability	BYS70A How well 10th grader understands spoken English. (1–4) (1=very well; 2=well; 3=not well; 4=not at all). BYS70B How well 10th grader speaks English. (1–4) BYS70C How well 10th grader reads English. (1–4) BYS70D How well 10th grader writes English. (1–4)

Note: Results are weighted (weighted variable-F2BYWT) to yield population estimates.