MIDDLE SCHOOL OUTCOMES RELATED TO EARLIER ENGLISH LANGUAGE ACQUISITION IN DUAL LANGUAGE LEARNERS

by

Gabrielle R. Norvell

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Committee:

_____ Director

_____

_____

_____ Department Chairperson

_____ Dean, College of Humanities and Social Sciences

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Middle School Outcomes Related to Earlier English Language Acquisition in Dual Language Learners

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Gabrielle R. Norvell
Bachelor of Science
Virginia Commonwealth University, 2019

Director: Adam Winsler, Professor
Department of Psychology

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Fairfax, VA

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DEDICATION

This thesis is dedicated to my loving husband, Miguel. You have been a constant source of support, encouragement, and humor. Without you, my journey through graduate school would have been much more difficult and a lot less fun. I'm excited to tackle our next chapter of life together.

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Abstract

MIDDLE SCHOOL OUTCOMES RELATED TO EARLIER ENGLISH LANGUAGE ACQUISITION IN DUAL LANGUAGE LEARNERS

Gabrielle R. Norvell

George Mason University, 2023

Thesis Director: Adam Winsler

Dual Language Learners (DLLs) in the US are young children who speak at least one language other than English at home and who are simultaneously mastering their native language(s) and English. Students who become English proficient earlier often experience better academic outcomes, but research on the in-depth relationship between the speed at which DLLs acquire English proficiency and later academic outcomes while accounting for relevant factors is rare. The current study used data from the Miami School Readiness Project (MSRP) to investigate how the grade in which DLL students acquired English proficiency correlates with their later middle school academic outcomes (GPA, standardized test scores, grade retention). Participants included DLLs with middle school outcome data (N = 14,852; 47% female; 85% receiving free/reduced-price lunch; 88% Latinx, 8% Black, and 3% White/Asian/Other). I examined the extent to which the total number of years DLL students spent in the English for speakers of other languages (ESOL) program related to later academic outcomes in middle school and examined for which grade(s) student ESOL exit matters the most. Statistical analyses, including

ANOVAs, chi-square tests, multiple regressions, and logistic regressions, were used to compare DLL students who reached English proficiency between kindergarten and 8th grade. Results indicated that earlier acquisition of English generally predicts better later academic outcomes. Additionally, earlier English acquisition seems to be more strongly related to later reading outcomes than GPA or math, and DLLs not proficient in English until 6th grade or later have higher odds of being retained in middle school. The implications for the education of DLL students and future research are discussed.

Keywords: dual language learners, academic performance, middle school, English proficiency

LITERATURE REVIEW

Dual Language Learners (DLLs) in the United States are children who speak at least one language other than English at home and who are simultaneously mastering their native language(s) and gaining English (L2) proficiency (National Conference of State Legislatures [NCSL], 2018). As of 2017, an estimated 5 million DLL students are enrolled in schools across the United States, comprising approximately 10% of all students (National Center for Education Statistics [NCES], 2020). Of these identified students, 97% participate in various English for Speakers of Other Languages (ESOL) educational programs (U.S. Department of Education [DoED], 2017). By 2025, it is estimated that one in four children in every classroom across the U.S. will be a DLL (National Education Association [NEA], 2020). Although identifying and meeting DLLs' needs has been a significant concern within the last few decades, the overall shape and trajectory of DLL language growth are not well known.

This present study aimed to investigate the extent to which speed of English language acquisition is related to later academic achievement in middle school for a sample of DLL students living largely in poverty in Miami, Florida. Specifically, this thesis investigated how the number of years it takes students classified as DLLs in kindergarten to acquire the English language (be classified as English proficient by the school system) is related to later academic outcomes, such as GPA, scores on standardized tests, and retention in middle school (6^{th}, 7^{th}, and 8^{th} grade).

DLL Reclassification in School Systems

Much of a DLL student's experience in the school system depends on their eventual reclassification as English proficient. For studies like the present one that used student reclassification as a marker for English proficiency, it is important to understand how DLL students are initially classified. Due to the 1974 Lau v. Nichols Supreme Court and the 2015 Every Student Succeeds Act ruling, individual school systems must take steps to teach English to students not yet fluent in the language of instruction and provide access to the general curriculum (Thompson, 2017). During this time, DLLs receive extra language support while simultaneously learning the broad curriculum taught to all students. When DLLs reach a school's predetermined English proficiency level, they are reclassified as fluent English proficient and cease receiving ESOL services (Saunders & Marcelletti, 2013). For some students, exiting the ESOL program is not an issue as their English level is thoroughly developed, but for others, losing the extra language supports that the ESOL program provides can be difficult. There may be a significant gap in performance expectations between the ESOL program goals and state-mandated goals for general classes, and newly reclassified DLL students may struggle to meet these new goals (Abedi & Dietel, 2004; Saunders & Marcelletti, 2013).

In general, the average time it takes for a DLL student to fully reclassify as English proficient is between four and seven years, with the chance of full reclassification dropping dramatically after nine years (Estrada & Wang, 2017). Students who are unable to reach full English proficiency in this time period are at risk of becoming long-term English learners (LTELs). LTELs are DLL students that have been enrolled in the U.S.

school system for six or more years but who have been unable to reclassify as English proficient (Chen-Gaddini & Burr, 2016). Research has found that LTELs' English language acquisition often slows over time, and while some of these students reach higher levels of English proficiency, they cannot successfully reclassify due to insufficient academic language abilities (Shin, 2020; Thompson, 2015). In a study looking at LTELs in secondary school, Callahan (2005) found that the students often had significantly lower academic performance than other DLLs and non-DLL students. In addition to the initial academic consequences of DLLs becoming LTELs, the LTEL label itself comes with long-term effects on graduation rates and academic aspiration (Shin, 2020).

Another challenge is a lack of consensus on the exact level that DLL students must reach for reclassification since the definition of English proficiency depends somewhat on the school system attended and the ESOL programs operating there. Under the federal No Child Left Behind (NCLB) Act and later the Every Student Succeeds Act (ESSA), all local education systems must administer English language proficiency assessments to their DLLs each year before reclassification, and states must define their English-proficient performance standards on this assessment (Thomas, 2017). However, ELP reclassification standards vary by state, district, and school, making it difficult to compare results across studies.

For the current thesis, the school district involved is Miami-Dade County, Florida. This school district, for example, currently uses an English language proficiency assessment known as ACCESS for ELLs 2.0 and the Florida Standard Assessment

English Language Arts (FSA ELA) assessment to score the English listening, speaking, reading, and writing skills of DLL students under consideration for reclassification (Miami-Dade County Public Schools [M-DCPS], 2018). Miami-Dade School District's plan for student ESOL exit, which also includes a two-year progress follow-up for former DLLs and a post-program review of student profiles, differs in type and length of exit and follow-up assessments from other school districts in Florida and other states (M-DCPS, 2018). In 2013, Miami-Dade County used the Miami-Dade County Oral Language Proficiency Scale-Revised (M-DCOLPS-R) to classify students as DLL or English proficient. Students who received a score below the threshold were designated as not sufficiently English proficient and received an evaluation (Conger, 2013).

Speed of Acquisition

Much previous research has used longitudinal data to track the relationship between scores on academic assessments and DLLs' English literacy and proficiency (Jiménez-Castellanos et al., 2014; Kieffer et al., 2012; Llosa, 2012; Roberts et al., 2010; Slama, 2012; Spack, 2004). For instance, Roberts et al. (2010) used secondary data analysis from the Early Childhood Longitudinal Survey to track DLL students' literacy development. This study found that tracking students for a longer period (e.g., from kindergarten to 6th grade instead of from kindergarten to 3rd grade) produced more detailed results on their individual language development. Similarly, Slama (2012) used nationally mandated academic English proficiency data on DLLs to track DLLs' academic progress longitudinally for over four years to estimate individual projections

for DLLs' language growth. These studies, and other similarly structured ones, show the importance of using long-term tracking methods to produce a more accurate picture of DLLs' developing English skills. Tracking DLL's language skills over an extended period of time is critical for accurately mapping their academic trajectories and identifying relationships between speed of acquisition and later academic outcomes.

Within the overarching period that DLLs language development is being tracked, it is essential to examine how early English proficiency levels affect students' educational outcomes in middle school, as this period of schooling is where students experience more advanced coursework and rigorous academic pressure (Mosqueda & Maldonado, 2013). In a meta-analysis, Kieffer (2012) used latent growth models and longitudinal data on a cohort of Spanish-speaking DLLs in the U.S. to investigate how early oral language proficiency in Spanish and English predicted later literacy levels controlling for family SES. This study reported that both Spanish and English proficiency in kindergarten were predictive of English reading levels in 3rd through 8th grade, showing that both L1 and L2 development are crucial for academic achievement.

Some of the current research on early English proficiency and DLLs speed of English acquisition in middle school includes more extended studies involving elementary and high school outcomes as well (Kieffer, 2012; Kim et al., 2014). Overall, the time at which DLL students gain English proficiency is generally predictive of scores, including literacy and standardized test scores, within academic courses students take in middle school (Guglielmi, 2008; Mosqueda & Maldonado, 2013; Winsler et al., 2022). Of the studies that focused on longitudinal tracking, Ardasheva et al. (2012) investigated

the long-term predictive power of early English proficiency for middle school academic achievement of DLLs compared to native English speakers. In this study, multilevel analyses were performed on data from 17,470 native English-speaking students, 558 current DLL students, and 500 former DLL students who had acquired English proficiency by the start of middle school. Results found that former DLLs with full English proficiency significantly outperformed current DLLs and native English-speaking students in reading (effect sizes: 1.07 and 0.52) and mathematics (effect sizes: 0.86 and 0.42) (Ardasheva et al., 2012). This study's results support an earlier, lower-level threshold hypothesis, which predicted that upon reaching adequate proficiency in the language of schooling and testing, DLLs would no longer experience academic disadvantages.

Likewise, Halle et al. (2012) examined DLL's longitudinal academic performance through 8th grade. This study reported the early English proficiency levels of a large nationally representative sample of DLL students starting in kindergarten *(N* = 19,890) and tracked differences in academic scores, particularly in reading and math, throughout middle school. Growth curve analyses found that test scores correlated to the grade at which students acquired English proficiency. DLLs with faster English acquisition speeds, specifically no later than 1st grade, had higher later academic achievement compared to DLLs who acquired English at any later time period. DLL students who were proficient in 1st grade had modest gaps in reading and math scores that seemed to persist over time, and DLL students who were proficient at any time after 1st grade had

the largest initial gaps in reading and math scores, although the gap for these students narrowed over time in reading and grew over time in math (Halle et al., 2012).

A similar study by Reese et al. (2000) reported congruent findings. This study looked at early literacy and English proficiency levels to predict outcomes through middle school. In this study, among the DLL students entering kindergarten speaking Spanish (L1), those with greater emergent Spanish literacy development and oral English (L2) proficiency performed better at grade level in Spanish reading and transitioned more quickly to English reading. These students then went on to achieve a higher level of English reading proficiency in middle school. Researchers suggested that earlier English proficiency (L2) supported DLLs' later higher-level English literacy development in middle school (Reese et al., 2000). The results from a comparable study led researchers to make a similar conclusion regarding literacy levels and early English acquisition (Hong & Chen, 2011). This study investigated the development of Taiwanese DLL students' L2 proficiency and reported a significant difference in the DLLs' middle school academic literacy scores based on that early proficiency. Specifically, students who scored higher in English proficiency early on performed significantly better on literacy tests administered in 6th grade (e.g., spelling and reading) (Hong & Chen, 2011).

O'Connor et al. (2016) also researched early English proficiency, investigating if DLLs who enter school and are not yet English proficient may be at risk of experiencing poor academic outcomes compared to native speakers. Researchers examined the relationship between the timing of DLLs' acquisition of receptive English vocabulary skills and subsequent reading and numeracy outcomes. For this study, data were collected

from the nationally representative kindergarten cohort ($n = 4{,}983$) of the Longitudinal Study of Australian Children. This study included two groups, DLLs who entered school English proficient and DLLs who gained English proficiency by 3rd grade, controlling for variables such as family SES and disability status. This study's objective was to see if there was a distinguishable difference between DLLs who come into the school system as English proficient and those with relatively little prior English experience. Linear regression analyses showed that DLLs who began school with proficient receptive English vocabulary skills and those who acquired English proficiency early in schooling were indistinguishable from their monolingual peers in literacy and numeracy outcomes by middle school, but those with slower speeds of English acquisition (i.e., six to seven years) had poorer final literacy outcomes (O'Connor et al., 2016). While this study was conducted in Australia, the fact that the results are congruent with results from studies focusing on DLL students from the U.S. suggests that the relationship between early English proficiency and academic achievement is not limited to one country or language group.

In a study looking at the relationship between English proficiency and academic achievement in different language groups, Guglielmi (2008) used the National Educational Longitudinal Study data (NELS:88) to track English acquisition and subsequent academic results in a large sample of 8th graders ($n = 899$) while controlling for family SES and the amount of time that the student attended school outside of the United States. Using latent growth modeling, L1 proficiency predicted English (L2) reading ability and then predicted high school achievement and educational/occupational

attainment for their Hispanic/Latino subsample. In Hispanic/Latino DLLs, the growth model explained 7.4%, 29.4%, and 46.3% of the variance in English reading growth, high school achievement, and post-high school attainment, respectively (Guglielmi, 2008). These results align with the results from another study, also using a sample of Latino/a students from the Educational Longitudinal Study from the National Center for Education Statistics (Mosqueda & Maldonado, 2013). Using hierarchal linear modeling, researchers in this study reported that both early English proficiency support, such as ESOL programs in addition to regular classes, and access to more demanding classes were predictive of later academic achievement for Hispanic/Latino students.

One study that considers multiple factors when investigating DLLs' English acquisition is Winsler et al. (2021), which uses the same sample used for this thesis. This study investigated how the grade at which DLLs acquired English proficiency, as defined by district-wide criteria in Miami-Dade County, FL, related to later academic outcomes for DLLs in 3rd, 4th, and 5th grade. This study looked at DLLs in the Miami School Readiness Project (MSRP) (N = 19,116). The majority of participants in this study came from low-income backgrounds (79.7%), defined as receiving free or reduced-price lunch in 1st grade, and participants were 85.8% Hispanic/Latino, 10.4% Black, and 3.9% White/Asian/Other.

For Winsler et al. (2021), the grade at which DLL students were considered fully English proficient was determined by when they reached ESOL level five, according to tests designed to assess students' spoken English language, grammatical structure, pronunciation, vocabulary, and reading ability. Additionally, starting in 3rd grade, the

students were given the Florida Comprehensive Assessment Test (FCAT), a state-wide exam used in Florida in grades 3 to 11 to assess student achievement in math and reading (Winsler et al., 2022). Other essential outcomes evaluated in this study included grade retention and grade-point average. Winsler et al. (2021) also controlled for gender, ethnicity, socioeconomic status, cognitive skills at age four, and socioemotional and behavioral skills at age four in order to isolate relationships between the speed of DLLs' English language acquisition and later academic outcomes in elementary school.

Winsler et al. (2021) found that DLL students who gained English proficiency earlier, such as in kindergarten or 1st grade, had significantly higher 5th-grade performance in math and reading and had significantly better GPAs than DLLs who attained English proficiency after 1st grade. The researchers also reported that attaining English proficiency earlier predicted a lower likelihood of being retained from 3rd to 5th grade and a higher chance of passing the FCAT in reading and math tests in 5th grade. In general, the grade at which DLLs showed English proficiency was still significantly related to later elementary school academic outcomes, even after controlling for demographics and entering school competence (Winsler et al., 2022). The 5th grade math and reading test scores for DLL students, as well as their grade-point average, decreased over time with each additional year that they did not exit the ESOL program. The present thesis will use similar outcomes (i.e., grade retention, GPA, and standardized test scores), as well as control for similar influences (i.e., ethnicity, SES, cognitive skills at age four, and socioemotional and behavioral skills at age four) to test if the grade at which DLL

students acquired English proficiency continues to have lasting links to academic achievement past elementary school into 6th, 7th, and 8th grade.

Retention

Grade retention tends to have major effects on student academic outcomes. Research has shown retention to have an overall negative impact on academic achievement and generally lowers students' motivation (Diris, 2017; García-Pérez et al., 2014; Hughes et al., 2018; Kretschmann et al., 2019). DLLs specifically have a higher risk of being retained due to several individual factors, such as low English literacy skills and first-generation immigrant status (Bowman-Perrott, 2009; Tillman et al., 2006; Willson & Hughes, 2006). Nationally, 13% of all students retained in G1-G12 are DLLs, a larger proportion than the 10% of DLLs in the total student population (DoED, 2016). In every grade, except for kindergarten, DLLs are an overrepresented proportion of students retained at the end of a school year (DoED, 2016), and much of this retention can be traced back to lower (English) literacy scores and struggles to pass high-stakes, standardized reading tests (Bowman-Perrott, 2009). Importantly, it must be acknowledged that these statistics typically do not control for socioeconomic status, but while SES is largely associated with retention, it is not the sole reason for retention. The pattern of high DLL retention is not seen in kindergarten, and some studies with younger DLL students enrolled in U.S. preschool programs have found that DLL students have lower kindergarten retention rates compared to their non-DLL peers, perhaps due to the particularly good behavioral skills typically found in DLLs (Winsler et al., 2012).

In a study looking at how retention is linked to various risk factors (e.g., poverty, low maternal education, single-parent status, minority status, DLL status, and gender), Winsler et al. (2012) examined unique and combined predictors of kindergarten retention with a large ethnically diverse, at-risk sample of children (n = 13,191). Winsler et al. (2012) reported that boys were more likely to be retained in kindergarten due to their poorer school readiness skills, and after controlling for effects of school readiness at age four, only poverty, DLL status, and preschool program attendance predicted kindergarten retention. DLL students were *less* likely to be retained than native English speakers, but after controlling for children's actual performance (teacher grades) during their first time in kindergarten, children with lower language skills (in English or Spanish) at age four were more likely to repeat kindergarten (Winsler et al., 2012). This study shows the various factors that affect retention rates as early as kindergarten, yet it is critical to understand how factors continue to play a role throughout DLL students' schooling and retention through secondary school.

Tavassolie and Winsler (2019) examined 3rd-grade retention for children in Miami, Florida, who failed the high-stakes reading FCAT, a policy linked to the No Child Left Behind Act. This study examined a large, ethnically diverse, urban sample of students (N = 27,980). Of those who took the FCAT reading test in 3rd grade, 15% failed, but of those who failed, only 53% of the students actually repeated 3rd grade. Tavassolie and Winsler (2019) reported that Black and Latino students, those receiving free/reduced-price lunch, those not yet English proficient, and those in special education were more likely to fail the test. Additionally, it was reported that those same variables (with the

exception of ethnicity) predicted which students were retained after having failed the FCAT. Students who had a lower GPA in 3rd grade had a higher chance of being retained after failing the FCAT, even while controlling for relevant demographic variables (Tavassolie & Winsler, 2019). These results show that certain factors such as ethnicity, DLL status, and SES can be key influences in retention decisions for certain groups of students (e.g., Black and Hispanic/Latino students), which must be accounted for when analyzing DLL students' retention rates.

The current thesis included grade retention as an academic outcome and examined if grade retention rates vary for DLLs based on how long it took for them to exit ESOL services. The aforementioned studies show how various factors that affect retention begin as early as kindergarten, and it is critical to understand how these factors continue throughout DLLs' schooling. It is also necessary to know if these factors combine with speed of language acquisition to predict retention in later grades.

Factors that Predict English Proficiency

As mentioned, controlling for individual factors is critical when tracking the relationship between English acquisition rate and later academic achievement. These individual factors include complex interactions that influence academic performance and language learning in general. How these individual factors interact in the classroom affects DLL students' ability to achieve academic success (Sharkey & Layzer, 2000). In a longitudinal study, Kim et al. (2014) identified several factors predictive of DLLs' faster English acquisition/ESOL exist, including higher initial L2 proficiency in kindergarten,

not being in poverty, not being Hispanic/Latino or Black, stronger cognitive, language, and socio-emotional skills at age 4, and higher maternal education. Furthermore, attending high-quality public-school pre-K has also been shown to increase English language acquisition speed for DLLs (Ansari et al., 2017; Miller, 2017; Winsler et al., 1999). Ansari et al. (2017) investigated later academic outcomes of low-income Latino children (n = 11,902) who attended public-school pre-K at age four in Miami, Florida. Using regression and propensity score analyses, these authors showed that children who attended public school pre-K earned higher scores on later standardized math and reading assessments and reached English proficiency faster than children who went to center-based or family childcare in the community.

Present Study

In general, while multiple studies have produced results indicating that the grade at which English proficiency is attained is related to later high school and long-term outcomes for DLLs (Agirdag, 2014; Callahan, 2005; Jong, 2004; Zaff et al., 2020), there are fewer studies focusing on middle school academic achievement. For example, both Agirdag (2014) and Zaff et al. (2020) reported that speed of English language acquisition has long-term effects on DLL students, influencing their achievement throughout schooling and often afterward, but these studies didn't specifically use middle school as a focal point. There are many questions that need to be answered to fully understand the relationship between English acquisition speed and DLL's academic achievement during middle school.

As is true when learning most subjects, DLLs experience language acquisition at different rates. However, there seems to be an acquisition window during elementary school, and students who have not reached English proficiency by this point in time become less likely ever to do so (Thompson, 2017). Thus, the studies on English acquisition that make the most impact are longitudinal in nature. This broad timeframe, plus the fact that many studies on DLLs' academic achievement are not longitudinal (Beal et al., 2010, Edyburn et al., 2019), means that much previous research does not clearly articulate the effects past elementary school (Lindholm-Leary & Hernandez, 2011; Tabors et al., 2003). There is a gap in the research regarding DLLs' academic achievement in middle school, especially for those who take longer to obtain English proficiency. To make definite conclusions about how the speed of English acquisition affects academic achievement, additional in-depth longitudinal studies are needed.

This thesis investigated two main research questions: First, do the total number of years that DLL students take to reach English proficiency relate to later academic outcomes (grade point average, standardized test scores, and retention) at the end of middle school? Based on the review of previous literature, I hypothesized that children who are proficient in English earlier would experience higher educational outcomes in middle school compared to their DLL peers who reach English proficiency at a later grade. Previous research suggests that becoming proficient in English within the critical window of kindergarten to 2nd grade leads to DLL students experiencing the best long-term positive academic outcomes. But what about those DLLs whose proficiency in English doesn't come till later? How are they doing in middle school? Thus, my second

research question was –are there particular grades for ESOL exit that matter more for middle school achievement (i.e., which exit grades are different from other grades in terms of 8th grade in all outcomes)? I hypothesized that DLLs proficient by kindergarten would have the highest achievement and DLLs not proficient by 6th grade or after would have the lowest achievement. However, I believed the strength of the relationship between when a DLL student becomes proficient in English and later academic achievement would likely vary based on which specific outcomes are being investigated.

After controlling for SES, gender, race/ethnicity, disability status, TWI program access, and cognitive, socioemotional, and behavioral skills at the age of 4, it was hypothesized that the total years a DLL spends in ESOL would be related to 8th-grade academic outcomes, such that becoming proficient in English at an earlier time point will predict higher assessment scores and higher GPA by the end of middle school. Finally, for grade retention, it was hypothesized that DLL students proficient in English earlier would be less likely to be retained throughout middle school compared to DLL students who reach English proficiency later.

METHODOLOGY

Participants

Background. This thesis used data from the Miami School Readiness Project (MSRP), a longitudinal study that followed five cohorts of children in Miami-Dade County since 2002 (Winsler et al., 2008). MSRP included 4-year-old children in Miami-Dade County from 2002-2007 who were enrolled in public school pre-K programs or who received subsidies to attend childcare in the community and followed these children longitudinally throughout their schooling (Winsler et al., 2008). For example, a four-year-old preschooler who attended a public-school pre-K program in the Fall of 2005 was included in the MSRP and followed until the school year of 2017-2018. The last of the five cohorts of students that MSRP followed were four-year-old preschoolers in 2006. The data on these children extends to 8th grade if the child did not skip a grade and was not retained, and this project included all children, including children that either skipped a grade or were retained. Children were administered school readiness assessments at age four to assess their cognitive, socio-emotional, and motor skills (discussed below). Data and scores assessing English proficiency and academic performance measures were gathered each year from kindergarten onwards from the school system (discussed below) (Winsler et al., 2022).

Sample. The current study sample started with every DLL student in the MSRP (*N* = 19,116). For this project focusing on middle school students, students need to show up

in middle school and have data for at least one academic outcome in 8th grade to be included in the study (*N* = 14,852). The MSRP classified students as DLLs if their parents indicated that they spoke a language other than English predominantly at home and if they had a valid score from their school's English proficiency assessment at some point during their schooling from kindergarten to fifth grade (Kim et al., 2014; Winsler et al., 2022). Students also had to have information on when they reached full English proficiency to be included in this sample, as measured by their ESOL exit grade and total years in ESOL (discussed below).

This sample consisted of children who progressed throughout their schooling in a typical manner, children who were retained a grade either once or twice, and children who skipped a grade. Students who had delayed their kindergarten entry were excluded from this sample. This was done because such students would always have fewer years in their 'Years in ESOL' variable, which would skew the time to reclassification data. Additionally, retention was an outcome variable, and the data on the student's first attempt at a grade was used if that child was retained in an outcome year. The sample is also evenly divided by gender (47.7% female, 52.3% male). The majority of participants come from low-income backgrounds (84.7%), as defined as receiving free- or reduced-price lunch in 6th or 8th grade. Finally, participants in this study are 87.4% Hispanic/Latino, 8.4% Black, and 3.2% White/Asian/Other (Table 1).

Measures

English Proficiency. The grade at which DLL students became English proficient was operationally defined in this study as the grade where they reached ESOL (English for Speakers of Other Languages) level 5. ESOL levels in Miami-Dade County are Novice (Level 1), Low Intermediate (Level 2), High Intermediate (Level 3), Advanced (Level 4), and Independent (Level 5) (M-DCPS, 2018). Schools assessed DLL students' ESOL levels each year, and these levels are determined by tests designed to assess students' English language proficiency in four language domains: Listening, Speaking, Reading, and Writing. DLL students are assessed annually until they reach Level 5, at which point they exit the ESOL program. An important note is that although the assessments designed to evaluate the students' ESOL level changed somewhat from the beginning to the present study's conclusion, each level's functional meaning has remained constant.

From 2003 to 2007, The Miami-Dade County Oral Language Proficiency Scale-Revised (M-DCOLPS-R) test was used to assess the ESOL level of DLL students and was administered on an individual basis before kindergarten entry (Florida Department of Education [FDOE], 2009). The M-DCOLPS-R contains 25 items, with raw scores ranging from 1-25, and for each correct answer, the student receives 1 point. Correct responses on test items showed that the DLL student displayed both understanding and linguistic control of vocabulary, structure, and pronunciation. If students scored four or lower on this assessment, they were placed in ESOL level 1. Likewise, scoring 20 or higher in the assessment corresponded with ESOL level 5, which indicated that the DLL student was sufficiently English proficient and did not require ESOL services upon

school entry. In 3rd grade, in those early years, DLLs had to test into the 32nd percentile on both the Reading Comprehension and Language Mechanics Subparts of the Metropolitan Achievement Test to reach ESOL level 5 (FDOE, 2009).

The Comprehensive English Language Learning Assessment (CELLA) began to be administered to DLL students in Miami-Dade County every Spring from 2006 to 2015 (AccountabilityWorks, 2015; FDOE, 2015). This assessment was designed to support program accountability and provide data for tracking the progress of DLLs over time. This assessment also supplies the information that determines if a DLL student is eligible to exit the ESOL program (FDOE, 2015). The CELLA has four separate levels differentiated for grades K-2, grades 3-5, grades 6-8, and grades 9-10, which also consist of a set of subtests used to assess listening, speaking, reading, and writing (AccountabilityWorks, 2015; FDOE, 2015). Both the M-DCOLPS-R and the CELLA place DLL students in an ESOL level ranging from 1-5. I used the grade at which DLL students were classified as ESOL level 5 as a measure of when they attained English proficiency, treated both continuously and categorically in analyses.

ESOL Exit Grade Variable. I used a variable that showed the grade at which each DLL student reached ESOL level 5 and exited the ESOL program, coded as 0 = kindergarten, 1 = first grade, 2 = second grade, 3 = third grade, 4 = fourth grade, 5 = fifth grade, 6 = sixth grade, 7 = seventh grade, 8 = eighth grade and beyond. This variable did not differentiate students who were retained a grade at any point. For example, a DLL who reached full English proficiency and exited the ESOL program during their second time in 1st grade was still coded as a 1. There are times that DLL students are kept in

ESOL programs longer (i.e., when they struggle with the standardized reading test), and there could be differences across schools within the same school district that can directly and indirectly affect the timing of reclassification.

Total Years in ESOL. I used this variable to show the total number of years a DLL student spent in the ESOL program, coded as 1 = one year, 2 = two years, 3 = three years, and so on. This variable did account for students who were retained at some point. For example, if a DLL reached full English proficiency and exited the ESOL program during their second time in 1st grade, they would be coded as a 3 (kindergarten + 1st grade + repeated 1st grade). Students who were missing from the school system for a year or two but returned with an ESOL level still below 5 were kept in the sample, but students who were missing for several years and returned already at a level 5 were excluded from the sample. This was done because we were unable to reliably know how many of those missing years the student was in ESOL and how many were not. So to preserve the validity of this Total Years variable, these children could not be included. This variable can be seen as time-sensitive and continuous and was used for the regression analyses assessing how total years in ESOL were related to later middle school academic outcomes.

Academic Outcomes

Grade point average. The schools provided data on students' grades across all subjects for each year, starting from kindergarten. In every grade after kindergarten, students were given an end-of-year GPA that was determined by the average of their

grades in all subjects, including, for example, math, science, art, music, social studies, physical education, reading, writing, and language arts. This current study used the student's 8th grade GPA as an outcome variable, calculated on a scale of 1 ('F') to 5 ('A'). As GPA is an average of school performance across many different subject areas, it provides an overall continuous indicator of academic performance in coursework.

Standardized tests. Students take the Florida Comprehensive Achievement Test (FCAT; Human Resources Research Organization & Harcourt Assessment, 2006). The FCAT has an internal consistency using Cronbach's Alpha of .91 for reading and .88 for math, which is considered to be highly reliable. This is a mandatory assessment for all students to take in Florida at the end of 6th, 7th, and 8th grade, and scores include a reading and math scale ranging from 100-500 for each scale. During the 2010-2011 school year, students started to receive a newer version of the FCAT, called the FCAT 2.0. Then again, in the 2015-2016 school year, students were administered a different test, the Florida Standards Assessment (FSA), based on the new Florida standards. The DLL students were administered one of these three tests during middle school, depending on their grade and cohort. Because the standard score scale differed across the three versions, I used the ordinal 1-5 scale, which was the same across all versions. On this scale, 1 and 2 indicate the student is not performing at grade level expectations, 3 meaning at grade level, and 4 and 5 meaning above grade-level expectations.

Retention. In addition to GPA, schools also provided de-identified records on which grade level DLL students were placed each year. A student was deemed to have been retained if they repeated a grade (Winsler et al., 2012), and an indicator in the data

was created. For example, a student who advanced on time from 6th to 7th grade would have end-of-year grades in 6th grade, appear in 7th grade the next year, and then have grades at the end of 7th grade. On the other hand, a student retained in 6th grade would have end-of-year grades in 6th grade but then appear in the same grade level again the next academic year and have end-of-year grades for 6th grade a second time. This current thesis looks at whether a student was retained in each individual grade for descriptive purposes and then designates a variable of ever being retained from 6th to 8th grade as an overall outcome (0=no, 1=yes).

Covariates

Demographic variables. For this study, demographic variables known to be related to both the speed of English language acquisition and academic achievement, such as free/reduced-price lunch status, gender, ethnicity, and disability status, were added as covariates. Free/reduced-price lunch status was used to operationalize socioeconomic status (i.e., receiving free/reduced-price lunch in 6th (1=yes, 82.9%) indicated that the participant was from a lower-income background than those who did not receive free/reduced-price lunch (0=no, 17.1%). Parental reports and school records provided information on the gender and ethnicity of participants, and as such, ethnicity had three categories: Hispanic/Latino, African American/Black, and White/Asian/mixed/other. Student disability status was also included, which encompasses learning and language disabilities but does not include gifted status. The student's 6th-

grade disability status was used as an overall indicator, with students either being categorized as having a disability or not (1=yes, 16%; 0=no, 81.9%).

ESOL Program Model. A variable was used to show whether the student was enrolled in a bilingual education program in elementary school involving the use of the home/partner language, namely two-way immersion (TWI), (1=child attended a school that only offered a two-way immersion program, 4.4%) or not (0 = school had a variety of different ESOL program models, 95.2%). This variable was included to examine if the variance in the type of bilingual education was related to the speed of language acquisition and achievement (Serafini et al., 2020).

Cognitive skills at age 4. Students were administered the Learning Accomplishment Profile-Diagnostic (LAP-D; Nehring et al., 1992) in the Fall and Spring of their pre-kindergarten age-four year. The LAP-D, which is a national norm-referenced developmental assessment, contains four domains – cognitive, language, fine motor, and gross motor. The reliability of the LAP-D ranges from .92 to .95 within this ethnically diverse sample (Winsler et al., 2008), and the validity of the LAP-D for diverse populations is also supported by the developers (Nehring et al., 1992). The 4-year-old children were individually assessed for these domains by a trained evaluator at the beginning and end of the year before entering kindergarten. The assessment was administered in either Spanish or English, depending on which language was strongest for the student as determined by their teacher and the bilingual assessor. Most participants in this study had scores from both Fall and Spring of pre-K when the LAP-D

was administered, and the current study used the most recent available cognitive LAP-D scores.

Socioemotional and behavioral skills at age 4. The Devereux Early Childhood Assessment (DECA; LeBuffe & Naglieri, 1999), a nationally standardized socioemotional and behavioral assessment, was filled out by parents and preschool teachers at the same two points that the LAP-D was collected. This assessment contains four subscales grounded in resiliency theory (Southwick et al., 2014): initiative, attachment, self-control, and behavior concerns. The DECA contains 37 items that rate the frequency of certain behaviors a child exhibited over the past four weeks and uses a scale of 0 (never) to 4 (very frequently). The items are designed to evaluate both protective strengths (27 items) and problem behaviors (10 items). Scores on initiative, attachment, and self-control are combined to yield a "total socioemotional protective factors" score. Larger scores indicate a higher parent/teacher ratings of a child's socio-emotional skills, and smaller scores indicate a lower rating. The 10-item subscale designed to screen for behavior problems is scored separately, and larger numbers correspond to more behavioral concerns for this scale. The DECA was also available in Spanish and English, and this present study used the most recent teacher DECA scores that the participants had for total protective factors and behavior concerns. Reliability within this ethnically diverse sample for teacher-reported total social skills was .94 and was .81 for behavior concerns (Winsler et al., 2014). Internal and external validity was supported by the instrument authors and others (LeBuffe & Naglieri, 1999; Lien & Carlson, 2009).

RESULTS

Analysis Outline. General descriptive information is first reported for the full sample of DLL students. Then, the first research question was addressed on how the DLL students' total years in ESOL relate to 8th-grade academic outcomes (GPA, standardized reading scores, standardized math scores, and middle school retention) with a series of multiple regression models for continuous outcomes (8th grade GPA, standardized reading scores, and standardized math scores) and logistic regression for the categorical outcome (middle school retention). Significant predictors (race/ethnicity, gender, free/reduced-price lunch status, disability status, and program type) were included as covariates in all regression models. Initially, the regression models included the school readiness covariates (cognitive skills and socioemotional and behavioral skills at age 4) to test if these covariates were related to the outcomes and other predictors. However, the school readiness covariates were typically not associated with the 8th-grade outcomes, nor did their inclusion change the results for the other predictors, so the decision was made to exclude them from the final models reported. This also significantly reduced missing data, as 30-40% of DLLs were missing one or more of the age-4 measures.

To address the second research question on whether particular grades for ESOL exit matter more for middle school achievement, estimated means of 8th-grade student outcomes (GPA, standardized reading scores, and standardized math scores) were calculated. These means were then compared to determine if the decrease in academic achievement continued with each additional grade students took to acquire English. To

do this, students were dummy coded into groups based on the grade at which they reached English proficiency (1st grade, 2nd grade, 3rd grade, 4th grade, 5th grade, 6th grade, 7th grade, 8th grade), and models were run with each group to determine if the academic achievement of those DLLs in each reclassification group were significantly statistically different from DLLs in all other groups and similar across outcomes. This method allowed the comparison of each individual grade of reclassification to each other instead of simply sorting students into two groups: earlier (before 2nd grade) vs. later (after 2nd grade).

GPA. An initial one-way ANOVA was conducted to compare the effect of Total Years in ESOL on 8th Grade GPA (Figure 1, Table 4). There was a significant effect of the total years DLL students spent in ESOL on 8th-grade GPA [$F(9, 14{,}429) = 43.56$, $p < .001$]. DLLs who spent only one year in ESOL had significantly higher GPAs than DLLs in all other years. However, there was an increase in 8th grade GPA for DLLs that spent six or more years in ESOL. The mean GPA of DLLs who spent six years in ESOL was 3.87, which is higher than the mean GPA for DLLs who spent two, three, or four years in ESOL.

The first column of Table 7 shows the regression results for the effect of total years in ESOL on DLLs' 8th-grade GPA, including covariates. Years in ESOL, gender, ethnicity, poverty status, and disability status were significant predictors of 8th-grade GPA. DLL students' 8th-grade GPA decreased by .035 points for each additional year that full English proficiency was not reached. Compared to Hispanic/Latino DLL students, White DLL students' 8th-grade GPA was .19 points higher, and Black DLL students'

GPA was .18 points lower. DLL girls' 8th-grade GPA was .25 points higher than DLL boys, and DLL students with disabilities had an 8th-grade GPA that was .13 points lower than DLL students without disabilities. Additionally, DLL students who received free/reduced-price lunch had an 8th-grade GPA that was .25 points lower than DLL students who did not receive free/reduced lunch. Exclusively TWI ESOL program receipt was not a significant predictor of 8th-grade GPA.

Table 8 shows the multiple mean comparisons for 8th-grade GPA by each year that DLLs acquired English proficiency to examine differences by each grade. These values represent female, Hispanic/Latino, nonpoor DLL students that did not have a disability and did not attend schools that exclusively offered TWI programs. Each superscript denotes which groups significantly differ from one another. For example, the GPA of DLLs who exited ESOL in kindergarten with superscripts ^{1,2,3,4,6,7,8} would be significantly different from all other groups except 5th grade, noted by the lack of a five superscript. Similarly, the GPA of DLLs who exited in 4th grade with superscripts ^{0,7} are only significantly different from kindergarten and 7th grade. DLLs who reached English proficiency in kindergarten had higher GPAs than DLLs who reached English proficiency in all other grades, except 5th grade. Interestingly, DLLs who reached proficiency in 5th grade did not have significantly different 8th grade GPAs from students who reached proficiency in kindergarten, 1st, 3rd, or 4th grade. Similarly, DLLs who reached proficiency in 4th grade only significantly differed from DLLs who reached proficiency in kindergarten and 7th grade. Finally, DLLs who reached proficiency in 7th grade had lower GPAs than every other grade except 6th grade.

Standardized Reading Scores. A one-way ANOVA was conducted to compare the effect of Total Years in ESOL on 8th-grade reading proficiency (Figure 2, Table 5). There was a significant effect of the grade at which DLL students acquired English proficiency on 8th-grade reading scores for each condition [$F(9, 11{,}099) = 145.58$, $p < .001$]. DLLs who spent only one year in ESOL had significantly higher reading scores than DLLs in all other years and DLLs who spent ten years in ESOL had the lowest reading scores. Again, we can see an increase in mean reading scores from 2.33 to 2.87 for the DLLs who spent six years in ESOL, and this group does not follow the general pattern of linear decrease.

Table 7 shows the regression results for the effect of total years in ESOL on DLLs' 8th-grade standardized reading scores. Similarly, years in ESOL, gender, ethnicity, poverty status, and disability status were significant predictors of 8th-grade reading scores; however, TWI program access was also significant for reading scores. DLL students' 8th-grade reading scores (measured on a scale of 1-5, with 5 being the highest possible score) decreased by .15 points for each additional year that full English proficiency was not reached. Compared to Hispanic/Latino DLL students, White DLL students' 8th-grade reading scores were .22 points higher, and Black DLL students' scores were .42 points lower. DLL girls' 8th-grade reading scores were .15 points higher than DLL boys, and DLL students with disabilities had 8th-grade reading scores that were .86 points lower than DLL students without disabilities. Additionally, DLL students who received free/reduced-price lunch had an 8th-grade GPA that was .38 points lower than DLL students who did not receive free/reduced lunch. The 8th-grade GPA of DLL

students that attended schools that exclusively offered TWI programs was .15 points higher than DLL students that did not attend schools with exclusively TWI programs.

Table 8 shows the multiple mean comparisons for 8th-grade reading scores by each year that DLLs could acquire English proficiency. DLLs who reached proficiency in kindergarten and 1st grade had higher 8th-grade reading scores than DLLs who reached proficiency in any other grade. Similar to GPA, DLLs who reached English proficiency in 5th grade were not as different from other grades as expected. These students did not have significantly different reading scores from DLLs who reached proficiency in 2nd, 3rd, or 4th grade. DLLs who reached proficiency in 7th grade had lower scores than DLLs who reached English proficiency in all other grades.

Standardized Math Scores. A one-way ANOVA was conducted to compare the effect of grade acquired English proficiency on 8th-grade math scores (Figure 3, Table 6). There was a significant effect of the grade at which DLL students acquired English proficiency on 8th-grade math scores [$F(9, 7{,}345) = 34.50$, $p < .001$]. DLLs who spent only one year in ESOL again had significantly higher scores than all other groups, and DLLs who spent eight or more years in ESOL had the lowest mean math scores. While the pattern of decreasing scores is still present for every additional year in ESOL, it is less sharp for math. Mean reading scores decreased from 3.33 to 1.25, while math scores only decreased from 2.66 to 1.46. It seems DLL students' math scores are less affected by additional years in ESOL.

Table 7 shows the regression results for the effect of ESOL exit grade on DLLs' 8th-grade math scores. Years in ESOL, gender, ethnicity, poverty status, and disability

status were significant predictors of 8th-grade math scores. DLL students' 8th-grade math (also measured on a scale of 1-5, with 5 being the highest possible score) decreased by .07 points for each additional year that full English proficiency was not reached. Compared to Hispanic/Latino DLL students, White DLL students' 8th-grade math scores were .28 points higher, and Black DLL students' scores were .26 points lower. DLL girls' 8th-grade math scores were .07 points lower than DLL boys, and DLL students with disabilities had 8th-grade math scores .61 points lower than DLL students without disabilities. Additionally, DLL students who received free/reduced-price lunch had 8th-grade math scores .36 lower than DLL students who were not in poverty. Exclusively TWI program offering was not a significant predictor of 8th-grade math scores.

Table 8 shows the multiple mean comparisons for 8th-grade math scores by each year that DLLs could acquire English proficiency. DLLs who reached English proficiency in kindergarten had higher 8th-grade math scores than DLLs who reached proficiency in all other grades, and DLLs who reached proficiency in 7th grade had lower scores than all other students. Interestingly, DLL students who reach reached English proficiency in 2nd, 3rd, 4th, or 5th grade did not significantly differ from each other's later 8th-grade math scores. DLLs who reached proficiency in 4th and 5th grade were only significantly different from kindergarten and 7th grade, while DLLs who reached proficiency in 8th grade were only significantly different from kindergarten and 1st grade.

Middle School Retention. Table 9 shows the results of the chi-square test of independence that was conducted to test if the total years that DLL spent in ESOL was related to retention in middle school (6th, 7th, and 8th grade). The relationship between the

variables was found to be significant χ^2 (8, N = 13,759) = 20.14, p <.05. Of the students who did not reach English proficiency until 6th grade, 1.8% were retained in middle school. Of students who did not reach English proficiency before the end of 7th grade, 1.9% were retained in middle school, which is a much higher percentage than students who reached proficiency in elementary school. These results show that DLL students who are later in acquiring English proficiency are more likely to be retained in middle school.

Table 10 shows the logistic regression results for predicting being retained in middle school. There was a significant association between the total years DLLs spent in ESOL and ever being retained in 6th, 7th, or 8th grade. Total years in ESOL and gender were significant predictors of retention in middle school. For each additional year that DLLs did not acquire English proficiency, there was an almost 14% increase in the odds of retention in middle school. DLL boys were nearly three times as likely to be retained than girls.

DISCUSSION

This thesis aimed to examine how the grade in which DLL students acquire English proficiency is related to later 8th-grade academic performance. This thesis used several measures of academic achievement and focused on a diverse sample of DLLs while controlling for known factors that predict the speed of English language acquisition, such as gender, race/ethnicity, poverty status, and disability status. The overarching finding from this study was that earlier English acquisition seems to be better for later academic performance, and this supports prior research that faster L2 acquisition speed positively influences academic performance (Halle et al., 2012; O'Connor et al., 2016). Comparisons of DLL students' 8th-grade GPA, reading scores, and math scores by the grade in which they reached English proficiency indicated that DLLs who acquire English in an earlier grade generally had better later middle school performance. However, this study also found interesting results regarding grouping students together based on the grade that English was acquired. Other studies have found that academic achievement decreases consecutively for each year that English proficiency is not reached. The results indicate that there seem to be three distinct groups forming. Students who reach proficiency in kindergarten to 2nd grade perform similarly, students who reach proficiency in 3rd to 5th grade are similar, and finally, students who reach proficiency in 6th grade or later have similar academic achievement.

Some previous studies found that DLL students with lower initial English proficiency catch up to their peers and perform similarly later on (Kieffer, 2008; Lesaux

et al., 2007; Reardon & Galindo, 2007). This thesis compared every grade to each other instead of to a singular reference group of non-DLLs and was able to see results when comparing earlier-proficient DLLs to later-proficient DLLs. DLLs who gained proficiency in 3rd, 4th, and 5th grade generally had similar academic performance in 8th grade, implying that those DLLs who became proficient in 4th and 5th grade caught up to their peers who did so in 3rd-grade. These results differ from previous studies because this study compares DLLs to each other instead of monolingual English-speaking students. These interesting findings for students that became proficient in 3rd through 5th grade are especially evident for GPA and math scores. In prior research looking at a similar effect in elementary school, results showed that English acquisition grade was more predictive of reading scores than math scores (Halle et al., 2012), and this can be seen here with 8th-grade reading scores as well. There seems to be a general linear decrease in reading achievement for every year that DLL students do not reach English proficiency. For math scores, however, the decrease is smaller, and there seems to be a plateau where students who become proficient in 3rd through 5th all perform very similarly on 8th-grade math scores.

This study also shows a much larger drop in 8th-grade achievement for students who were not proficient until after 6th grade than students who reached proficiency earlier in elementary school. This sharp difference in middle school academic performance between DLLs that reach English proficiency in elementary school and DLLs that don't reach proficiency until middle school may be due to the transition, more rigorous work in middle school, and the academic challenges that LTELs face. For many students,

including LTELs, middle school is one of the first instances where students experience more advanced coursework and rigorous academic pressure (Mosqueda & Maldonado, 2013). Previous research has identified the time spent in classes as an important factor in why reaching English proficiency before 6th grade impacts DLLs' middle school performance. Being English proficient before entering middle school and thus not being in ESOL classes in middle school increases the amount of time for more challenging coursework in English language arts and math from 6th grade to 8th grade (Onda & Seyler, 2020). English proficient students would spend more time learning the skills needed to achieve higher scores than DLLs not yet proficient, who would spend a greater amount of time in ESOL classes. This difference in exposure to challenging course work may play an essential role in explaining the sharp contrast in 8th-grade performance for before 6th grade proficient DLLs and after 6th grade proficient DLLs.

Prior research indicates a range of contributing factors to DLLs becoming LTELs, including insufficient language support programs, unreasonable exit policies, limited opportunities to learn, and limited support for learning/language disabilities (Shin, 2020; Thompson, 2015). For instance, Kieffer and Parker (2016) found using discrete time survival analyses that DLLs with lower English proficiency or with specific learning disabilities or language impairments took more time to get reclassified, and their probability of reclassification at all was lower. This could be one factor at play in this current study. For this sample, the percentage of students with disabilities is indeed higher for later-proficient DLLs than for early-proficient DLLs. For the early-proficient DLLs, only 11-22% of the students are coded as having a disability, while 23-40% of

DLLs not proficient until middle school are coded as having a disability. This may shed some light on the factors that lead to DLLs becoming LTELs; however, more research needs to be done on identifying and supporting these students earlier.

Another interesting result of this study is that there was an increase in 8th grade outcomes for students being reclassified in 5th grade (6 years in ESOL). Students who reclassified in 5th grade had higher mean GPAs and standardized test scores when the trend had been decreasing before this group and continues to decrease after this group. Several explanations for this bump in scores may be possible. First, it may be that these students who enter middle school no longer in the ESOL program are able to access more advanced classes to develop their academic skills, leading to higher scores on the more difficult 8th-grade assessments compared to their later-proficient peers. Students still in the ESOL program in middle school may be unable to take these more advanced classes due to their DLL status.

An additional factor that needs to be considered for students in the 5th grade/6th year group is that reclassifying decisions may not be due to their actual English proficiency abilities but due to other bureaucratic processes (Shin, 2020; Thompson, 2015). It may be the case that these students who reached proficiency in 5th grade were actually ready to exit ESOL sooner and were held back for unknown reasons, only for there to be a push to exit as many students as possible by the end of 5th grade. If this is the case and these students exited sooner, perhaps the average outcomes for 4th-grade would be higher as well. Additionally, this may be related to school nesting. If there is a specific group of schools that are holding many of their DLLs in the ESOL program back

and waiting until 5th grade to exit them, this may be contributing to the large increase of 5th grade proficient students that we see in this study. If these students are being held back from reclassification due to bureaucratic processes and this varies by school, then perhaps these ESOL programs and the classification systems should be more regularly evaluated to assess their effectiveness and appropriateness.

However, it needs to be acknowledged that even though we see this increase in scores for students who reach proficiency in 5th grade (or who are held in the ESOL program until 5th grade) does not imply that students should be held an additional year in the ESOL program for reasons other than their true English proficiency. If this large population of DLLs that are exiting the ESOL program in 5th grade are in fact, ready to exit the ESOL program earlier, then they should be doing so. Exiting earlier and having more time in general classes in elementary school to prepare for middle school may also lead to higher achievement. These possible bureaucratic processes and school nesting factors need to be explored in further studies to understand the pattern of when students are truly reaching English proficiency and exiting the ESOL program and how that is affecting their academic achievement.

In addition to other academic scores, retention in middle school and how it is affected by the grade DLLs leave ESOL was included as an outcome for this thesis due to the significant impact grade retention has on students' academic performance (Hughes et al., 2018; Kretschmann et al., 2019). Prior research has shown grade retention to have overall negative impacts on academic achievement, and DLLs specifically are overrepresented in the population of retained students (Bowman-Perrott, 2009; Diris,

2017; García-Pérez et al., 2014; Tillman et al., 2006;). Due to this, the current study included middle school retention as an academic outcome variable and found that English acquisition grade, gender, and disability status specifically were predictors of retention in middle school. Previous studies have shown that individual factors such as poverty status and race/ethnicity were predictive of retention in elementary school (Tavassolie & Winsler, 2019; Winsler et al., 2012), however, these factors were not significant predictors for middle school retention in this study. Perhaps by middle school, initial differences seen by race/ethnicity and SES have become less prominent for predicting retention, and the speed at with these students acquire English is left to make a major impact on the odds that DLL students are retained in middle school.

Another potentially important factor that this study accounted for above and beyond previous studies was the students' access to bilingual education programs. Prior research has shown that TWI models have been associated with faster English acquisition and academic achievement (Agirdag, 2014; Steele et al., 2017). The results of this study were interesting in that DLL students' access to TWI programs did not relate to 8th-grade GPA or math scores but were significantly related to better 8th-grade reading scores. This is in line with previous research that access to good bilingual education is correlated with L1 proficiency and L2 gains, as well as literacy achievement (Collier & Thomas, 2004; Collier & Thomas, 2019). Additionally, previous studies have shown a mediation effect for TWI, in that TWI access was associated with faster English acquisition speed, but after accounting for acquisition speed, TWI programs were no longer a significant predictor of math scores, reading scores, or GPA (Serafini et al., 2020). It is also

important to note that TWI access for students is not just a measure of their access to dual-language education, but also a measure of educational equity. Students attending more affluent schools may be from higher SES families and have a higher possibility of participating in TWI programs. These additional factors of schools that offer TWI programs, such as location, financial ability to provide diverse bilingual education classes, SES and racial makeup of the population, play an important role in predicting student English acquisition speeds and academic outcomes.

Limitations. This present study has multiple strengths, including a large sample of DLLs, high-stakes academic performance outcomes, grade retention, and the inclusion of TWI programs as a variable of interest. Although this study used an ecologically valid measure of English proficiency during every grade, one variable of interest that could not be included was DLL students' home language skills and the support of that home language in classrooms. DLLs' L1 proficiency is generally highly correlated with their L2 proficiency (August & Shanahan, 2006; Winsler et al., 2014), and L1 support in classrooms is seen to be predictive of how quickly DLLs acquire L2 proficiency (Lee & Macaro, 2013). While this study included TWI access as a variable of interest, not all DLLs have the same level of L1 proficiency, and many students have different L1s altogether. A measure of DLLs L1 and L1 proficiency would have been a valuable variable to include in this study.

Another limitation that warrants consideration is the school-level factors that may have influenced certain groups of DLLs in this sample. This study was unable to account for nesting within schools for the students in this sample, which may be impacting the

results in an unseen manner, as school-level characteristics often have direct and indirect influences on students' achievement (Günal & Demirtasli, 2016; Pomianowicz, 2021). Certain schools may have different intervention procedures available for their DLLs, which could have led to certain groups of students reaching English proficiency faster or slower than others.

Finally, a limitation of this study that should be acknowledged is that the only DLL students included in this sample were students enrolled in public school pre-k programs at four years old or who received childcare subsidies in Miami-Dade County. DLL students who arrived in the school system at any later date could not be included in the sample due to the longitudinal nature of the student tracking. Additionally, students who moved away from Miami-Dade County could not be included due to the lack of outcome data for them. This made it impossible to account for a certain group of DLLs who entered the school system and ESOL during elementary school, even though their rate of English acquisition would have been beneficial to include in the analyses. However, while other studies do include later-arriving DLLs, not including these students in this sample allowed this study to focus on the long-term effect of English acquisition over time. Focusing on a sample of students who all entered the school system in kindergarten at the same time allowed us to control for that variable, and while there are benefits to including late arrivers, their scores would have skewed the outcome means in this study

Future Avenues for Research. As earlier English acquisition was significantly predictive of DLLs 8th-grade outcomes and L1 support correlates with faster English

acquisition speed (Lee & Macaro, 2013; Steele et al., 2017), future research should explore the relationship between home language and middle school achievement. It would be beneficial to understand further how these early language support systems specifically affect middle school and high school outcomes. This is true for students who enter the school system in kindergarten and begin the English acquisition process early and for students who enter the school system later and may have higher L1 competencies but relatively low or no English proficiency.

Additionally, future research should explore what factors are related to DLLs becoming LTELs and how this affects their academic progress. Specifically, what factors influence students who enter the school system in kindergarten but fail to reach English proficiency by the end of elementary school, and what does this mean for their middle school and high school achievement? LTELs are overrepresented in grade retention and dropout rates (Hanover Research, 2017; Onda & Seyler, 2020), so understanding what specific interventions or supports may be needed is critical to assisting these students and tracking their progress. Furthermore, understanding why LTELs have higher retention rates in secondary education may inform ESOL intervention in elementary school.

Finally, future work should explore how school-level factors and interschool tracking affect DLL students' English acquisition. Research has shown that the quality of education available to students has become increasingly dependent on the social and economic demographics of the schools that the children attend (Ruiz et al., 2018), and this is no different for DLLs. It is widely accepted that access to language programs, such as TWI programs, is beneficial to DLLs' English acquisition (Serafini et al., 2022), and

schools' ability and willingness to provide these programs are based on many individual factors. Additionally, accurate tracking of DLLs between schools and how these schools differ in language support systems may inform why some DLL students reclassify as English proficient faster than others when switching schools.

In conclusion, the present study suggests that faster English acquisition, specifically in elementary school, is an important factor in DLLs' middle school academic success. It should be a goal for educators and policymakers to understand the factors that lead to DLLs acquiring English early and limiting the chance that DLLs become LTELs, including L1 support in schools, tracking school-level characteristics, and access to language interventions where possible. The population of DLLs in the US school system will only continue to grow, so mapping out the factors that lead to success for these students is critical to ensuring their access to equitable education.

APPENDIX

Table 1. *Sample Demographic Information*

	N = 14,852	
	n	%
Gender		
Female	7,080	47.7%
Male	7,772	52.3%
Race/Ethnicity		
Hispanic/Latino	13,124	88.4%
Black	1,249	8.4%
White/Other	479	3.2%
Poverty Status		
FRPL	12,576	84.7%
No FRPL	2,276	15.3%
Disability Status		
No disability	12,719	85.6%
Has disability	2,133	14.4%
Program Type		
Exclusively TWI	652	4.4%
Not Exclusively TWI	14,141	95.2%

Table 2. *DLL Students who Acquired English Proficiency in Each Grade*

Grade English Proficiency was Acquired	*n*	% of total
K	4,358	29.3%
G1	3,590	24.2%
G2	2,724	18.3%
G3	2,265	15.3%
G4	358	2.4%
G5	338	2.3%
G6	558	3.8%
G7	592	4.0%
G8	69	0.5%
Total	14,852	100%

Table 3. *Total Years that DLL Students Spent in ESOL*

Total Number of Years in ESOL	*n*	% of total
1	4,296	28.9%
2	3,410	23%
3	2,600	17.5%
4	2,441	16.4%
5	490	3.3%
6	289	1.9%
7	382	2.2%
8	613	4.1%
9	301	2%
10	30	0.2%
Total	14,852	100%

Table 4. *Descriptive Statistics for One-Way Analysis of Variance of 8th Grade GPA by Total Years in ESOL*

Years in ESOL	*N*	Mean GPAs	*SD*
1	4,190	4.02	.67
2	3,319	3.91	.67
3	2,516	3.82	.70
4	2,372	3.85	.67
5	471	3.69	.69
6	276	3.87	.66
7	377	3.82	.61
8	603	3.65	.67
9	294	3.55	.67
10	21	3.47	.69
Total	14,439	3.89	.68

$F(9, 14{,}429) = 43.56$, $p < .001$

Table 5. *Descriptive Statistics for One-Way Analysis of Variance of 8th Grade Reading Scores by Total Years in ESOL*

Years in ESOL	*N*	Mean Reading Scores	*SD*
1	3,312	3.33	1.19
2	2,259	3.05	1.18
3	2,237	2.88	1.14
4	1,679	2.74	1.14
5	322	2.33	1.16
6	245	2.87	1.04
7	268	2.42	1.02
8	512	1.93	.91
9	251	1.76	.85
10	24	1.25	.61
Total	11,109	2.93	1.21

$F(9, 11{,}099) = 145.58$, $p < .001$

Table 6. *Descriptive Statistics for One-Way Analysis of Variance of 8th Grade Math Scores by Total Years in ESOL*

Years in ESOL	*N*	Mean Math Scores	*SD*
1	1,897	2.66	1.16
2	1,489	2.52	1.12
3	1,505	2.39	1.08
4	1,153	2.30	1.09
5	264	2.06	1.05
6	154	2.41	1.02
7	208	2.32	1.08
8	429	1.96	1.06
9	230	1.81	.97
10	26	1.46	.71
Total	7,355	2.41	1.12

$F(9, 7{,}345) = 34.50$, $p < .001$

Table 7. *Regression Results Predicting 8th Grade GPA, Reading Scores, and Math Scores by Total Years in ESOL*

	GPA		Read		Math	
Predictors	*B*	*SE (B)*	*B*	*SE (B)*	*B*	*SE (B)*
Intercept	4.36	.017	3.89	.031	3.04	.041
Years in ESOL	-.035*	.003	-.146*	.005	-.074*	.006
Male	-.250*	.011	-.151*	.021	.066^{+}	.025
White	.188*	.031	.219*	.061	.282*	.083
Black	-.179*	.020	-.424*	.038	-.260*	.043
FRPL	-.251*	.015	-.384*	.030	-.360*	.038
Disability	-.132*	.016	-.861*	.032	-.612*	.035
TWI Program	-.030	.027	.155^{+}	.051	.110	.064

*$p<0.001$ $^{+}$ $p<0.05$

Table 8. *Estimated Grade Acquired English Proficiency Means with Multiple Comparisons for GPA, Reading, and Math*

Grade Acquired English Proficiency	GPA	Reading	Math
K $_{0}$	4.35 ^{1,2,3,4,6,7,8}	3.78 ^{1,2,3,4,5,6,7,8}	2.99 ^{1,2,3,4,5,6,7,8}
G1 $_{1}$	4.26 ^{0,2,6,7,8}	3.55 ^{0,2,3,4,5,6,7,8}	2.88 ^{0,2,3,6,7,8}
G2 $_{2}$	4.20 ^{0,1,3,5,7}	3.41 ^{0,1,3,4,6,7,8}	2.76 ^{0,1,6,7}
G3 $_{3}$	4.24 ^{0,2,7,8}	3.32 ^{0,1,2,6,7,8}	2.75 ^{0,1,6,7}
G4 $_{4}$	4.19 ^{0,7}	3.20 ^{0,1,2,6,7}	2.74 ^{0,7}
G5 $_{5}$	4.28 ^{2,6,7,8}	3.32 ^{0,1,6,7,8}	2.73 ^{0,7}
G6 $_{6}$	4.18 ^{0,1,5,7}	2.74 ^{0,1,2,3,4,5,7}	2.57 ^{0,1,2,3,7}
G7 $_{7}$	4.03 ^{0,1,2,3,4,5,6,8}	2.65 ^{0,1,2,3,4,5,6,7}	2.31 ^{0,1,2,3,4,5,6}
G8 $_{8}$	4.15 ^{0,1,5,7}	2.89 ^{0,1,2,3,4,5}	2.51 ^{0,1}

Note. Values represent female, Hispanic/Latino, nonpoor DLL students that do not have a disability and do not attend schools that exclusively offer TWI programs. Subscripts represent which groups significantly differ from one another.

Table 9. *Results of Chi-square Test and Descriptive Statistics for Ever Retained in 6th, 7th, or 8th Grade by Grade Acquired English Proficiency*

Grade Acquired English	Ever Retained in G6-G8	
	No	Yes
K	4,153 (99.4%)	23 (0.6%)
G1	3,394 (90%)	35 (1%)
G2	2,541 (98.9%)	29 (1.1%)
G3	2,163 (99.3%)	15 (0.7%)
G4	333 (99.7%)	1 (0.3%)
G5	256 (99.6%)	1 (0.4%)
G6	333 (98.2%)	6 (1.8%)
G7	403 (98.1%)	8 (1.9%)
G8	65 (100%)	0 (0%)
Total = 13,759	13,641 (99.1%)	118 (0.9%)

$\chi^2 = 20.14$, df = 8, $p < .05$

Table 10. *Logistic Regression Predicting Retention in 6th, 7th, or 8th Grade*

Variable	Odds Ratio	SE
Total Years in ESOL	1.138*	.045
Male	2.839*	.220
White	.288	1.01
Black	1.126	.321
TWI Program	.197	1.01
Free/Reduced Lunch	1.536	.321
Disability	1.545	.231

*p<.05

Figure 1. *8th Grade GPA by Total Years in ESOL*

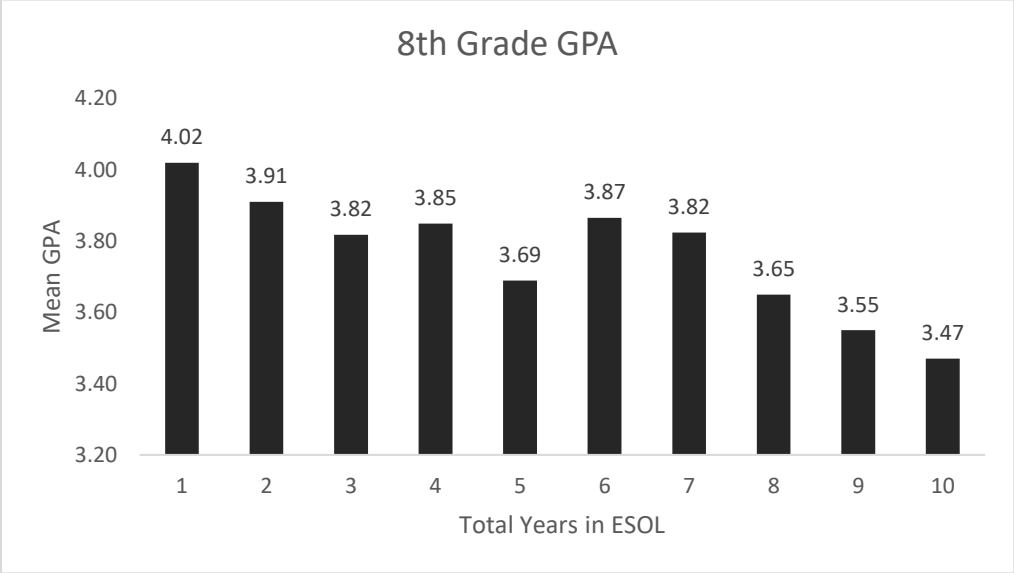


Figure 2. *8th Grade Reading Scores by Total Years in ESOL*

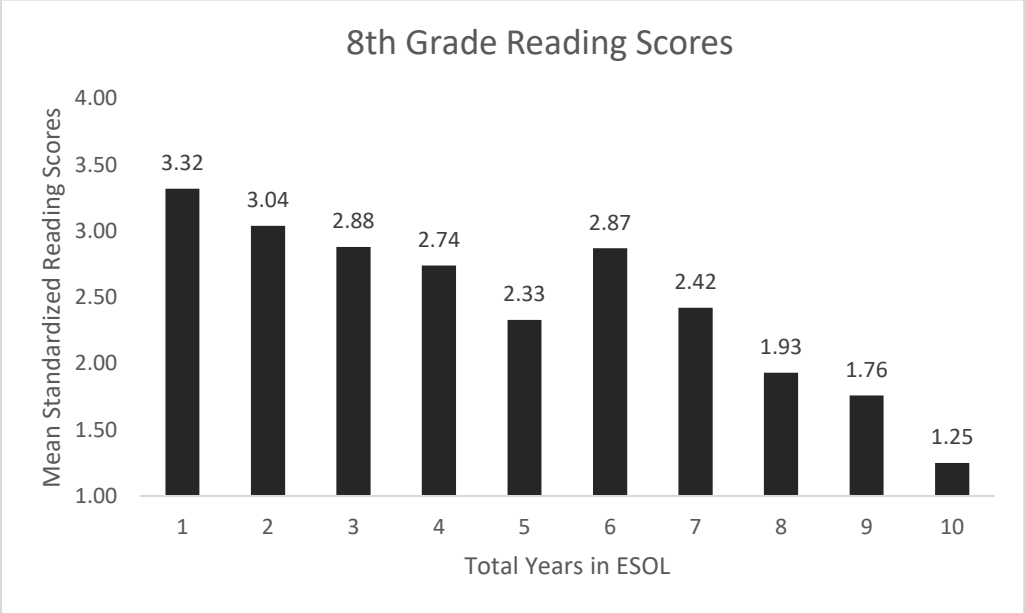
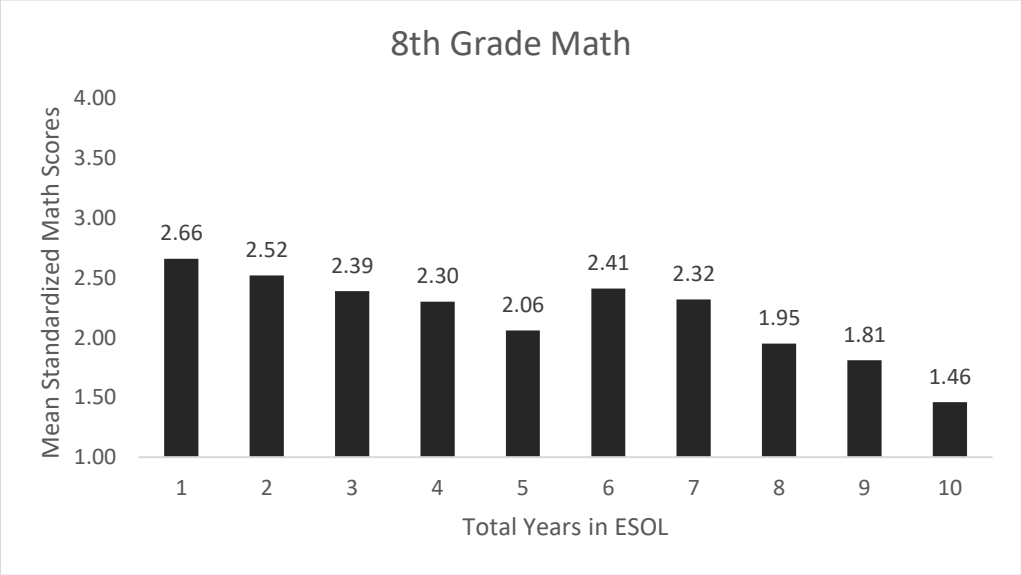


Figure 3. *8th Grade Math Scores by Total Years in ESOL*



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BIOGRAPHY

Gabrielle R. Norvell graduated from Alleghany High School in 2015. She received her Bachelor of Science in Psychology and Bachelor of Science in Biology from Virginia Commonwealth University in 2019. This thesis marks the end of a long journey through education and hopefully the start of a fulfilling professional future.