CHILD, FAMILY, AND SCHOOL CHARACTERISTICS RELATED TO ENGLISH PROFICIENCY DEVELOPMENT AMONG FOUR-YEAR-OLD ENGLISH LANGUAGE LEARNERS (ELLS) IN MIAMI

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABSTRACT

CHILD, FAMILY, AND SCHOOL CHARACTERISTICS RELATED TO ENGLISH PROFICIENCY DEVELOPMENT AMONG FOUR-YEAR-OLD ENGLISH LANGUAGE LEARNERS (ELLS) IN MIAMI

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English Language Learners (ELLs), in addition to increased risk for living in poverty, experience the extra challenge of learning a second language while trying to learn new academic content during early schooling. Due to such challenges, ELLs often lag behind their peers at school. This dissertation examines child-, family-, and school-level factors associated with the speed/growth of English proficiency among ELLs in early elementary school. The Miami School Readiness Project (MSRP) is a large-scale, community-wide project that assessed the school readiness of low-income children who attended subsidized childcare or public school pre-k programs and then followed them longitudinally throughout early elementary school. This dissertation examines a subset of ELL children (n = 19,454) and follows their trajectories for English language proficiency through 5th grade. Family background information was collected along with children's school readiness assessments at age four, and characteristics of the child's public

elementary school were included. Hierarchical Linear Modeling and discrete-time survival analyses were conducted to examine initial status in kindergarten and growth over time until fifth grade, as well as latency to reaching district standards for being considered proficient in English. Growth curve modeling showed that White/Other and African American/Black children started higher in English proficiency compared to Hispanic/Latinos, but Blacks showed faster English language growth than Hispanics. Children whose parents were married started kindergarten higher on English proficiency compared to children of single parents but children of single parents showed steeper growth. Children high on socio-emotional skills and low on behavior problems started higher in kindergarten and showed faster growth in English proficiency. Children higher in cognitive/language skill started school with greater English skills. Larger schools and schools with fewer ELLs had children with greater initial English skills. Children who attended schools with fewer Hispanic students and larger classes showed faster English growth. Survival analysis indicated that it took close to two years for half of the ELLs to become proficient in English according to district standards. However, White/Others took less time to be considered proficient than Hispanic/Latinos, and Blacks took the longest. Children who were proficient enough to be assessed in English at age four reached proficiency on average a year earlier than those who were assessed in Spanish at age four. In kindergarten, 28% of the ELLs became proficient in English and the proportion increased each grade; 26% in first grade, 40%, in second grade, 50%, 42%, and 58% respectively in continuing grades. Being White, not receiving free/reduced lunch; having stronger cognitive, language, and socio-emotional skills in preschool; and being from a

more-educated family were associated with faster attainment of the English proficiency milestone. It is important for teachers to understand that ELL students come from diverse backgrounds and that poverty and other factors influence their speed of English language development. Follow-up programs for ELL children after exiting out of English as a second language programs are recommended since ELLs need more than just basic oral English proficiency to be successful in school. Systematic exposure to English during preschool programs may be needed for ELLs to learn English faster. Policies supporting low-income ELL families are discussed.

INTRODUCTION

The immigrant population in the U.S. is on the rise. One in nine of all U.S. residents were immigrants in 2000, and school-aged children of immigrants comprise one in five of all children in the U.S. (Capps et al., 2005). Immigrants are more likely to come from non-English speaking countries, such as Mexico (Hoegl, 1985), and, therefore, learning English becomes important while adjusting to the English-speaking society. However, it is an additional challenge to learn English for those young immigrants who are still in the process of learning their first language (L1). Various labels have been given to these children, such as "Limited English Proficient" (Baker & Jones, 1998), "English for Speakers of Other Languages" (ESOL), "English as a Foreign Language" (EFL), "Dual Language Learner" (DLL; Castro, Espinosa, & Paez, in press), and "Language Minority Student," but criticism has been raised due to the label being focused only on the deficiency of a certain language (Lacelle-Peterson & Rivera, 1994). However, from the perspective that even many native English-speaking children enter school lacking sufficient facility in English (O'Neal & Ringler, 2010), these non-native English-speaking children have strengths in other domains which native English-speakers do not have. Thus, the term that we use to refer to young children who are in the process of learning English is English language learner (ELL; LaCelle-Peterson & Rivera, 1994).

Two in every ten people in the U.S. speak a language other than English at home with Spanish being one of the most popular languages, and only a little more than half of those whose home language is not English report that they speak English very well (Shin & Kominski, 2010). However, more school-aged children speak a language other than English compared to young adults (18 to 40 years). That is, more than half of school-aged children in the U.S. speak a language other than English compared to young adults (18 to 40 years) where 72.4% are English-only speakers (Shin & Kominski, 2010).

Although not all children whose home language is non-English are English language learners, a significant portion of school-aged children are still classified as not proficient in English (Shin & Kominski, 2010). More specifically, of all the children enrolled in school in the U.S., 10.7% are classified as limited in English proficiency (NCELA, 2010). Statistics show, however, that ELLs are more likely to drop out of school, and two thirds of them live in poverty (Capps et al., 2005). One of the critical reasons for limited success among this group of children is English proficiency. Young ELL children face more challenges than native English-speaking children in that they need not only to learn English but also to learn new knowledge at school. It is unfortunate that a large number of ELLs struggle in schools. As many as 76% of third-grade ELLs in American schools are performing below grade level in English reading (Zehler et al., 2003), and dropout rates are higher for ELLs than for native English-speakers (August, 2003; Ireland, 2006). During the school year 2004-2005, from 9^{th} grade to 12^{th} grade, ELL's dropout rate (6.5%) was higher than that for average students (5.1%). Also, within

ELLs, Hispanic student dropout rate is higher than any other ethnicity except Native Americans (Capps et al., 2005).

Limited English proficiency is not just a problem for the academic subjects that require advanced language skills, such as language arts, but also for the subjects that do not require as much language, such as math. Among ELLs who attend high school in California, less than 40% pass 6th grade-level math (California Department of Education, 2007). The explanation is that ELLs need much of their cognitive capacity for English comprehension and therefore have fewer resources left to devote to math problem-solving. When there's less cognitive demand for English comprehension, ELLs perform better in math (Beal, Adams, & Cohen, 2010). Although ELLs lag behind in math performance compared to their native English-speaking peers, ELLs who become English proficient later on perform better on such tests than those who are still learning English. Beal and colleagues (2010) examined the relationship between English reading scores and math scores among ELLs and found that English reading scores are positively but nonlinearly related to math performance. The study involved ninth-grade students in California and showed that ELL's math performance increased as they improved their English proficiency. In addition, they found out that a minimum English reading level is needed for math performance since there was no relationship between English reading scores and math performance below a certain English reading score but a positive linear relationship after children reach a minimum English reading score (Beal et al., 2010).

Although research shows that ELLs struggle in academic settings, they can sometimes surpass native speakers in some areas of English, given appropriate instruction

and intervention (Lesaux & Siegel, 2003). Kindergarten phonological awareness instruction for ELLs has a positive effect on ELLs, and children who are taught these reading skills by the end of second grade perform better than native English-speakers on reading skills (Lesaux & Siegel, 2003). These researchers emphasize that given needed help, ELLs can outperform native English-speaking children on some language measures.

Timing of English proficiency

It is important not only to become proficient in English but also to become proficient in English at an early age. Children who enter school with a proficient level of English follow a similar academic trajectory as native English-speaking children, but those who start school without English proficiency fall behind (Kieffer, 2008). Educational outcomes for ELLs who are not proficient in English fall behind those of same-aged native English-speaking children (NCELA, 2007). Research also indicates that lower English proficiency is not only related to lower academic performance but also connected to low levels of self-esteem and ambition compared to those who are proficient (Portes & Hao, 2002). Also, children who become bilingual by 5^{th} grade have stronger socio-emotional well being than those who remain non-English monolinguals (Chang et al., 2007; Han, 2010). ELLs who do not keep up in English reading and writing are more likely to fall behind than those who become proficient in English (August & Shanahan, 2006). Children who enter school without English proficiency suffer due to a smaller vocabulary and sense of grammar in English and they are the ones who are likely to fall behind as well (Singer, 1981).

In addition, ELLs who become proficient in English at an earlier age show a better academic trajectory than those who keep on struggling with English proficiency throughout school (Halle et al., in press). An analysis of ELLs' developmental trajectories was done by Halle and colleagues (in press) with the nationally representative Early Childhood Longitudinal Study – Kindergarten Class of 1998-1999 (ECLS-K; National Center for Education Statistics, 2002). In the study, children's school characteristics were included in the model as well as child and family demographic characteristics to examine the relationship between the timing of becoming proficient in English and academic outcomes (Halle et al., in press). Children who became proficient earlier on showed better academic outcomes than those who continued to learn English after the entry of elementary school, and child, family, and school characteristics were significant predictors of these relationships.

Children who have a higher level of English before they enter kindergarten show faster English acquisition later than those who start with lower initial proficiency. Capps and colleagues (2005) found that third generation immigrant children who are not proficient at the beginning of elementary school year do not typically acquire proficiency throughout secondary school. Also, second graders who were fairly proficient in English at the time of the English proficiency assessment had a faster rate of English acquisition than those who were less proficient at the time of the assessment. This suggests that a minimum amount of proficiency is needed in learning English quickly in schools (Burns & Helman, 2009). Children who learn English before entering preschool will develop their English faster than those who start learning English in kindergarten or first grade

(Hoegl, 1985). And those children who are proficient in English before they enter preschool are less likely to be retained in kindergarten and are more likely to perform at grade-level (Hoegl, 1985). Krashen, Long, and Scarcella (1979) concluded that children who learn a second language (L2) during early childhood reach a higher level of proficiency than those who learn a second language later. These findings indicate that long-term benefits come to early learners of English.

Predictors of English proficiency

Previous research shows that it is better to become proficient in English earlier than later. However, individual differences are found in the speed of second language acquisition. Thomas and Collier (1997) indicate that learning a new language is not just learning the language, and children's first and second language development should be considered from the context in which they are placed. Thomas and Collier (1997) introduced a prism model in order to explain the inter-reliance of four different elements which surround an individual ELL in acquiring a second language; socio-cultural, linguistic, academic, and cognitive aspects are interdependent for ELLs in developing their English (See Figure 1). The socio-cultural aspect emphasizes the influence of social and cultural experience of ELLs from all contexts such as home, school, and community. ELL children's everyday experience influences not only second language acquisition directly but also other variables that indirectly affect L2 acquisition, such as self-esteem or anxiety. The linguistic aspect of the prism model considers ELLs' language learning experience from both formal and non-formal situations (i.e., either from school or from other sources). For example, both English learning in a formal situation and first

language use at home are all linguistic experiences of ELLs. Finally, school work that ELLs face and solve throughout the curricula is the academic aspect of the model. ELLs not only learn new knowledge in L2 in school but also transfer existing knowledge in L1 which becomes a meaningful asset to the child. Cognitive development continues through elementary school years in that it is important to maintain ELL's L1. Later on, the child will benefit from having two languages compared to monolinguals, which is a cognitive advantage aspect of the model. All four dimensions are interdependent in children's English development. ELLs go through a different developmental process than U.S.- born children and thus Collier (1995) stated that U.S. policy makers and educators make mistakes by thinking that learning English comes first for ELLs, isolating that from all the other issues that ELLs experience. Therefore, the current study considers predictors of English acquisition for ELLs at each context/level: the child, family, and school.

Child-level factors

Gender differences are usually found in first language (L1) development, with girls generally functioning better than boys (Dodd, Holm, Hua, & Crosbie, 2003; Ladegaard & Bleses, 2003). Consistent results are found in second language (L2) acquisition as well. Females outperform males in verbal fluency tests (i.e., semantic, syntactic, and phonological ability) in foreign language among native English-speaking undergraduate students (Andreou, Vlachos, & Andreou, 2005), and girls score better than boys on second language (English) achievement tests among 15-year-old students in Hong Kong (Fung, 2006). Additionally, testing indicates that females have better

listening skills than males (Larsen-Freeman & Long, 1991). Gender may be a biological factor that cannot be altered, but it explains much variance in explaining L2 proficiency, at least among older students.

Cognitive development and language development are very closely related (Kamiloff-Smith, 1997). The notion that bilingual children are better than monolingual children in cognitive skills, especially with executive functioning, has been studied multiple times and seen as a consequence of bilingualism (Bialystok, 2009, 2010; Bialystok & Viswanathan, 2009). However, the cognitive predictor of L1 competence for L2 development has not been explored often (Cummins, 1991). Verhoeven and Vermeer (2009) studied 910 children in the Netherlands, with half native Dutch-speaking children and the other half ethnic minority children who speak Dutch as a second language, and tested their Dutch proficiency and cognitive development. For children who speak Dutch as a second language, cognition (measured by a standardized Dutch cognition test of rule discovery, symbolic processing, conservation, and verbal naming; Bleichrodt, Drenth, Zaal, & Resing, 1984) was the strongest predictor for Dutch (L2) proficiency compared to other demographic factors. Further studies on the details of which cognitive skills are more related to L2 proficiency are needed.

ELL's level of L1 competence is related to L2 proficiency. Various research has showed that linguistic competence in L1 is transferrable when learning L2 (Cardenas-Hagan, Carlson, & Pollard-Durodola, 2007; Castilla, Restrepo, & Perez-Leroux, 2009) and thus children's L1 competence helps their L2 learning (August, Carlo, Dressler, & Snow, 2005; Ordonez, Carlo, Snow, & McLaughlin, 2002). The findings are used as

evidence of developmental interdependence between L1 and L2, leading many researchers to suggest that strengthening children's L1 is another way to promote L2 proficiency. A comparison of English and Spanish versions of a comprehensive battery of tests shows that phonological awareness skills is an area for direct transfer of knowledge between L1 and L2 among Spanish-speaking children (Cardenas-Hagan et al., 2007). The study, which compared 49 Spanish-speaking preschoolers' Spanish and English competence through the Bilingual English Spanish Assessment, also showed that L1 grammatical and semantic measures predicted those in L2 (Castilla et al., 2009). In addition, latent growth modeling showed that L1 competence explained 24.1% of initial English reading level and 7.4% of English reading growth in a longitudinal study with 899 ELLs (Guglielmi, 2008). Thus, a child's first language competence cannot be ignored in explaining second language acquisition.

Children's successful school lives do not depend only on cognitive skills but also on socio-emotional skills (Raver, 2002). It is yet unclear whether socio-emotional competence in children is a predictor of L2 acquisition or a consequence of bilingualism, but interest in this area is increasing (Hair, Halle, Terry-Humen, LavELLe, & Calkins, 2006; Han, 2010). In one study, children were clustered into four different types of groups depending on their socio-emotional skills and health status upon kindergarten entry (Hair et al., 2006). ELL children were more likely to be in the 'socio-emotional and health strength' profile and were strong in both socio-emotional skills and health compared to all the other groups (i.e., comprehensive positive development, socio-emotional and health strengths, socio-emotional risk, and health risk profiles). This group

did not show the best performance in math and reading in the first grade, but since these children have strong socio-emotional skills, as their English proficiency developed, they were able to excel in other aspects of development as well. Han (2010) examined the socio-emotional well-being of ELLs on approaches-to-learning, self-control, interpersonal skills, and internalizing and externalizing behavior problems, and concluded that Latino ELLs were doing as well as White, English monolinguals on socio-emotional well-being in general. In addition, the most fluent bilingual children surpassed all the other groups of children (English-dominant bilingual, White English monolingual, and non-English monolingual children) by 5th grade on all the measures mentioned above. The study did not only show the relationship between socio-emotional skills and English language proficiency but also the importance of maintaining L1 in becoming bilingual.

Another study examining the relationship between English proficiency and socio-emotional skills examined four-year-old, low-income, predominantly Spanish-speaking preschool children, and showed results consistent with previous research (Kim, Richard, & Winsler, 2011). ELL preschoolers who became proficient in English by the end of kindergarten, compared to those who didn't, were the children who had stronger socio-emotional skills such as initiative, self-control, and attachment, and had fewer behavior concerns at age four. The result was significant even after controlling for gender, poverty, and cognitive language competence. Children who became bilingual (Spanish and English) by kindergarten had stronger socio-emotional skills and less behavior problems in preschool compared to those who stayed monolingual (Spanish). Thus, socio-emotional skills do seem to play an important role in second language acquisition.

Family-level factors

Family-related factors seem to influence ELL's English proficiency individually but they often function together as a whole. For example, low-SES parents tend to provide fewer resources to their children than high-SES parents in enhancing English proficiency skills, such as having fewer English books at home and affording only low-quality child care. Poverty, parental education level, income level, and parental involvement are all inter-correlated family factors, and those should be interwoven together in explaining English proficiency among ELLs (Portes & MacLeod, 1996).

Family income and parental education are often the two most critical family-level factors in explaining school success for children (Hernandez, 2006). Also, poverty is one of the components in explaining limited English proficiency among ELLs (Capps et al., 2005; Hoegl, 1985). Low-income students tend to have a higher dropout rate than the national rate and a large portion of these low-income students are comprised of ELLs (Ireland, 2006). In 2000, 68% of school-aged ELL children were from low-income families (Capps et al, 2005). Also, socioeconomic status has a large effect on English oral proficiency among Spanish-speaking children. High-SES children outperform low-SES children on various English literacy tests and the effect is especially large for oral language for both English monolingual and English-Spanish bilingual groups (Cobo-Lewis, Pearson, Eilers, & Umbel, 2002). In studies examining the relationship between SES and English proficiency, positive relationships between those two factors were found but the gap in English proficiency minimizes or even disappears when SES is statistically controlled (Brown, 2005). However, SES is usually confounded with ethnicity or

language-minority status so that it is rather difficult to tease apart the effect of SES alone (Goldenberg, Rueda, & August, 2006). Brown (2005) showed a positive relationship between SES and math performance between groups of third-grade ELLs who were still learning English (N = 492) and native English-speakers (N = 492). These children were divided into four different groups according to their language and SES status, using free/reduced lunch eligibility (i.e., ELLs and native English-speakers, both with high- or low- SES status) and comparisons among these groups were made on standardized math achievement tests. The result showed that there was an SES effect within native English-speakers (i.e., high-SES outperformed low-SES), although the contrast did not show up between the two ELL groups. Also, high-SES native English-speakers outperformed high-SES ELLs, whereas there was no significant difference between low-SES ELLs and low-SES native English-speaking children (Brown, 2005). Differences stem from lack of academic English proficiency for ELLs as well as low-SES, native English-speakers who are only skilled in conversational English. Thus, it is only advantageous to be of high-SES when higher academic English proficiency is present.

Parental education is also important. Half of ELLs in elementary school have parents with less than a high-school education, and one in four have parents with less than a 9th grade education (Capps et al., 2005). Children who do not gain English proficiency by the end of first grade have parents with lower education compared to those who were already proficient in English by the time of kindergarten entry (Halle et al., in press). On the contrary, children whose mothers have higher education tend to acquire L2 vocabulary faster than children whose mothers have a lower level of education (Golberg,

Paradis, & Crago, 2008). In addition, level of parental education is especially related with children's academic success in the Hispanic language community in Miami (Cobo-Lewis et al., 2002).

How much parents are involved in children's school activity predicts immigrant children's English proficiency as well (Lahaie, 2008). Parental involvement, in the form of in-home cognitive learning activities and meeting with the teacher at least once since the beginning of kindergarten, also influences English proficiency among ELLs (Lahaie, 2008). Parental involvement is a benefit to all children regardless of the language spoken at home, but it is especially important for the children whose parents do not speak English as a home language (Simich-Dudgeon, 1993).

Language use at home is an important factor in the development of English proficiency. More exposure to English at home leads to a steeper English growth trajectory among ELLs compared to those who have less exposure of English at home (Uchikoshi, 2006). Also, ELLs with lower English proficiency tend to have parents with less fluency in English and also low levels of literacy in their native language compared to those with higher English proficiency (Capps et al., 2005). If the child's parents do not speak English, then it raises the risk significantly that they will perform more poorly than their native counterparts (Lahaie, 2008). Children who have parents speaking a non-English language at home are 81% more likely to be considered not proficient in English, and their math score is likely to be lower than those who have both parents speaking English at home (Lahaie, 2008).

Although maintenance of L1 proficiency and use of L2 mostly depend on adult language use in the home (Hakuta & D'Andrea, 1992), a recent study examines the influence of siblings in learning English. Kim and Starks (2009) examined language interaction among immigrant family members (i.e., father, mother, and siblings) and the development of English proficiency. Parents had a weak effect on the child's English vocabulary and lexical diversity but language interaction with siblings was found to be a key contributor for both L1 maintenance and L2 acquisition. There have not been many studies examining the relationship between family size and English development among ELLs. Ortiz (2010) in his work, comparing Latino primarily Spanish-speaking families and Latino primarily English-speaking families showed that family structure, such as number of family members, was only negatively correlated within the latter group. However, the study found that the presence of siblings was stronger predictor than family size.

School-level factors

School is another significant context where ELLs are placed, and sometimes stronger relationships between student outcomes and the school environment is shown than relations between student outcomes and child-level factors (Sirin, 2005). Several factors related to school make a difference in ELL's development of English proficiency. Experience prior to kindergarten also matters. Sung and Chang (2008) found that ELL children who attend center- or school- based care programs regularly from preschool through 5th grade had higher English reading performances compared to those who did not attend those types of program continually. Beyond kindergarten, private school

attendees have a 7% increase in the odds of being proficient in English compared to those who attend public schools among kindergarten children (Lahaie, 2008). However, it is not certain to what degree these school types and quality influence ELLs' English development above and beyond individual and family characteristics such as income.

Also, ethnic diversity of the school seems to influence ELLs' language development (August & Shanahan, 2006). Historically, ELLs are receiving academic instruction less and less in their first language and are more likely to attend schools where more than 30% of the students are ELLs (August & Shanahan, 2006). These language-minority students will show slower rates of English acquisition compared to those who attend schools with fewer ELLs. ELL children who attend a school with a high-ELL to non-ELL ratio showed slower English proficiency development compared to those who attend schools with fewer ELLs (Han & Bridglall, 2009). However, it might not always be a disadvantage to attend ELL-dense schools since those schools might provide additional services to ELLs to meet the language-minority students' needs. Schools with more higher-SES students, on average, have ELLs that learn English faster compared to schools with significant numbers of lower-SES students (Portes & MacLeod, 1996). School SES status is usually confounded with the area in which the school is located.

Different types of bilingual education programs influence ELL children's English acquisition. Some bilingual programs not only help ELL children reach native-like levels of English compared to English-only programs but also help maintain their first language (Johnstone, 2007; Swain & Lapkin, 1991). Multiple studies conducted by Thomas and Collier (1997, 2000, 2002) showed that ELLs who attended schools that separated those

children from the regular program performed the lowest in standardized English language tests, but those ELLs who attended two-way immersion programs (i.e., using two languages (usually English and Spanish) for the school curriculum) showed the highest performance in English reading and writing.

Teacher support in the classroom is crucial as well as teacher-child ratio, teacher-child relationships, and teacher education levels for the English development of ELLs (Chang et al., 2007). A teacher who acknowledges that s/he speaks the L1 of ELLs to other children in the classroom will create a more comfortable learning environment for ELLs compared to those who do not accept ELLs speaking their L1 in the classroom (Chang et al., 2007). Also, teachers are more likely to show positive behaviors and have more frequent and personalized teacher-child contact in smaller classrooms compared to larger classes (Blatchford, Moriarty, Edmonds, & Martin, 2002; Shim, Hestenes, & Cassidy, 2004). Furthermore, schools that have teachers who possess a good understanding of ELLs provide a better environment for ELLs in learning English compared to those who do not appreciate the perspective of ELLs (Oigawa, 2009).

Rare in the literature are studies examining the relationship between class size and English proficiency development. Class size was found to be associated with student's academic achievement (Bruhwiler & Blatchford, 2009). Children in smaller classes (average of 17 students) tend to show better academic outcomes compared to those who attend regular-size classes (average of 23 students) and the effect was specifically larger for ethnic-minority children (Finn & Achilles, 1999). Another school factor that is related to ELL children's progress is the proportion of ELL students in the school. Cosentino de

Cohen, Deterding, and Clewell (2005) showed that schools with higher concentrations of ELL students had teachers with less teaching experience than low-ELL schools. Hence, not only language-related school factors but also non-language-related school characteristics can influence ELL children's development of English proficiency.

Current Study

The purpose of this study is to examine the relationship between growth and rate of oral English proficiency and various factors among low-income four-year-old ELLs in Miami, Florida. Miami-Dade County is one of the most diverse counties in the world in terms of culture and language due to almost 60% of the county's population being foreign-born (U.S. Census Bureau, 2010). Thus, it is fortunate to examine the English proficiency trajectory of ELLs in this region. In addition, a large proportion of the population in Miami is low-income and Hispanic/Latino. Previous studies exploring 'How long?' questions on second language acquisition involved immigrant children but not necessarily low-income families (Cummins, 1981; Thomas & Collier, 1997) or Hispanic/Latino communities, where the majority of ELLs in the U.S. reside (Capps et al, 2005). Although recent studies in the field examine the relationship between speed and growth of English acquisition and academic outcome (Halle et al., in press), not many studies examine English acquisition among ELLs as an outcome. Thus, the current study examined the relationship between child, family, and school characteristics and oral English acquisition among low-income ELLs in addition to identifying the predictors of the speed of English proficiency.

Questions regarding predictors of initial status and growth in oral English proficiency over time were asked first, followed by questions regarding how long it takes ELLs to reach proficiency, and what the predictors are for them to become proficient in English by fifth grade. Initial status, growth of English proficiency, and time until ELLs are considered English proficient are three different questions, but the former two (initial status and growth) were answered with hierarchical linear modeling and the latter with survival analysis. Also, there were special data considerations that suggested that hierarchical linear modeling and survival analysis together be used. The analysis examining growth deals well with the nested data (time, child, and school) whereas the analysis for speed of English acquisition deals better with the censored data problem (participants who had not experienced the event of English proficiency or left before the data collection ended). Due to the nature of the structure of data set (see Table 1), data collection ended before all ELLs got a chance to become proficient in English. For example, cohort E children only had two years worth of data collection compared to cohort A children who had six years of chance to reach English proficiency. Thus, following two separate research questions were examined.

Research Questions

1. What child- (gender, ethnicity, cognitive, and socio-emotional skills), family- (poverty, marital status, parental education level, immigrant status), and school- (ELL vs. non-ELL ratio, ethnicity, poverty status) level characteristics relate to English proficiency growth from kindergarten through 5th grade?

We hypothesize that children who are girls, White or African American, have U.S.- born, married, not receiving free/reduced lunch and more educated parents/guardian, and/or live in a smaller household will be more likely to show rapid growth in English proficiency compared to those who are boys, Hispanic/Latino, have parents/guardian who were born outside the U.S., single/divorced/ separated, less educated, receiving free/reduced lunch, and/or live in a larger household. Also, English acquisition growth for those children who have stronger cognitive, language, socio-emotional skills will be steeper compared to those who have weaker skills in these areas. In addition, ELLs who show rapid growth in English proficiency will more likely to come from schools with a lower proportion of Hispanic classroom teachers and students, ELLs, and students not in poverty, and smaller class sizes compared to those who attend schools with higher proportions of Hispanic classroom teachers and students, ELLs, students in poverty, and larger class sizes.

2. What proportion of four-year-old ELLs in Miami achieve full English proficiency by 5th grade? How long does it take four-year-old ELLs in poverty to acquire English proficiency? What child-, and family-, level characteristics predict the length of time until ELLs become proficient in English?

My hypothesis is that the vast majority of the ELLs in Miami will become proficient in English and it will take five years for four-year-old ELLs to acquire English proficiency. A previous study on ELL children with MSRP data showed that about 91% of these children had become proficient by 3rd grade (Kim, De Feyter, Hutchison, Rioja, & Winsler, 2010). In addition, I hypothesize that children who are girls, White or African

American, have U.S.- born, married parents, are not receiving free/reduced lunch, and have more educated parents/guardian, and live in a smaller household will take a shorter time to become fluent in English compared to those who are boys, Hispanic/Latino, have parents who were born outside the U.S., are single/divorced/separated, and less educated, and are receiving free/reduced lunch, and live in a larger household. Also, children who have stronger cognitive, language, socio-emotional skills will be faster in becoming English 'proficient,' compared to those who have weaker skills in these areas.

METHOD

Participants

The participants in this study are from a subset of the Miami School Readiness Project (MSRP; Winsler et al., 2008). The Miami School Readiness Project (MSRP) is a longitudinally designed, University- community collaborative early childhood project which examines child, family, care provider, neighborhood, and public school factors related to school readiness. Since 2002, five cohorts of about 10,000 four-year-old pre-kindergarten children participated in this project each year and the children were followed into elementary school. A total of approximately about 46,000 children comprised essentially the entire population of Miami-Dade county children receiving subsidies to attend childcare services (center-based or family daycare) and those who attended public school pre-k programs. Longitudinal data for the first cohort was collected up to 5th grade. The participants are primarily from low-income families with various languages and cultural backgrounds. These children were assessed on cognitive, language, motor, social skills, and behavior problems either in English or Spanish at age four. Upon reaching kindergarten, various family variables, such as parental education, were collected along with ELL's English proficiency each year. In addition, each public school's school characteristics, such as school-wide ethnic diversity or quality of the school were collected each year during the project.

The MSRP is a rich data set but, unfortunately, the data do not provide one clear variable that indicates whether a child is an ELL or not. Utilizing many variables that provide information for identifying English Language Learners (ELL) within this data set was the first step. Parent-reported home language is a popular and easy way to obtain data with less time-consumption (Chang et al., 2007; Han, 2010; Han & Bridglall, 2009) but for a more accurate screening of ELLs, the use of an English proficiency assessment is still the best method to identify ELLs (Beal et al., 2010; Han, 2010). Cummins (1979, 1981) differentiated two different types of English proficiency; basic interpersonal communicative skills (BICS) and cognitive academic language proficiency (CALP). These two types of English proficiency differ in speed and rate of acquisition. BICS is easier and faster to develop than CALP because it only requires the ability to communicate outside of academic settings. There are some inconsistencies in how much time is needed in reaching proficiency in these two types. Some researchers found that two to three years is needed for developing BICS (Cummins, 1996) but others found three to five years (Hakuta, Butler, & Witt, 2000). However, researchers agree that more than five years is needed to develop CALP, five to seven or seven to ten years (Thomas & Collier, 1997). Thus, when examining English proficiency, it is important to define which proficiency the assessment is trying to capture. Some studies identify only those whose English proficiency is less than the highest level of the proficiency assessment (Han, 2010), while others include all the participants who have English proficiency assessment scores regardless of their proficiency (Beal et al., 2010). Sometimes English

proficiency itself is not important but the fact that the child initially was tested with the English proficiency test is an important criteria.

In selecting the subsample for the current study, all the children who had English proficiency test score at some point between kindergarten and 5th grade were selected as ELLs. Whoever had an English proficiency test score was flagged as ELL since the school policy was to give the ESOL assessment to all who had a parent-reported non-English home language. The selection of ELLs based on the English proficiency variable fulfills the assumption that they have a home language other than English. In addition, since English proficiency level was used as an outcome variable, children without ESOL level information were excluded. Details of the English proficiency assessment will be presented further.

Among the total participants in the MSRP project, 42.10 % (N = 19,454) were ELLs by the definition explained above (child language and an English proficiency test score) and were initially included in this study. The gender distribution was even - boys comprised 53.1% of the sample. Ethnicity distribution in Miami is somewhat complicated. From synthesizing parent-reported ethnicity data from pre-k through several years in elementary school, Hispanic/Latino ethnicity (including those who identified themselves as multi-ethnicity including Hispanic/Latino origin) dominated the sample (88.0%) followed by African American/Black/Caribbean (8.9%), and White/other (3.1%). In addition, those who qualify for free/reduced lunch status in kindergarten comprised of 79.6% of the sample, indicating that the majority of the sample was in poverty according to the government criteria (USDA, 2010). When children were in preschool, 37.9%

attended center-based or family daycare, whereas 62.1% of the ELLs attended public school pre-k programs (See Table 3).

Measures

Motor, Cognitive, and Language Skills at Age Four. Children's cognitive and language skills were measured at age four in the MSRP with measures selected by the community's early childhood assessment task force and thought to be aligned with State's early learning performance standards (Florida Partnership for School Readiness, 2003). The primary purpose of the assessment was to measure school readiness. English-Spanish bilingual assessors, who had M.A. degrees in an education-related discipline and were trained on the instrument, assessed children twice a school year, once in the beginning (September/October) of the participants' four-year-old pre-k year and once at the end (April/May) of the school year. Children were taken to a separate room and were administered the Learning Accomplishment Profile-Diagnostic (LAP-D; Nehring, Nehring, Bruni, & Randolph, 1992) for the assessment of cognitive, motor, and language skills. Child's assessment language (English or Spanish) was chosen by the assessors' impression and by the teacher's report of the child's strongest language. The distribution of the two languages was almost even (55.4% done in English). However, when the participants were divided into childcare type (i.e., childcare vs public school pre-k), more ELLs were assessed in Spanish (64.9%) in child care programs, whereas the majority of ELLs in public school pre-k system were assessed in English (82.0%). Palm pilot devices were used which pre-inserted information on the participating children, and the assessors entered their data as soon as the child was tested which later was uploaded to the master

database. Sub-scales of the LAP-D consist of fine motor manipulation and writing, gross motor body movement and object movement, cognitive matching and counting, and language naming and comprehension. Both raw and percentile scores were available but the current study will only be using percentile scores of cognitive total (combination of matching and counting) and language total (naming and comprehension). The reliability of the LAP-D shows good consistency within the norming sample (α of .76 to .92) and construct validity with high correlations (.43 to .89) with other assessments, such as Battelle Developmental Inventory (DBI; Newborg, Stock, Wnek, Guidubaldi, & Svinicki, 1984), Developmental Indicators for the Assessment of Learning – Revised (DIAL-R; Mardell-Czudnowski, & Goldenberg, 1983), and the Wechsler Preschool and Primary Scale of Intelligence – Revised (WPPSI-R; Wechsler, 1989). Internal consistency reliabilty for the LAPD within this Miami sample was .93 and .95 for the cognitive and language subscales used for this project (Winsler et al., 2008). End-of-school year scores were used in the analyses since the scores were measured closer to the beginning of the kindergarten years. In addition, to maximize the total number of cases for these variables, , beginning of school year score was filled in for those who were missing end-of-school year sores, (see Table 2).

Social Skills and Behavior Concerns. The Devereux Early Childhood Assessment (DECA; LeBuffe & Naglieri, 1999) was used to measure children's socio-emotional skills and behavior concerns. As with the LAP-D, these dimensions were measured twice in one academic year, once in the fall (Time 1) and once in the spring (Time 2) of the pre-k year. Socio-emotional skills are comprised of initiative, self-control,

and attachment/closeness with adults, and together are referred to as “total protective factors.” The assessment is given to both parents/guardian or teachers and they filled out their ratings on those scales described above either in English or Spanish (language of the raters’ choice). Teachers completed the assessment in their free time and the parents were given the form when they picked up their children and returned it back with their child. The proportion of teachers who used Spanish in completing the form was 24.2% whereas 55.8% of the parents filled out the form in Spanish at Time 1. Raters observe children within the past four weeks and rate the children on a five-point scale which ranges from ‘never’ being ‘0’ to ‘very frequently’ being ‘4.’ The initiative subscale asks about whether the child “choose to do a task that was challenging for her/him” and “start or organize play with other children.” Self-control subscale items are for example, “listen to or respect others” and “control her/his anger,” whereas attachment items include “respond positively to adult comforting when upset.” On the other hand, the behavior concern scale includes questions such as “fight with other children” and “have temper tantrums.” Note that behavior concerns is scored in the opposite manner in which larger numbers indicate poorer behavior. The internal consistency reliability for teacher-report total protective factors is .94 and behavior concerns is .80 and for parent-reported total protective factors, it is .91 and for behavior concerns .71 according to the developer (LeBuffe & Naglieri, 1999). The reliability of the DECA within this population has been found to be consistent across raters and language of form (Crane, Mincic, & Winsler, in press). In this Miami sample, the internal consistency reliability for teacher-reported total protective factors was .94, and .81 for behavior concerns. For parent-reported total

protective factors, it was .91 and for behavior concerns .72 (Winsler et al., 2008). Both raw and percentile scores were available, but the current study will only be using percentile scores. To maximize *N*s for both total protective factors and behavior concerns variables, time 2 teacher observations was used first and if a child did not have time 2 teacher value, then their time 1 teacher value was filled in. However, if there was still missing data, then parent time 2 or time 1 data were put in.

English Proficiency According to Miami-Dade County public schools, the Miami-Dade County Oral Language Proficiency Scale-Revised (OLPS-R; Oral Language Proficiency Scale, ESOL Placement Interview Guidelines – Revised, 1978) is used for ELL screening. Upon entrance to kindergarten, children in Miami-Dade County receive the OLPR-R when parents report their home language as being non-English. OLPR-R is a Florida State-wide English oral proficiency test given by an ESOL teacher at school (Abella, 1997; Abella, Urrita, & Schneiderman, 2005). This test is a grade-normed English proficiency test which places children into five ordinal levels, with level one being for beginners and level five for being fully proficient in English. If a child does not achieve level five, s/he is placed in an ESOL program. ESOL is an English language program specifically for English Language Learners and the levels resulting from the Miami-Dade County oral language proficiency scale-revised (M-DCOLPS-R) is referred to as 'ESOL level' by the school district. ELL children are assessed repeatedly every year by the ESOL teacher until they reach level five. Once a child reaches level five, the child is no longer considered in need of help with the English language and thus they exit from the ESOL program. Different criteria are offered for children from preschool to

kindergarten, kindergarten to second grade, third grade through fifth grade, and sixth grade through twelfth grade. M-DCOLPS-R only covers oral proficiency of English proficiency. However, the ESOL level is valid in measuring English language oral proficiency for ELLs for the assessment is developed for that very purpose. The variable is ordinal/continuous in that the state of change in English proficiency can be examined.

However, note that this measure is an oral proficiency score, and getting to ESOL level 5 does not necessarily mean that the child developed native-like fluency. It means that the child is no longer in need of ESOL service by the district criteria. However, the kinds of ESOL programs that the ELL children actually received are not clear.

Child Demographics Gender and ethnicity collected from school records in pre-k, kindergarten, and elementary school were included in the analysis. Gender and ethnicity were collected each year from kindergarten through 5th grade. Thus, as with the case for child language, gender and ethnicity was collapsed into one master variable respectively. For the master gender variable, whenever a discrepancy within a child's data was found, the most recent value was given assuming that the previous information was corrected. For example, a child was given a value of 'male' when the gender was reported as female in 1st grade but as male in 3rd grade. Ethnicity was originally categorized into six different options (White, Hispanic, Black, Asian/Pacific Islander, Indian, and Multi) but there were some cases where there was a discrepancy of ethnicity within a child from pre-K through grade five. Thus, a new option was made for those who changed their ethnicity such as 'Hispanic multi' or 'Black multi' to create one master ethnicity variable. If 'Hispanic' and White, Asian, Indian, Other, or Multi were found within one child, 'Hispanic/Multi'

was assigned. If 'Black' and White, Asian, Indian, Other, or Multi were found within one child, 'Black/Multi' was assigned. If 'White' and Asian, Indian, Other, or Multi, 'Multi/Other' was assigned. If 'Hispanic' and 'Black' were ever present, Hispanic/Black was assigned. However, for the purpose of the current study, these were reduced down to three major ethnicity options (White/Other(Asian/Pacific Islander, Indian, Multi/Other), Hispanic/Latino (Hispanic/Multi, Hispanic/Black), and AA/Black/Caribbean (Black/Multi)) (See Table 3).

Family characteristics. Parents' immigrant status (whether they were born within the U.S. or not), free/reduced lunch status (whether their income level qualified for free/reduced lunch in kindergarten), marital status (married vs. single/divorced/separated/other), family size (how many people live in a household), and parent education (in years) obtained from school or agency records were included in the current study. Among these variables, parents' immigrant status, marital status and parent education were only obtained among those children who attended subsidized childcare programs when they were in preschool and note that those two variables were collected only during one of the years among children who went to center-based childcare, so the majority of the data is missing (88%). Among those who have data, 51.2% (N = 1,127) of the sample had parents born outside the U.S., 87% (N = 1,917) of the participants' parents reported that they are single/divorced/separated/other, and parents reported an average of 11.5 years of receiving formal education (See Table 3). Note that the family characteristics were obtained when children were four years old and might have changed over the years for marital status and parent education. However, only free/reduced lunch

status was obtained longitudinally, and this is reflected as a time-varying covariate in the analyses. Due to the drastic reduction of the sample size for these variables except for free/reduced lunch status, analyses were conducted on the larger sample and then separately with these variables included (see Table 2).

School characteristics. There are about 80 different items of school environment measured each year from 2002 to 2007 for each public school and are publically available. The list of the variables which would be considered in this paper from the entire set of items is as below. The items are mostly related to the ethnicity of teachers and children, school size, and number of children in ESOL program. Certain variables were significantly correlated such as percent Hispanic teachers and percent Hispanic students ($r = .28$, $p < .01$). However, the high correlation was inevitable due to the nature of the community (see Table 4).

- Percent Hispanic classroom teachers
- Percent beginning teachers (in their first three years)
- Percent Hispanic total students
- Total number of children in the school
- Average class size for entire school
- Number of students enrolled in ESOL programs
- Percent of children eligible to receive reduced or free lunch

Children were assigned school id for the school they attended in kindergarten. The school that children attended in kindergarten is closer in time to the other child and family predictors (preschool), and kindergarten school is complete for all cohorts. When

a child's kindergarten school id was not obtainable for various reasons (e.g., child not showing up in kindergarten but appeared the next grade), school id when the child showed up for the first time the following years was used. After assigning school ids for each child, those data when the child was in kindergarten were used. For example, if the child is cohort A and had school id for kindergarten, school characteristics for 03-04 academic year were assigned to the child (see Table 1). Mostly, consecutive years of public school characteristics were available, but for those whose kindergarten school characteristics were not obtainable, whichever closest year to the child's assigned school year was used. Referring to the same example above, if the 03-04 academic year's school characteristics were missing, characteristics for 04-05 academic year were assigned to the child. Even after the above procedure, still 20.7% (N = 53) of the school-level data were missing. Thus, multiple imputation was conducted on the school-level missing data with NORM (Schafer, 1997). Five different data sets were created on the school-level by the program and the results were averaged across these five sets.

RESULTS

1. What child- (gender, ethnicity, cognitive, and socio-emotional skills), family- (free/reduced lunch status, marital status, parental education level, immigrant status), and school-level (ELL vs. non-ELL ratio, ethnicity, SES status) characteristics relate to English proficiency growth from kindergarten through fifth grade?

In order to answer the question, growth curve modeling using hierarchical linear modeling (HLM; Raudenbush, Bryk, & Congdon, 2007) was conducted. The analyses were conducted on the growth of English proficiency (ESOL level) for all cohorts (see Table 1) from kindergarten through fifth grade as the dependent variable. However, there were several concerns before conducting the analyses. First, several systematic missing data problems emerged. Not all participants had ESOL level up to fifth grade (as described in the method section). Only the first cohort had complete data and the second cohort up to fourth grade and so on, which resulted in a large amount of missing data. HLM does not handle this kind of censored missing data but discrete-time survival analysis which was conducted for research question 2 deals with this censoring problem. More will be discussed in the research question 2 section.

Similarly, when an ELL receives the highest level on ESOL, the child exits out of the ESOL program and no longer has ESOL data. However, this does not mean that the child is missing data but instead, has reached the ceiling point. Thus, for children who

had once reached the highest level (five) at any point between kindergarten and 5th grade, they were given a value of missing from then on. For example, a child who received a five in first grade was made to have missing data for the remaining grades. This solves the problem of those children who became proficient earlier appearing to remain stable at five, for the rest of the time. In addition, since the analysis is growth curve modeling requiring more than one time point of data per child, those who only had one time point were excluded from this analysis (total *N* = 11,494, see Table 2). Also, the data are not only nested within child for having multiple time points of English proficiency (level1), but also nested within child-level predictors (level 2) and within schools for being in the same school (level 3), which is a major reason in using the HLM program for analyzing the data for this question.

Four different models shown in table 5 were used for the analyses (See Models A through D in Table 5). In order to examine the variance explained by time, a model without any predictors except for time was conducted (see Model A in Table 5). Then children's demographics (i.e., gender and ethnicity), socio-emotional skills and behavior problems were included (with school-level variables) to see whether socio-emotional skills and behavior problems explained initial status and growth on English proficiency above and beyond child demographics (see Model B in Table 5). Another reason for adding these covariates before others was because of the sample size reduction (see Table 2). Adding socio-emotional skills and behavior problems did not reduce sample size significantly compared to Model A in Table 5. In the same manner, each group of variables was added to the subsequent models, preschool dominant language (English vs

Spanish), cognitive, and language skills for Model C (see Table 5), and family characteristics added in Model D (see Table 5). Due to drastic reduction of the sample size when adding family characteristics, those covariates (marital and immigration status, number of persons in home, maternal education) were added to the last model (see Table 2).

Model A: Unconditional growth model with time as the only predictor

Model B: Child demographics (gender, ethnicity), socio-emotional skills, and behavior concerns, with school characteristics (percent Hispanic classroom teachers, percent beginning teachers, percent Hispanic total students, total number of children in the school, average class size for entire school, number of students in ESOL programs, percent of children who receive reduced or free lunch)

Model C: Child demographics (gender, ethnicity), complete child preschool school readiness assessment scores (socio-emotional skills, behavior problems, cognitive, and language skills, language in which the assessment was conducted), with school characteristics (percent Hispanic classroom teachers, percent beginning teachers, percent Hispanic total students, total number of children in the school, average class size for entire school, number of students in ESOL programs, percent of children who receive reduced or free lunch)

Model D: Child demographics (gender, ethnicity), complete child preschool school readiness assessment scores (socio-emotional skills, behavior problems, cognitive, and language skills, language in which the assessment was conducted), and family characteristics (parents' immigrant status, free/reduced lunch status, marital status,

family size, parental education), with school characteristics (percent Hispanic classroom teachers, percent beginning teachers, percent Hispanic total students, total number of children in the school, average class size for entire school, number of students in ESOL programs, percent of children who receive reduced or free lunch)

The result is presented in Table 5 for English proficiency from level 1 through 5 as an outcome from kindergarten through fifth grade. All continuous variables were grand mean centered ($M = 0$) in the HLM models. Some covariates such as gender and family size were not significantly explaining variance in English proficiency in any of the models analyzed. Thus, only the parameter estimates which were significant predictors were presented (see Table 5).

Interclass correlations for the unconditional growth model showed that 8% of the variance in English proficiency was due to time ($\chi^2 = 17{,}789.27$, $p < .001$), 60.8% to between-child differences ($\chi^2 = 37{,}941.06$, $p < .001$), and 7.14% to nesting at the school level ($\chi^2 = 1{,}010.90$, $p < .001$). Thus, child-, family- (level 2), and school-level (level 3) characteristics introduced in the method section were used as variables to predict both initial English proficiency status in kindergarten and growth over time in English proficiency. Also, the significant intercept ($b = 3.3816$, $p < .001$) and slope for time ($b = .5877$, $p < .001$) for the unconditional growth model indicate that average children in this sample started at an ESOL score of 3.86 in kindergarten and showed .5877 of an increase each year (see Model A in Table 5).

Child demographics (gender and ethnicity), time-varying free/reduced lunch status, socio-emotional skills, and behavior concerns as well as school-level

characteristics were added to the next model. Gender was not a significant predictor throughout the models B, C, and D, so it was not included in Table 5. Ethnicity was significantly predicting both intercept and slope for ESOL level (see Models B in Table 5). White/others and African American/Blacks started significantly higher in ESOL level in kindergarten compared to Hispanic/Latinos (b = .15, p < 01; b = .19, p <.001) but Hispanic/Latino children showed faster growth compared to African American/Blacks (b = -.09, p < .001). AA/Black children started .19 higher in ESOL score than Hispanic/Latino children but Hispanic/Latino children's English proficiency growth was .09 point steeper than AA/Black children. Free/reduced lunch status was a time-varying predictor; in other words, children's eligibility for free/reduced lunch changed from grade to grade. Free/reduced lunch status became significant in Model C when it was not in Model B (see Table 5). However, the direction was consistent that children who were not receiving free/reduced lunch were more likely to show a steeper slope in English proficiency development compared to those who were receiving free/reduced lunch.

Socio-emotional skills and behavior problems (DECA total protective factors and DECA behavior concern) in this model were significantly predicting initial status and growth of English proficiency. The DECA total protective factors scale was positively associated with both English proficiency in kindergarten (b = .0025, p < .001) and growth (b = .0006, p < .01), whereas DECA behavior concerns was negatively associated with initial English proficiency (b = -.0029, p < .001) but showed a positive relationship with growth in English (b = .0009, p < .001) (Model B in Table 5). In other words, children

who showed fewer behavior concerns started higher in English proficiency in kindergarten, but those who showed more behavior concerns showed steeper growth in their English proficiency over time.

A total of seven school predictors were examined. Since percent beginning teachers and percent of children eligible to receive reduced or free lunch were not associated with English proficiency in any of the models (Table 5), they were omitted from the table. Percent Hispanic classroom teachers, percent Hispanic total students, total number of children in the school, average class size for entire school, and number of students enrolled in ESOL programs were all associated with children's ESOL outcomes except for the percent of beginning teachers and percent of children eligible to receive free/reduced lunch. However, there was high multicollinearity between variables such as between total number of children in the school and number enrolled in ESOL (χ^2 =.72, p<.01, see in Table 4) which was not dealt well within these models. A higher percentage of Hispanic classroom teachers and more ESOL students at the school were negatively associated with initial English proficiency, while being at a bigger school was positively associated with initial English proficiency. Children who attended schools with more Hispanic students and bigger class sizes showed steeper growth in their English proficiency while number of ESOL students in the school was negatively associated with English proficiency (see Model B in Table 5).

Preschool language and cognitive skills (LAP-D language and LAP-D cognitive), as well as the language in which those school readiness assessments were measured, were added to the next model and these significantly predicted both intercept and slope for

ESOL level (Model C in Table 5). The language in which LAP-D was assessed was decided by the assessor by the impression whether the child's English was fluent enough to proceed with the assessment. The alternative language was Spanish. LAP-D assessed language was the strongest predictor and was negatively associated with initial ESOL level at kindergarten (b = -.5673, p < .001) but positively with growth (b = .1724, p < .001) indicating that ELLs who were assessed in English in preschool started higher in their English proficiency in kindergarten, but the children who showed steeper growth in English proficiency were the ones who were assessed in Spanish in preschool. This makes sense since this measure was the child's stronger language at age four (see Model C in Table 5). Children who had English as their LAL-D assessment language had a .57 higher ESOL level in kindergarten compared to children whose LAP-D assessment language was Spanish.

LAP-D cognitive and language skills were significant as well. Children with higher scores of cognitive and language skills in preschool started higher in English proficiency in kindergarten but those skills were not associated with growth in English proficiency over time. DECA total protective factors and behavior concerns measures were still significant in terms of initial status of English proficiency but not for the slope after adding LAP-D cognitive and language skills. In addition, the ethnicity effect no longer existed in this model except for the AA/Black children having slower change compared to Hispanic/Latino ELL children.

At the school-level, the bigger the school and the fewer the ESOL students there were at the school, the higher ELL's English proficiency was in kindergarten. Children

who attended schools with more Hispanic students and bigger class sizes showed steeper growth in their English proficiency. ESOL students at the school were negatively associated with the slope of English proficiency growth (see Model C in Table 5). The results were the same with Model B (see Table 5). However, percentage of Hispanic classroom teachers no longer explained variance in English proficiency in Model C.

Family characteristics which were collected for many fewer children were included in the last model (see Model D in Table 5). Among the five family characteristics, only free/reduced lunch status and parent marital status were significantly associated with English proficiency (see Model D in Table 5). Surprisingly, parental immigration status, parental education, and family size were not associated with English proficiency meaning that whether a child's parent immigrated from other country, how many years of education a child's parent received, or how big the family was did not contribute in explaining either ELL child's initial English proficiency or growth when free/reduced lunch status and other variables were included in the model. However, ELLs who had single parents had higher initial English proficiency ($b = .22$, $p < .05$) compared to those whose parents were married, but the direction of the growth was opposite, indicating that children whose parents were married had steeper growth in English proficiency ($b = -.14$, $p < .01$).

Once family variables were included in the model, most of the school effects disappeared except for total Hispanic students at the school which predicted both initial status and slope. Schools with more Hispanic students had ELL students who had less English proficiency in kindergarten ($b = -.0047$, $p < .01$) but showed steeper growth in

English proficiency (b = .0033, p < .01) compared to those who attended schools with fewer Hispanic students. All the other school effects were not significant with this smaller sample size (see Model D in Table 5). In other words, mean ESOL level was expected to decrease .0047 points for each one unit increase in the school's total number of Hispanic students (indicating more Hispanic students in the school). This means that in explaining kindergarten English proficiency and its growth, child and family characteristics contributed more than school characteristics.

2. What proportion of four-year-old ELLs in Miami become proficient in English by 5th grade? How long does it take four-year-old ELLs to acquire English proficiency? What child-, family-, and school-level characteristics predict the length of time until ELLs become proficient in English?

ELLs in this sample exit out of the ESOL program when they become proficient in English (ESOL level = 5). A large part of the sample does not have a chance to reach ESOL level 5 before data collection ended (5^{th} grade) due to the nature of the data structure (see Table 1) which causes a censored data problem. Survival Analysis (SPSS, 2008) deals well with this problem and thus, was utilized for this question. The analysis was conducted on all five cohorts, but those who did not have ESOL data at the starting point (kindergarten) and had level five as their first ESOL level later on were excluded in this analysis (total included N = 18,495, see Table 2). The analysis procedures were adopted from Singer and Willet (2003). The life table for all ELLs will be described first in order to indicate the conditional probability that children become proficient in English each year (hazard function) and the cumulative probability that a child will remain in the

ESOL program each year (survival function). Median lifetime is the time when half of the ELL children in this sample became proficient in English, and this will be discussed, followed by group differences in the hazard function, survival function, and median lifetimes. Lastly, predictive models including child-, family-, and school-level covariates were analyzed using logistic regression.

First, descriptive statistics on the proportion of four-year-old ELLs becoming proficient in English each year are shown in the life table (see Table 6). In kindergarten, the hazard value is .2871 indicating 29.71% (*N* = 5,310) of the ELL children (*N* = 18,495) received ESOL level five and exited out of the program. Note that the hazard function takes into consideration the children who disappeared at the end of kindergarten and did not have a chance to get to ESOL level five yet (*N* = 1,309). In 1st grade, out of those who still remained in the school system and had not reached full proficiency yet (*N* = 11,876), another 26% (*N* = 3,089) attained level five proficiency. From 2nd grade through 5th grade, 40% (*N* = 2,287), 50% (*N* = 867), 42% (*N* = 109), and 58% (*N* = 26) became proficient each year. Notice the pattern that the proportion of children becoming proficient in English increases as ELLs get to the next grade. The third grade and the fifth grade is the most "hazardous" year when the majority of the remaining children exit out of the ESOL program (see Figure 2). The survival function examines the cumulative proportion of the ELLs who remained in the ESOL program. The survival value being .10 in 3rd grade (year 4) indicates that 90% of the ELL children who were still around in the school system exited the ESOL program. And by 5th grade, 99% were proficient in English and they no longer needed additional English instruction. Thus, almost all of the ELL

children in the current study became fluent in oral English by the definition of the district by 5th grade.

Hazard functions for group differences (see Figures 2 through 6) were also examined in addition to the hazard function for overall ELLs. As described in the previous paragraph, the conditional probability for all ELLs in becoming proficient in English increases steadily up to third grade and drops at fourth grade a bit but increases again at fifth grade (Figure 2). If hazard function graphs are compared by each group, shapes and peak points for subsamples show strong similarity except for White/Other ELLs (Figure 4). Boys and girls do not show much difference in their hazard function until fourth grade when boys have less probability of getting proficient in English than girls but the direction becomes opposite in fifth grade (see Figure 3). The hazard function for White/Other ELLs drops to zero in fourth grade and stays zero in fifth grade which indicates that all of the White/Other ELLs who started with some level of English proficiency less than level five had reached oral proficiency by fourth grade (see Figure 4). Children who are receiving free/reduced lunch show greater probability of becoming proficient in English compared to children who are not receiving free/reduced lunch in every grade except in third and fourth grade (see Figure 5). In addition, children's overall hazard function increases over time, children whose LAP-D assessed language was English in preschool always showed greater hazard function over those who were assessed in Spanish (see Figure 6). The shape of the overall hazard function increased over time for all subgroups, meaning that the conditional probability that a child exits the program given that they were still in it at the beginning of the year increased over time,

although not every time point's probability was significant (see Table 8) to be discussed later.

Table 7 shows the median lifetime of average ELL children in this sample achieving English proficiency. The median lifetime is the time point by which half of the sample had experienced English proficiency (i.e., exited out of ESOL by reaching level five). It took close to two years for half the ELL children to reach full oral proficiency in English. Median lifetimes were examined by levels of various categorical predictors; gender, ethnicity, free/reduced lunch status, preschool assessment language, parent marital status, and parent immigrant status. Girls on average took less time than boys in becoming proficient in English (Median lifetime 2.80 years vs 3.02 years). Half of the girls became proficient in English before 2nd grade but for boys, it lasted until 2nd grade. Children who were not receiving free/reduced lunch took less time than children who were receiving free/reduced lunch (Median lifetime 2.18 years vs 2.95 years). Interesting group differences were found via ethnicity and preschool assessment language. Half of the White/Other ELLs took only one year to become proficient in English whereas African American/Black ELLs took 2.38 years for half to exit out of the ESOL program. Hispanic/Latino ELLs were in the middle (about 2 years). Also, there was a year difference between ELLs who were proficient enough to be assessed in English at age four for school readiness and those who were assessed in Spanish (Median lifetime = 1.33 years and 2.45 years respectively).

To obtain population parameters in the discrete-time hazard model, various predictors were utilized. Following the procedures in Singer and Willet (2003), logistic

regression was performed on person-period data sets with five different models to determine the significance of the predictors (see Table 8). Whether the event (reaching ESOL level five) happened or not was the dichotomous dependent variable. First, only time indicators for each grade (kindergarten through fifth grade) were included in the model to see whether children are significantly getting proficient in English with each grade of school (Model A). Next, children's demographic characteristics (gender and ethnicity) and free/reduced lunch status were included to see if those covariates were associated with children reaching proficiency (Model B). Following, a group of family characteristics was added in order to see the effect of family characteristics (Model C). Another reason that the family characteristics were entered separately was because of the sample size reduction. In addition, to see whether school readiness assessment scores explained the attainment of English proficiency above and beyond children's demographics, Model D included all child characteristics, both demographics and school readiness assessments. For the last Model, only the significant family characteristic (parental education) was added in to see if the predictor explains above and beyond other child characteristics and to see if the other parameter estimates change with parental education included. A summary of the models used in the analyses is below.

Model A: Unconditional with time of the event as the only indicator (reaching level five)

Model B: Time indicators, child characteristics (gender, ethnicity), family characteristics (free/reduced lunch status)

Model C: Time indicators, family characteristics (free/reduced lunch status, parent marital status, parent immigrant status, parental education, and family size)

Model D: Time indicators, child characteristics (gender, ethnicity), child school readiness (cognitive, language, socio-emotional skills and behavior problems), and family characteristics (free/reduced lunch status)

Model E: Time indicators, child characteristics (gender, ethnicity) child school readiness (cognitive, language, socio-emotional skills and behavior problem), and family characteristics (free/reduced lunch status, parental education)

Each time indicator (D0 through D5) in Model A (see Table 8) shows whether the event happened in each grade, D0 indicating kindergarten and D5, fifth grade. For all of the models, not every time point was significant (for example, D3 (b = .08, p >.05) in Model A), meaning that the probability of ELLs exiting out of ESOL program was not different from the previous year. However, it is safe to say that the probability that a child becomes proficient in English increases, in general, for ELLs from kindergarten through 5^{th} grade, but not significantly for every grade.

Gender and ethnicity along with free/reduced lunch status was added into the next model, which were all significant factors in explaining the probability of reaching ESOL level five (see Model B in Table 8). Gender was only significant in Model B with girls having greater odds of becoming proficient quicker compared to boys (b = .171, p < .001, OR = 1.19) but when school readiness scores were entered in the model, gender was not a significant predictor (see Model D and E in Table 8). In terms of ethnicity, White/Others had exited the ESOL program quicker compared to Hispanic/Latinos (b = .344, p < .001,

OR = 1.41) and African American/Blacks had less odds of becoming proficient in English compared to Hispanic/Latinos (see Model B in Table 8). Free/reduced lunch status was also a significant factor, being poor meaning less chance of becoming proficient in English.

Family characteristics are also found to be relevant to English proficiency in the literature. However, even when those characteristics were entered only with time indicators in and nothing else, years of parental education was the only significant predictor (see Model C in Table 8). One unit increase of parental education was associated with .083 increase in the probability of reaching ESOL level five for the child (b = .083, p < .001) and children who had parents with more education had 1.09 greater odds of being proficient in English (*OR* = 1.09). The parental education effect did not disappear when children's school readiness was entered in the model (see Model E in Table 8).

When preschool school readiness skills (LAP-D cognitive and language, and DECA socio-emotional skills and behavior concerns) as well as the language in which the LAP-D was administered were entered in the next step, they significantly predicted the probability of getting proficient in English in both Models D and E (see Table 8). The odds were not great but significantly favoring the children who had high scores on these skills compared to those who had low scores; cognitive (b = .006, p < .001, *OR* = 1.006), language (b = .010, p < .001, *OR* = 1.01), and socio-emotional skills (b = .004, p < .001, *OR* = 1.004). A one-point increase in LAP-D cognitive score meant .006 point increase in the odds of reaching ESOL level five. Interestingly, ELLs who were already proficient

enough to be assessed in English at age four (LAP-D assessed language) had greater odds (*OR* = .50) in becoming proficient in English than those who received the early assessments in Spanish (*b* = -.69, *p* < .001). However, behavior concern was not a significant predictor.

To examine goodness-of-fit indices, since the models were not nested within each other, AIC and BIC was used instead of the deviance statistic. Singer and Willet (2003) suggest the smaller the AIC and BIC values, the better fit of the model. Thus, Model D which includes time indicators, child characteristics, child school readiness skills, and free/reduced lunch status seems to be the best fit among all five models (*AIC* = 21907.512, *BIC* = 22018.022). In Model D, all the predictors included were significantly predicting English proficiency among ELLs except for first grade time indicator, gender, and DECA behavior concerns. A significant proportion of children were becoming proficient over time (increase of parameter estimates from D0 through D5) and for those who are White/Others compared to Hispanic/Latinos, Hispanic/Latinos compared to African American/Blacks and those who are not receiving free/reduced lunch had greater odds of reaching level five. Also, ELL children who had higher cognitive, language, and socio-emotional skills were more likely to become proficient in English earlier. Initial English competence at age four was also a strong predictor meaning that children who were already proficient enough to be assessed in English in preschool were more likely to become fully proficient in English later on compared to those who were assessed in Spanish at age four.

DISCUSSION

The main purpose of the current study was to examine the predictors of growth and speed of English acquisition among low-income four-year-old English Language Learners (ELLs) in Miami. The current study contributes to the existing literature in various ways. First, English proficiency was used as an outcome. Many studies examine predictors of successful academic outcomes among language minority students, using English proficiency as a predictor and comparing them to native English-speakers (Halle et al., in press). Although it is only oral proficiency, growth and speed on English acquisition was examined. Second, the overall sample of the study is low-income Hispanic/Latino. Cummins (1981) examined six-year-old or younger immigrants in Canada who had never been exposed to English previously in explaining the speed of English acquisition. Third, the sample is from Miami. Miami is a unique place in a sense that not only English (L2) but also Spanish (L1) is supported and widely used in the community. Both Cummins (1981) and Thomas and Collier's (1997) study examined ELLs who live in an area where their home language was not supported by the community. Lastly, it is one of the rare studies examining growth and speed of English acquisition from all three aspects, child, family, and school. Studies usually examine one of these aspects, for example, Han (2010) examined school-related factors and Lahaie

(2008) looked at family-related factors. However, Halle and colleagues' (in press) study is the closest to incorporate covariates at all three levels.

ELLs' initial English proficiency was variable in kindergarten. Some children started with low levels of ESOL but some were already at a higher level although parent-reported child's strong language upon entry of kindergarten for every child was non-English. This tells us that there were some largely bilingual children even before the entrance of kindergarten, although not fully bilingual. The participants showed significant growth in their English acquisition over time between kindergarten and 5th grade. Significant numbers of children were exiting out of the ESOL program almost every year, no longer needing extra help with their oral English proficiency. Less than 30% of the participants were proficient in kindergarten but the proportion increased as these children progressed to the next grade. In kindergarten, 29% of the ELLs became proficient in English and the proportion increased each grade; 26% in first grade, 40%, 50%, 42%, and 58% respectively. Fifth grade is when the probability is the largest, about 58% of the children who were still in the ESOL program exited the program, leaving 1% from the overall sample who still needed extra services. In other words, for a few children, it took almost six years for these ELL students who started kindergarten in Miami to reach oral proficiency in English.

Average ELLs take about two years to reach full oral proficiency by the district standard. Since most of the sample started from kindergarten, about 50% of the children who started kindergarten (excluding those who left) became proficient in English by the end of their first grade. This is consistent with previous literature (Cummins, 1996) but

rather at the earlier end (3-5 years; Hakuta et al., 2000). Although previous literature is also referring to oral and conversational English proficiency, the sample was quite different from the current study. Cummins (1996) used immigrant children who did not have any English exposure prior to entrance of Canada. Participants in Hakuta and colleagues (2000) study were more economically privileged and less Spanish-speaking compared to the sample in the current study. Thus, even in a city such as Miami where Spanish is prevalent, children acquire English upon the entrance of public school relatively fast regardless of their prior experience to kindergarten. It is unfortunate that although the MSRP data contained type of preschool (center based vs public pre-k school), the information was not included in the analyses.

School characteristics

Children attending schools with a lower percent of Hispanic students, larger numbers of students, and fewer children who received ESOL service showed higher English levels in kindergarten, compared to those who attended schools with a higher percent of Hispanic students, smaller numbers of students, and more children receiving ESOL services. Although more ESOL students at the school meant less steep growth of English proficiency as expected (Han & Bridglall, 2009), interestingly, children with steeper growth in English proficiency from kindergarten through fifth grade were more likely to attend schools with a higher percent of Hispanic students and schools with larger average class sizes. It could be stated that attending schools with a higher proportion of Hispanic students is not necessarily a bad experience if the school can provide more resources to fit needs of children's specific ethnicity (Han, 2010).

Also, children who attended ELL-dense schools tended to start low and grow slower in their English development, which does not necessarily mean attending high-ELL schools is a negative experience. Those ELLs need more time to develop their English proficiency since they started from a lower level. It might be that since these children have more chance to talk in their first language with other ELL students that they are the ones who maintain their L1 and become bilingual. Unfortunately, due to the restriction of the data provided, these children's first language proficiency was not measured. In addition, opposite to the previous literature that smaller schools and/or class size is better for children's learning (Finn & Achilles, 1999), children who had higher English proficiency in kindergarten and grew faster were those who attended bigger schools. Again, the sample was not ELLs in the Finn and Achilles (1999) study and for ELLs, bigger schools might provide more resources to students such as more books in the library or more native English-speakers to interact with(Finn & Achilles, 1999). Thus, school characteristics found to be negatively associated with English proficiency development does not necessarily mean that the school is of poor quality for ELLs.

Family characteristics

Family factors did not contribute as much as hypothesized. Family-related predictors were not significantly predicting English acquisition even when the group of predictors was analyzed only with time indicators. It could be that children's demographics and school readiness skills matter more in English proficiency growth than family background although it cannot be disregarded. Parents' immigrant status and family size were not significant in any of the models in the analyses. Parents' immigrant

status and family size did not matter in explaining English proficiency among ELLs which means that immigrant children are learning English just as fast as non-immigrant children. Although a significant portion of immigrants speak a language other than English at home, children of immigrants are more frequently exposed to English if they live in the U.S. and the exposure increases exponentially as they enter school. Also, family size not being associated with English proficiency is consistent with the previous literature that it is more the presence and language of the siblings which influence ELL's English proficiency rather than family size itself (Ortiz, 2010). Unfortunately, MSRP did not have the sibling information for us to analyze.

Not surprisingly, free/reduced lunch status was a significant time-varying predictor for English proficiency. About 65% of the children changed their poverty status from kindergarten to fifth grade. ELL children receiving free/reduced lunch showed less steep growth and showed less odds of becoming proficient in English compared to those who are not receiving free/reduced lunch. This is consistent with previous findings (Cobo-Lewis et al., 2002). However, note that the range of income in this sample was not wide (overall they were all low-income) and free/reduced lunch status still was found to be significant. It seems that even a little difference in parental income makes a big difference in ELL children's development of English proficiency.

Parents' marital status and education were associated with ELL children's English proficiency. Children whose parents were married showed higher English proficiency in kindergarten but those who showed steeper growth were the ones with a single parent. The majority of the sample had single parents but it might be related to the fact that

immigrant parents are more likely to be married than non-immigrant families (De Feyter & Winsler, 2009) and they may provide a more stable family environment for children's language development. And since ELLs with single parents started with lower proficiency, these children had more room to grow.

Also, children whose parents had more education had greater odds of being proficient in English early on compared to those whose parents had less education. Various studies show that parental education is associated with English proficiency among ELLs (Golberg et al., 2008; Halle et al., in press). Especially, findings of Halle and colleagues (in press) comparing ELL children's English proficiency in kindergarten and 1st grade with level of parental education show the same positive direction. Having higher education means having more chances to provide a rich language environment which can lead to better English proficiency.

Child characteristics

Children's demographics and school readiness skills (i.e., cognitive, language, socio-emotional skills, and behavior problems) were entered in as child-level characteristics. Gender and ethnicity were the demographic predictors at the child level. Gender was not a significant predictor in growth and had only a small impact on the speed of English acquisition. Average boys took longer than average girls as shown in Table 7 but the difference was small. Gender has been shown to be an important predictor in second language acquisition in the literature (Dodd et al., 2003), which is not consistent with the results here. It could be that other characteristics such as school readiness skills contribute more in development of oral proficiency in English and gender

was not a critical factor when these other factors were considered. Other studies did not have school readiness measures in their models, so their findings of gender differences in earlier work may be due to gender differences in cognitive, language, socio-emotional skills and behavior problems, not necessarily gender per se. When those school readiness scores were included as in this study, the gender effect disappeared.

Three different categories of ethnicity were considered in this study; White/Other, Hispanic/Latinos, and African American/Black. White/Others, including Asian Americans, had greater initial English proficiency in kindergarten than Hispanic/Latinos and needed less time to reach full proficiency. Thus, White/Others started higher but Hispanic/Latinos catch up in the end, although the probability that White/Other children would become proficient in English by fifth grade was greater than for Hispanic/Latinos. More support for the dominant language that Hispanic/Latinos use in the community might hinder faster growth of English proficiency for the Hispanic/Latino children in Miami compared to White/Other children. The African American/Black vs Hispanic/Latino contrast was also interesting. AA/Black ELL children started at a higher ESOL level than the Hispanic/Latinos but Hispanic/Latino ELL children showed faster growth. Also, AA/Black children took more time to reach full proficiency compared to Hispanic/Latino ELLs (see Table 7). This could stem from the same reason with White/Others speaking the minority language in Miami but instead of functioning as a protective factor, it is functioning as a risk factor for AA/Black ELLs in developing English proficiency. The Black community (including Haitians and other Caribbean immigrants) has less support in their L1than Latinos since French or Creole is often their

L1. Also, Blacks do experience more discrimination than White/Other ethnicity in general (Anyon, 2010) when they become the minority and this can affect Black children's second language development.

School readiness skill measured at age four, such as cognitive, language, socio-emotional skills, and behavior concerns, were all important factors in explaining kindergarten English proficiency differences among ELL children. ELL children who had higher scores on these scales and those lower on behavior concerns showed high initial English proficiency compared to their counterparts but growth of English was not associated with these factors. However, ELL children who had higher behavior concerns in preschool showed steeper English proficiency growth compared to those who scored low on the scale. Higher initial status means becoming proficient earlier and quicker, leaving less room to grow, which explains why children with more behavior problems show steeper growth in English proficiency later on. Initial English proficiency can be predicted by school readiness skills that are close in time, but they were not strong enough factors to play a role in explaining growth of English proficiency, except for behavior problems.

The language in which the child was assessed at age four predicted both initial English proficiency and growth. As explained in the method section, if the child seemed to be fluent enough in English to be assessed in English by the determination of the assessor, the child was assessed in English. However, this captures ELL children's stronger language in preschool although it is not a standardized measure of English proficiency. The way the current study defined ELL status was whether they had an

ESOL score or not. To receive ESOL testing, their parent-reported home language must have been non-English. Thus, it could be the case that the child was already exposed to English earlier and was using English at preschool but the language that these children use at home was not English. Children who had English as their assessment language started higher, showed faster growth, and had greater odds of becoming proficient in English by fifth grade. The finding confirms that to learn English fast in elementary school, a minimum amount of English proficiency upon entrance to kindergarten is helpful (Burns & Helman, 2009). Once again, earlier exposure of English leads to better English proficiency later on among low-income Hispanic/Latino ELL children.

It was not just individual child-level differences which related to ELLs' initial status, growth, and probability of being proficient in English. As Thomas and Collier (1997) proposed in their prism model, every aspect of a child's surrounding environment affects English proficiency. Although the current study does not solve all the complexity amongst the variables related to English proficiency, findings on the predictors of growth and speed of English acquisition among ELLs in a special area such as Miami, where the majority of the sample came from Spanish-speaking low-income population, contributes to the existing literature.

LIMITATION/POLICY IMPLICATIONS

The study has several limitations. First, only on-time ELLs were selected. Those who repeated kindergarten or any elementary grade and those who skipped grades were not included in this sample. If these grade repeaters and skippers were included in the analysis, the result may have come up differently. It might be that repeaters are more likely to lag behind in their English proficiency which could lead to their status of repeating the same grade once more. On the contrary, children who skipped grades might show faster English proficiency development in the earlier stage of their elementary school years which could lead them to skip a year. For future study, separate analysis of the children who were retained and who skipped a year regarding English acquisition is suggested.

Second, only oral English proficiency was measured as an outcome. In order to reach full proficiency in English, all four dimensions such as reading, writing, listening, and speaking should be developed to a certain level (NCLB, 2001). Many other schools, such as Baltimore county public schools, assess ELLs in all four domains of English proficiency when selecting ELLs. However, ESOL level used in this study only examined the aspect of oral proficiency. The findings could have been different especially for the speed of English acquisition if the outcome measure had been different since previous findings on the speed of English acquisition differentiate between conversational/oral

proficiency and grade-level academic English (Cummins, 1996, Hakuta et al., 2000; Thomas & Collier, 1997). Although the assessment was ecologically valid in measuring English proficiency by the school's own definition, still three other domains of the language were ignored, and later school success relies more on other domains than just oral proficiency (Beal et al., 2010). Nevertheless, research shows that L2 oral proficiency predicts L2 literacy (Saunders, Foorman, & Carlson, 2006), so the current study is a good starting point in explaining overall English proficiency.

Third, children's prior experience was not considered in this sample when previous research shows that prior experiences either in L1 or L2 do influence ELL's English development (e.g. Baker, 1993; Cummins, 1991, 1996). School readiness skills were assessed prior to kindergarten entry but those assessments cannot be considered as prior experience. As mentioned above, type of preschool (center-based vs public school pre-k) attended by the children is available and could be included in future analyses. Thus, for the future research, more research on the kinds of preschool experiences prior to kindergarten and how they relate to English proficiency should be conducted.

Fourth, there was no first language competence measurement. Various research has shown that ELL children's L1 proficiency is one of the strongest predictor for L2 proficiency (Cardenas-Hagan et al., 2007; Guglielmi, 2008). And since there is no information on ELL children's first language, bilingualism could not be measured. In addition, it is not clear what kind of ESOL education was going on at school. It could have been an emergent program where children only receive instruction in English or a bilingual program in which they would learn materials in both L1 and L2. Whichever the

case, it is suspected that these children maintained their L1 while developing L2 due to the special nature of the community. Conservative interpretation of the data concludes that there is no evidence of bilingualism among these ELLs but just the improvement in English proficiency, future research suggests both L1 and L2 should be measured and analyzed.

Despite the limitations of the study, the findings contain various implications. First, teachers should understand that ELL students are coming from a diversity of backgrounds and those various backgrounds influence these children's development of English proficiency. Children who are from low-income families are at risk and might need more time in learning English. Understanding the risk factors which might slow down the speed of English acquisition and being patient with these ELLs is a good start. Teachers working with ELLs should remember that language learning involves social, linguistic, and cognitive processes all together (Wong Fillmore, 1991) and that what seems not directly relevant in English acquisition can play its role in one way or another. Teachers who teach in areas where a great number of ELLs attend school should receive some kind of mandatory training on understanding and meeting individual needs of ELLs, not just ESOL teaching certificate. For example, a course on acknowledging the diverse background of children and how understanding differences of ELL children compared to native English-speakers would be helpful for those who are planning on being teachers. Individually tailored programs for each child might be difficult to implement but trying to meet the needs of ELL children is important.

Second, there should be additional programs for ELL children after they exit out of the ESOL program. Reaching the final level of oral proficiency for this district does not mean that the child has fully developed native-like, grade-normed, English proficiency in other domains such as reading and writing. ELLs who exit out of the ESOL program in first grade might have full oral English proficiency of average first grade children but they might not have continuously developed their English proficiency and reach English proficiency at the level of average second grade children the next year. Language development is a continuous process. If extra services for ELL students are only provided for oral proficiency, the gap between oral and other domains of language will widen later on. Follow-up programs for those who were once classified as English Language Learner should be considered.

Third, the findings show that ELL children who live in a Spanish-dominant community can learn English at a faster pace if exposed to English at an earlier time. If English is learned and reached to a certain level prior to the entrance of kindergarten, they can shorten the length of time in reaching full oral proficiency by almost a whole year compared to those who still use their first language as their dominant communicative tool. Early English skills at age four lead to later successful academic achievement as well (Halle et al., in press). Systematic intervention for earlier English learning will lead ELL children to a successful academic trajectory later on. Publicly funded pre-kindergarten, especially when the goal is to expose English to ELLs as much as possible, would be a good first step. In addition, if early intervention is implemented

and becomes successful, less resource can be concentrated on ESOL programs in elementary school.

Lastly, considering that the whole sample came from low-income families in general, it was surprising that free/reduced lunch status still made difference in English proficiency development. Even a small income increase seems to make a difference in children's second language development. Providing income support, subsidies, and other policies to help low-income ELL families also would help with English proficiency development.

As many researchers who are interested in English acquisition among English Language Learners, development of English should not be the only focus. We also need to pay attention to factors that help maintain L1 and promote their bilingualism. It is not until we understand the cultures and surrounding factors of ELLs that we will help them speed up the learning process. It is not always beneficial to be fast. Policy makers are often impatient and want to see the results right away. However, they should understand that learning a new language and being fully proficient at it takes time. Research on English acquisition among ELLs who live in the U.S. has prospered over the past decade. However, still a long journey remains ahead.

Table 1. Structure of the English Language Learner (ELL) data set

	ACADEMIC YEAR						
COHORT	2002-2003	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008	2008-2009
A (*N* = 3,296)	Pre-K	K	1st	2nd	3rd	4th	5th
B (*N* = 3,907)		Pre-K	K	1st	2nd	3rd	4th
C (*N* = 4,502)			Pre-K	K	1st	2nd	3rd
D (*N* = 4,089)				Pre-K	K	1st	2nd
E (*N* = 3,660)					Pre-K	K	1st

Table 2. N for research questions and variables

Name	Description	*N*
Total ELL	Has ESOL at any time point K through G5	19,454
Total N for research question 1	Has ESOL at any time point K through G5 AND who have more than one time point ESOL level	11,494
Total N for research question 2	Has ESOL at any time point K through G5 BUT excluding those whose first ESOL is not in K AND they start with level 5	18,495
gender	male vs female	18,625
ethnicity	White/other vs Hispanic/Latino vs African American	18,532
LAP-D assessed language	English vs Spanish	10,935
LAP-D cognitive	preschool cognitive skill	10,950
LAP-D language	preschool language competence skill	10,936
DECA TPF	preschool socio-emotional skill	15,615
DECA BC	preschool behavior problems	15,615
parent marital status	married vs single/divorced/widowed/other	2,201
parent education	in years	2,199
parent immigrant status	immigrant vs non-immigrant	2,201
family size		2,201
lunch status in K	Free/reduced lunch eligibility	17,253
lunch status in G1	Free/reduced lunch eligibility	17,046
lunch status in G2	Free/reduced lunch eligibility	12,625
lunch status in G3	Free/reduced lunch eligibility	8,499
lunch status in G4	Free/reduced lunch eligibility	4,513
lunch status in G5	Free/reduced lunch eligibility	2,006
gender & ethnicity		18,532
LAP-D cognitive & DECA TPF		10,322
LAP-D assessed language & DECA TPF		10,269

Table 3. Demographic characteristics of the participants

	English Language Learners
Child's gender	(*N* = 18,625)
% Male	53.1
Child Ethnicity	(*N* = 18,532)
% White/Other	3.1
% Hispanic/Latino	88.0
% African-American/Black	8.9
Child's LAP-D assessment Language	(*N* = 10,935)
% English	61.8
% Spanish	38.2
Childcare at age four	(*N* =18,335)
% Center-based	37.9
% Public School	62.1
Parent country of origin	(*N* = 2,201)
% U.S.	48.8
% non-U.S.	51.2
Marital Status	(*N* = 2,201)
% Married	12.9
% Signle/Divorced/Separated/Other	87.1
Parent Education (years)	(*N* = 2,199)
M	11.47
S.D.	1.93
Family Size	(*N* = 2,201)
M	3.19
S.D.	1.06
Free/reduced lunch status in K	(*N* = 17,253)
% eligible	79.6

Table 4. Correlation between school characteristics

	1)	2)	3)	4)	5)	6)	7)
1) Percent Hispanic classroom teachers	-						
2) Percent beginning teachers	.06	-					
3) Percent Hispanic total students	.70**	-.18*	-				
4) Total number children in the school	.28**	-.12	.40**	-			
5) Average class size for entire school	.11	-.22**	.28**	.29**	-		
6) Number enrolled in ESOL	.49**	-.13	.63**	.72**	.20**	-	
7) Percent of children eligible to receive reduced or free lunch	-.08	.10	-.21**	-.18*	-.39**	.11	-

** $p < .01$, * $p < .05$

Table 5. Summary of Hierarchical Linear Models for English Proficiency

	Model A		Model B		Model C		Model D	
Parameter Estimates	intercept	slope	intercept	slope	intercept	slope	intercept	slope
Intercept	3.3816***		3.5020***		4.2721***		3.5317***	
Level 1		(N = 28,040)		(N = 23,374)		(N = 14,768)		(N = 3,579)
Time		0.5877***		0.5642***		0.3902***		0.6410***
Level 2				(N = 9,218)		(N = 5566)		(N = 1,298)
Parent Married							0.2172*	-0.1419**
Free/reduced Lunch				-0.1252		-0.0777***		-0.0234
White/other vs Hispanic			0.1516**	-0.0600	0.0288	-0.0075	-0.3529	0.1821
AA vs Hispanic			0.1900***	-0.0929***	0.0413	-0.0807**	0.0558	-0.0157
Socio-emotional skills			0.0025***	0.0006**	0.0016**	0.0005	0.0034**	0.0004
Behavior Concerns			-0.0029***	0.0009***	-0.0014**	0.0004	0.0005	-0.0002
Assessed language at age four[1]					-0.5673***	0.1724***	-0.3532***	0.1839***
Preschool Cognitive skills					0.0025***	-0.0001	0.0029**	0.0003
Preschool Language skills					0.0032***	0.0003	0.0041**	0.0000
Level 3				(N = 232)		(N = 226)		(N = 178)
% Hispanic teacher			-0.0043*	0.0016	-0.0014	0.0011	0.0005	-0.0016
Total Hispanic Students			-0.0010	0.0014*	-0.0001	0.0012*	-0.0047*	0.0033**
Total Number of students			0.0002*	-0.0000	0.0003**	-0.0000	0.00027	-0.0000
Average class size			-0.068	0.0116**	-0.0064	0.092*	-0.0150	0.0069
Number of ESOL students			-0.0004*	-0.0003*	-0.0006**	-0.0002*	-0.0023	-0.0003

*p<.05, **p<.01, ***p<.001 , [1] English vs Spanish

Table 6. Life table describing the number of years staying in an ESOL program for a sample of 18,495 ELLs

Year[1]	Time Interval	Number			Proportion of	
		Not proficient in ESOL at the beginning of year	Reached English proficiency (ESOL=5) in that year	Censored at the end of the year	Children at the beginning of the year who became proficient during the year (hazard function)	Children still remaining in ESOL program at the end of the year (survival function)
0	[0,1)	18495	.	.	.	1.0000
1	[1,2)	18495	5310	1309	0.2871	0.7000
2	[2,3)	11876	3089	3102	0.2601	0.4900
3	[3,4)	5685	2287	1669	0.4023	0.2600
4	[4,5)	1729	867	602	0.5014	0.1000
5	[5,6)	260	109	106	0.4192	0.0500
6	[6,7)	45	26	19	0.5778	0.0100

[1] 1 = kindergarten and 6 = 5th grade

Table 7. Median Lifetime for categorical variables

		Median Lifetime[1]
All ELLs		2.96
Gender	Male	3.02
	Female	2.80
Ethnicity*	White/Other	2.04
	Hispanic/Latino	2.90
	African American/Black	3.38
Free/Reduced Lunch Status*	Not in poverty	2.18
	In poverty	2.95
Preschool assessed language*	English	2.33
	Spanish	3.45
Parent Marital Status	Married	3.25
	Single/Divorced/Other	3.22
Parent Immigrant Status	Non-immigrant	3.20
	Immigrant	3.25

[1] The time point by which half of the sample experienced full English proficiency (ESOL = 5), K = 1 and G5 = 6

* Significant predictors in logistic regression in Table 8

Table 8. Discrete-time survival analysis on time, child, and family predictors

	Model A		Model B		Model C		Model D		Model E	
	b (SE)	OR	b (SE)	OR	b (SE)	OR	b (SE)	OR	b (SE)	OR
D0	-.805	.447***	-.565	.57***	-2.350	.10***	-.352	.70***	-2.673	.07***
	(.017)		(.045)		(.312)		(.103)		(.353)	
D1	-.993	.370***	-.682	.50***	-1.673	.19***	-.140	.87	-1.953	.14***
	(.021)		(.047)		(.310)		(.106)		(.352)	
D2	-.329	.720***	.033	1.03	-.546	.58	.450	1.57***	-.708	.49*
	(.027)		(.051)		(.310)		(.109)		(.350)	
D3	.084	1.09	.436	1.55***	-.095	.91	1.062	2.89***	-.240	.79
	(.049)		(.066)		(.322)		(.123)		(.359)	
D4	-.214	.81	.121	1.13	-.889	.41*	.728	2.07***	-1.072	.34*
	(.129)		(.137)		(.371)		(.195)		(.414)	
D5	.314	1.37	.639	1.90*	.131	1.14	1.385	4.00***	-.069	.93
	(.302)		(.308)		(.655)		(.461)		(.697)	
Girls			.171	1.19***			.053	1.06	.138	1.15
			(.023)				(.033)		(.076)	
White/Other vs Hispanic/Latino			.344	1.41***			.268	1.31*	.095	1.10
			(.069)				(.115)		(.604)	
AA vs Hispanic/Latino			-.281	.75***			-.561	.57***	-.448	.64**
			(.041)				(.060)		(.130)	
Free/reduced Lunch			-.607	.54***			-.497	.61***	-.131	.88
			(.030)				(.045)		(.122)	
Assessed language at age four[1]							-.692	.50***	-.281	.76**
							(.036)		(.083)	
LAP-D Cognitive Skills							.006	1.01***	.008	1.01***
							(.001)		(.002)	
LAP-D Language Skills							.010	1.01***	.008	1.01***
							(.001)		(.002)	
DECA TPF							.004	1.00***	.006	1.01***
							(.001)		(.001)	
DECA BC							-.001	1.00	.001	1.00
							(.001)		(.001)	
Parent married					.070	1.07				
					(.107)					
Parent immigrated					-.096	.91				
					(.068)					
Parental education					.083	1.09***			.048	1.05*
					(.018)				(.019)	
Family Size					-.006	1.0				
					(.033)					
Goodness-of-fit										
Deviance		44757.977		42843.279		5363.083		21877.512		4522.147
n parameters		6		10		10		15		16
AIC		44769.977		42863.279		5383.083		21907.512		4554.147
BIC		44814.181		42936.952		5456.756		22018.022		4672.025

*p<.05, **p<.01, ***p<.001, [1] English vs Spanish

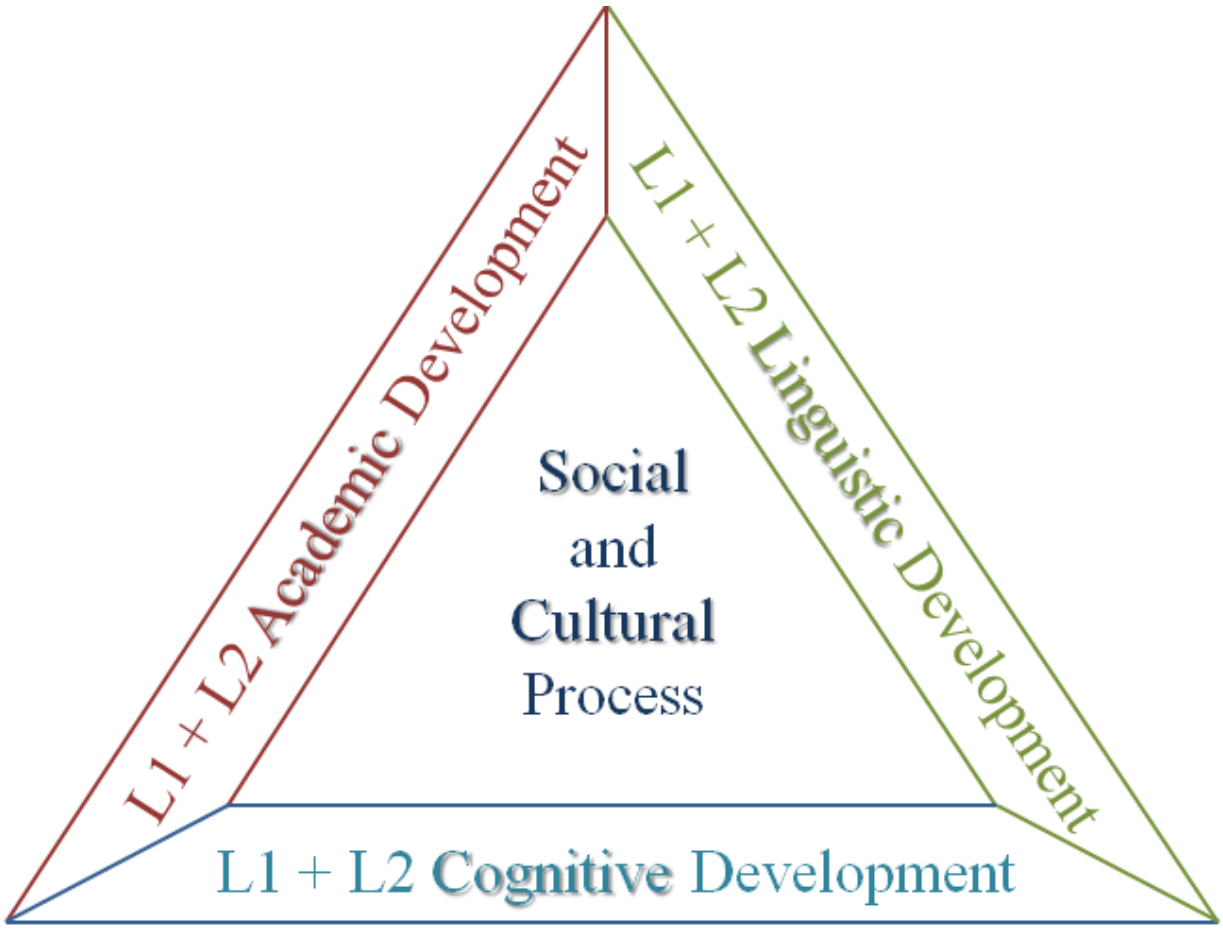

Figure 1. Thomas & Collier (1997) Prism Model

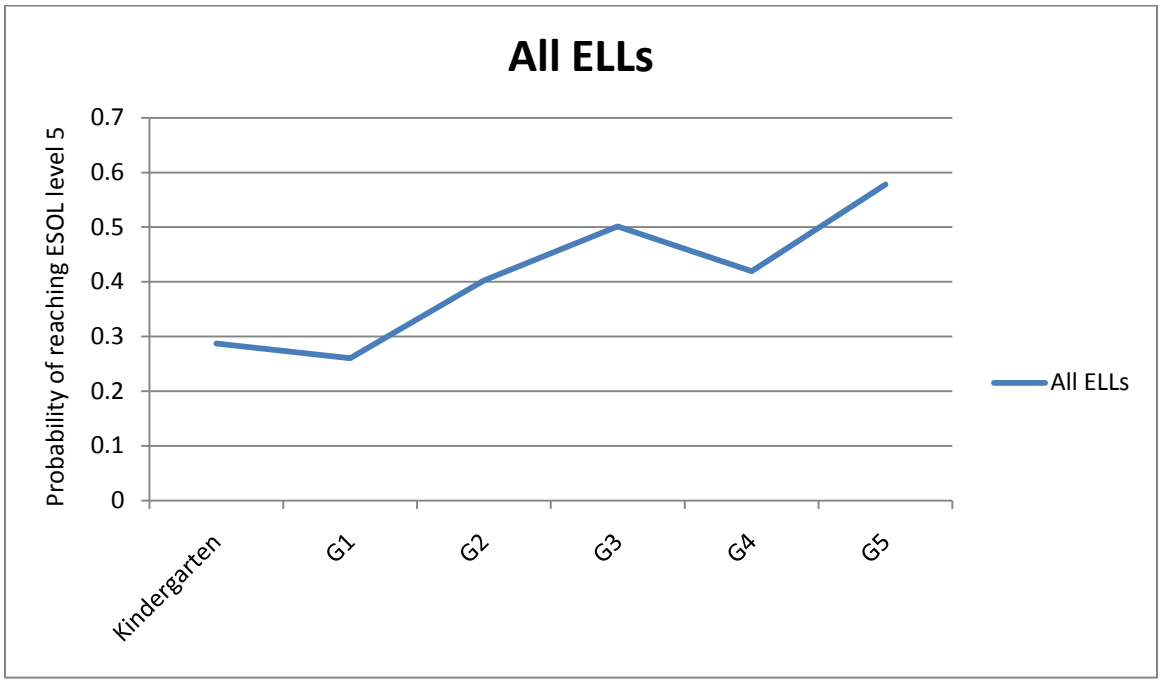

Figure 2.Estimated Hazard Probability for all ELLs

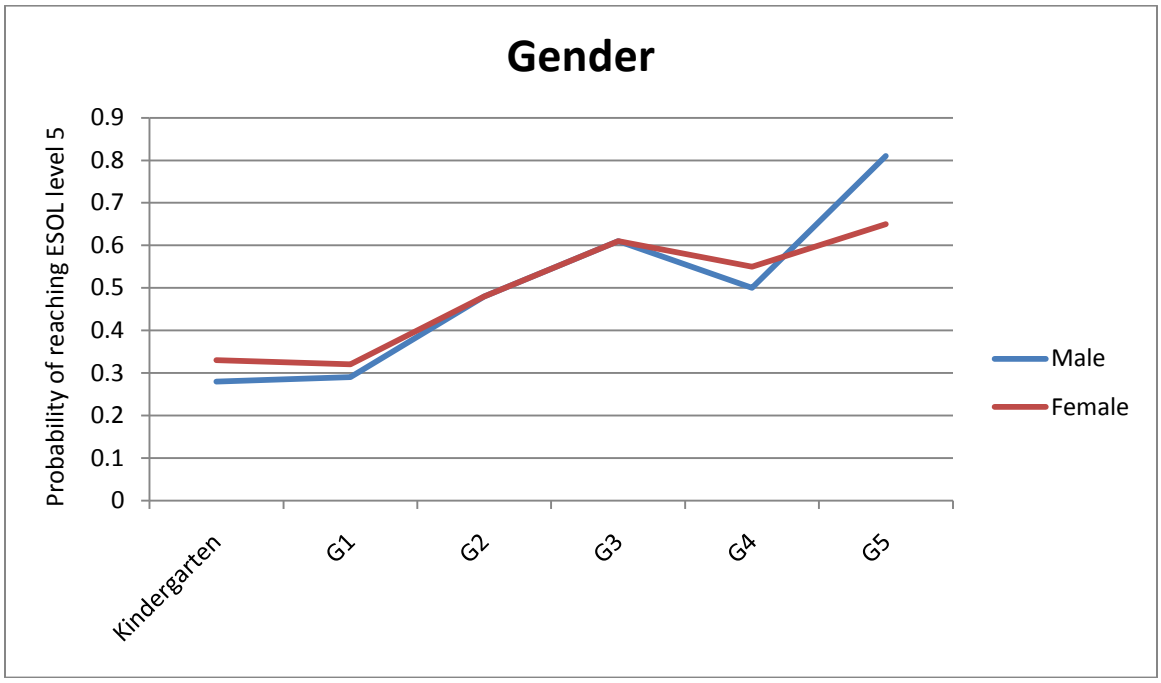

Figure 3. Gender difference in hazard probability

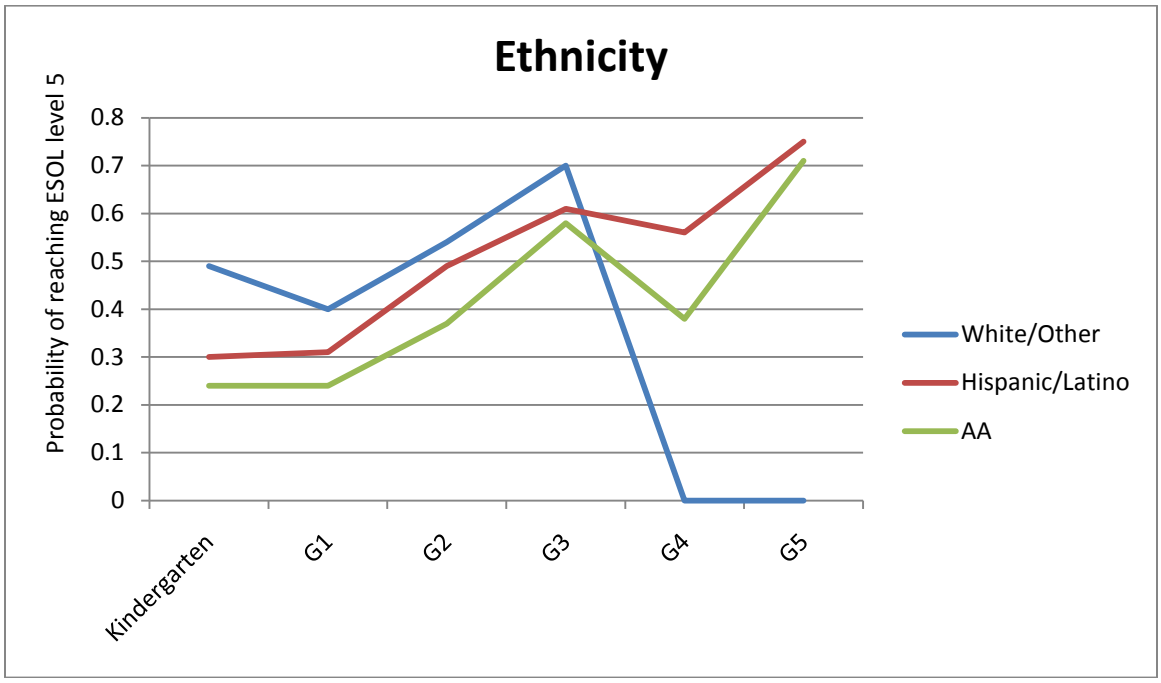

Figure 4. Ethnicity difference in hazard probability

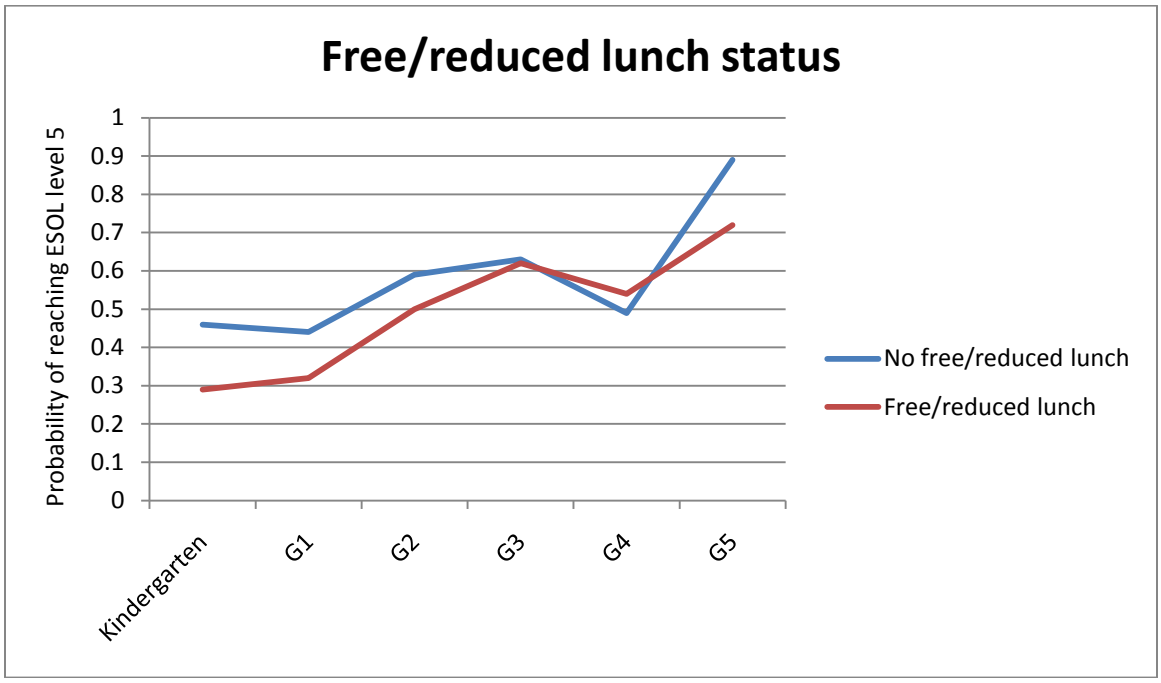

Figure 5. Free/reduced lunch status difference in hazard probability

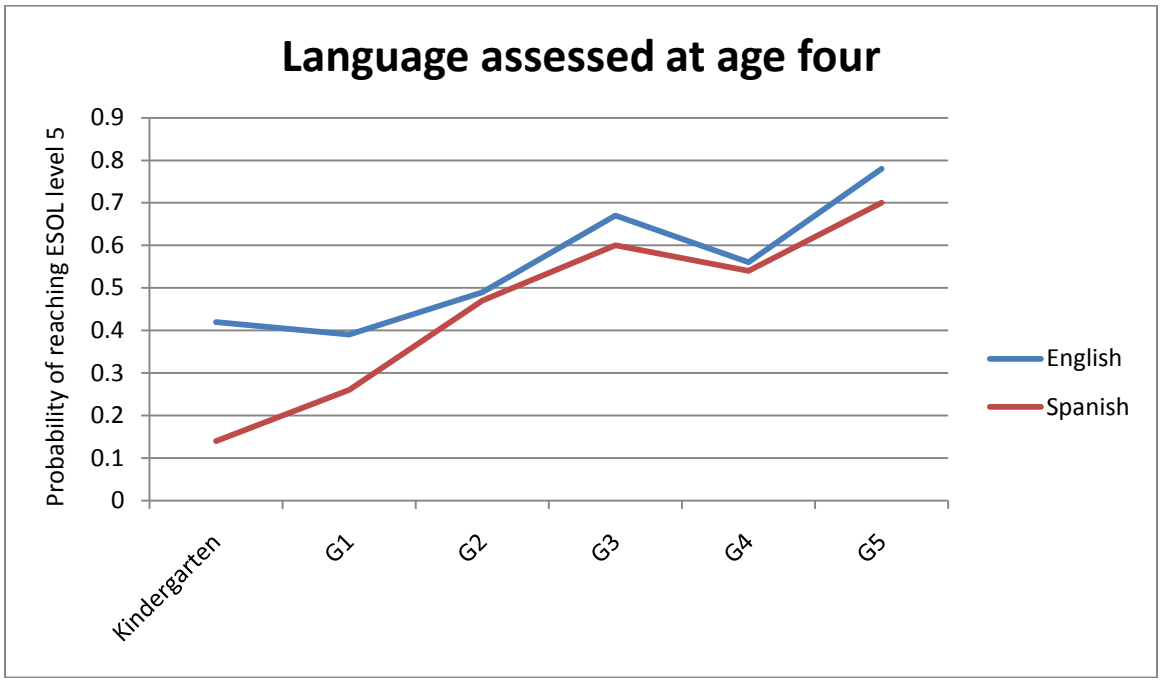

Figure 6. LAP-D assessed language difference in hazard probability

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