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The Role of Social-Emotional Abilities in the Vocabulary Outcomes of  
Young Spanish-English Dual Language Learner (DLL) Students

A thesis submitted in partial satisfaction  
of the requirements for the degree Master of Arts  
in Education

by

Alejandra Martin

2020



## ABSTRACT OF THE THESIS

### The Role of Social-Emotional Abilities in the Vocabulary Outcomes of Young Spanish-English Dual Language Learner (DLL) Students

by

Alejandra Martin

Master of Arts in Education

University of California, Los Angeles, 2020

Professor Alison Bailey, Chair

The number of children living in homes in which a language other than English is spoken, commonly referred to as dual language learner (DLL) students in early childhood settings, is steadily growing (Park, O'Toole, & Katsiaticas, 2017). With this increase in numbers it is important to understand the relationship between their social-emotional learning and vocabulary outcomes. DLL students encounter distinct cultural practices, at home and/or in school, which very likely influence their social and emotional behavior, that is, the way that they build relationships and manage emotions and behaviors, as they navigate social and academic settings. The relationships they build and behaviors they display may have implications for their language use. This quantitative correlational study examined the relationship between fall teacher-rated social-emotional indicators (i.e., engagement, cooperation, self-control,

internalizing behavior, and externalizing behavior) and spring expressive vocabulary outcomes of Spanish-English DLL kindergarten-aged students. Consistent with previous work, social skills and behaviors were positively correlated with expressive vocabulary. However, this was only the case with English and not Spanish outcomes. Further analysis revealed that students with higher engagement, cooperation, self-control, internalizing behavior, and externalizing behavior ratings in the fall of their kindergarten year had higher predicted gains in English expressive vocabulary achievement in the spring of kindergarten, after adjusting for the effects of the covariate (i.e., gender). Implications for future analysis is also discussed.

The thesis of Alejandra Martin is approved.

Rashmita S. Mistry

Jennie K. Grammer

Alison Bailey, Committee Chair

University of California, Los Angeles

2020

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## Introduction

The number of children living in homes in which a language other than English is spoken, commonly referred to as dual language learners (DLLs)<sup>1</sup> in early childhood settings, has been steadily growing since 2000 (Park, O’Toole, & Katsiaficas, 2017). In California, DLL students comprise 45% percent of the total number of children aged 5-8 with Spanish as the most frequent home language spoken by parents (Park, et al., 2017). DLL children are exposed to diverse cultural and language experiences at a young age, either at the home with multilingual parents, siblings, caregivers or in multilingual early education programs that differ from those of their monolingual peers. DLL students may also experience cultural differences between home and school that in turn may affect their academic trajectories. Being part of this diverse group of students has implications in classroom settings that warrants further exploration.

Building and maintaining relationships with others as well as managing behaviors and emotions are essential components of social-emotional development and crucial for success in school. Previous research has found important linkages between early social-emotional instruction (i.e., emotional awareness and understanding, self-control, interpersonal problem solving skills, developing peer relations, enhancing self-esteem and social responsibility) and development (i.e., aggression, attention problems, social skills) on academic outcomes as well as social functioning (Arnold, Kupersmidt, Voegler-Lee, & Marshall, 2012; Schonfeld, et al., 2015). Arnold and colleagues (2012), for example, found that prosocial skills were related to

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<sup>1</sup> There are many terms used to describe children that speak a language other than their primary language. English learners (EL students), “students whose first language is not English and who are in the process of learning English” and dual language learners (DLL students), “a child who is learning a second language while continuing to develop his/her home language” (<http://www.colorincolorado.org/ell-basics/ell-glossary>) are some of the common terms used. I combine EL and DLL definitions (and other related terms like bilingual, multilingual, emergent bilingual etc.) and refer to all students as DLLs given that the young children in this study have the potential to be bilingual and biliterate at a young age and are most typically referred to as DLL in the early childhood literature.

stronger early mathematics, language, and pre-literacy development in preschool among a sample of 4-year-old predominately African American and White students. It is important to examine these skills for Spanish-English DLL students given their growing numbers in schools. In addition, prior research demonstrates that the social development in young children is culturally situated (Weisner, Gallimore, & Jordan, 1988). Cultural activities and expectations, for example, vary across cultural communities and may have implications to children's interactions and developmental changes (LeVine et al., 1994; Weisner et al., 1988) especially for young students that are navigating school settings with two languages. Halle et al.'s (2014) review of 14 peer-reviewed studies spanning from 2000 to 2011, with the majority of studies (79%) focused on Spanish-speaking DLLs and preschool or prekindergarten and kindergarten aged, found that young DLL students' self-regulation, social competence, social cognition, and problem behaviors is comparable to or better than monolingual English speakers. Similar results were noted by Kim, Lambert, & Burt (2018) who found that DLL groups (i.e., 4-year-old preschool emergent bilingual children, bilingual children, and heritage language speakers from predominately Spanish speaking homes) showed higher social-emotional scores in regulating their own emotions and behaviors, establishing and sustaining positive relationships, and participating cooperatively and constructively (*GOLD* by Teaching Strategies items, Heroman, Burts, Berke, & Bickart, 2010) compared to non-DLL students.

Recent studies that have begun to explore the links between individual and interpersonal skills on DLL students' language outcomes (e.g., Bohlmann et al., 2015; Kim, Curby, & Winsler, 2014; Piker, 2013). For instance, Bohlmann and colleagues (2015) found that Spanish-English DLL student gains in self-regulation (i.e., compliance and executive control-effortful control in focusing attention to conflicting stimuli) in the spring of preschool made larger gains in

expressive vocabulary (i.e., word knowledge of different objects) during the fall of the subsequent academic year of preschool or kindergarten. This may not come as a surprise given that language learning is a “socially embedded process that takes place within families, cultural communities, and other social institutions” (National Academies of Sciences, Engineering, and Medicine, 2017, p. 35). For instance, children that initiate and maintain positive peer and teacher relationships “feel more positive about school, participate in school more, and achieve more than children who are not described this way” (Denham, 2007, p.4). This relationship is especially important to examine because DLL students who, for example, are often or almost always making friends may be using language more frequently than other students who rarely make friends easily and/or act lonely and may miss out on language learning opportunities throughout the day. This is uniquely important among DLL students as they represent a diverse group of students with numerous language proficiencies, cultures, and ethnicities who must negotiate and navigate their interactions with other students. This study aims to better understand these associations by examining a large sample of kindergarten-aged Spanish-English DLL students and the relationship between their fall social skills and behaviors—including cooperation, engagement, self-control, externalizing behavior (i.e., verbally and physically aggressive, failing to control temper, and arguing) and internalizing behavior (i.e., feeling anxious, sad, and lonely; exhibiting poor self-esteem)—and their spring expressive vocabulary knowledge.

### **Literature review**

Next, literature on the social-emotional dimensions that are relevant to this study (i.e., *self-regulation, social competence, and problem behaviors*) and their relationship to several academic and social outcomes is reviewed. Then, a review of what is currently known about the expressive vocabulary of DLL students and its relationship with social-emotional learning is

synthesized. This review focuses on the development of these skills, behaviors, and outcomes of preschool/pre-kindergarten and kindergarten aged students given that these early stages are considered to be a fundamental period of children’s academic and social development and future success (e.g., Camilli, Vargas, Ryan, and Barnett, 2010). Preschool/pre-kindergarten and kindergarten are generally thought to be foundational years in which students have their initial exposure and experiences in formal care and education.

## **DLL Students’ Social-Emotional Abilities**

### ***Self-regulation***

The early education years significantly involve rules and routines that children must learn to follow. Young children as early as four-years-old are evaluated by teachers on their self-regulation skills, that is, how well they control emotions and behaviors and focus their attention (Denham et al., 2012; Rimm-Kaufman et al., 2009). Self-regulation is an important skill to acquire given its associations with development across several domains, including academic achievement, and related to language development (Bailey & Heritage, 2018; Lonigan, Allan, Goodrich, Farrington, & Phillips, 2017). Han (2010), for example, examined Latino children social-emotional trajectories from kindergarten to fifth grade, taking into consideration children’s language proficiency, using the Early Childhood Longitudinal Study — Kindergarten Cohort (ECLS-K). Results from her study indicate that fluent and non-English dominant DLLs had faster rates of growth in self-control than White, English monolingual children by spring of first grade and continuing to achieve higher rates of self-control through spring of fifth grade (p. 727). In contrast, in a recent study by Guirguis and Antigua (2017), four-year-old non-DLL students were found to perform better on self-regulation tasks of both impulse control and cognitive regulation than DLL students. This study’s sample size, however, was relatively small

(63) and included only one assessment measure of self-regulation (i.e., the Preschool Self-Regulation Assessment (PSRA)). White & Greenfield (2017) examined executive functioning (EF)-cognitive skills that monitor and control thoughts and behaviors that predict social-emotional competence-of 303 bilingual preschool children and monolingual children attending Miami-Dade County Head Start programs using six tasks that measured cognitive inhibition, working memory, and cognitive flexibility. They found that Latino Spanish-English bilingual children had higher EF skills than African American monolingual English children. Thus, it appears from White and Greenfield's (2017) study that DLL students' executive function, which has implications for social-emotional competences like self-regulation skills, may show an advantage even at an early age and has implications for DLL students' self-regulation.

### ***Social competence***

Children's social interaction and relationships with peers and teachers begin to form as they begin schooling. Similar to self-regulation, social competence, that is, building and maintaining relationships (Fabes, Gaertner, & Popp, 2006) are important given that they are associated with helping children develop academic, cognitive, and social-emotional competencies in the early school years (Birch & Ladd, 1998; Burchinal et al., 2008; Mashburn et al., 2008; Rimm-Kaufman et al., 2009). Yet these past studies have commonly focused on the development and links with predominately White, English-speaking students. Many of the few current research that focus on DLL students take a qualitative approach which allows researchers to immerse themselves in participants' lives and observe the relationships and behaviors that unfold amongst DLL students. For example, Piker (2013) observed four DLL student interactions with peers during free play twice a week for one academic year and found that Spanish-English-speaking children's play interactions with their peers enabled them to develop

social relationships with both their Spanish-speaking and English-speaking peers. A recent in-depth multiple case study found similar findings amongst Korean-English DLL students. Kim (2017) found that DLL students continuously negotiated their languages to determine which language was appropriate to use in diverse social contexts. For instance, a child in the study spoke to his peers privately about his new color pens in English but switched to Korean when he spoke about it in public given that the official language at the Korean Language School is Korean. These findings suggest that dual-language learning is not a linear process but a complex decision-making process that must take account of the social setting and social relationships. This should give DLL students a boost in their social competence skills at an early age and be related to theory of mind or perspective taking. Although qualitative studies have many advantages, measuring social relationships quantitatively will allow for generalizable findings.

### ***Problem behaviors***

As DLL students begin schooling, their internalizing and externalizing problem behaviors are important to identify as they have implications to teachers' and children's mutual interactive behaviors (Roorda, Koomen, Spilt, Thijs, & Oort, 2013) and academic outcomes (Hagan-Burke et al., 2011). Numerous investigations have concluded that externalizing and internalizing problem behaviors were associated with poor academic outcomes (Nelson, Benner, Lane, & Smith, 2004; Nelson, Benner, Neill, & Stage, 2006; Harris, Oakes, Lane, & Rutherford, 2009). Han (2010) study showed that for fluent and non-English dominant bilingual children, teachers rated them as having the lowest levels of internalizing and externalizing problem behaviors consistently from kindergarten to fifth grade. The results from this study show that "bilingualism might provide some benefits to socioemotional well-being" (p. 731). A more recent study by Hagan-Burke and colleagues (2016) examined DLL students' problem behaviors

in two Texas school districts with dual language programs. Ratings of children’s problem behaviors, using the *SSIS-T Problem Behavior Scale* (Gresham & Elliott, 2008), found that DLL students’ problem behavior scores fell within the “average” range for children aged 3 to 5 that the *SSIS Rating System Manual* reports as “average” (Gresham & Elliott, 2008; Hagan-Burke et al., 2016).

### **DLL Students’ Expressive Vocabulary Development**

Young DLL students’ early education years are also a time when vocabulary skills develop that are critical for early literacy development and their overall school success in later years (Davidson, Hammer, & Lawrence, 2011; Hammer, Lawrence, & Miccio, 2007; Jackson, Schatschneider, Leacox, Schuele, & Davison, 2014; NICHD Early Child Care Research Network, ECCRN, 2005). Expressive vocabulary begins to develop as early as infancy (Hoff, 2013) and continues well into the preschool years (Farkas & Beron, 2004). A recent study examined the simultaneous development of English and Spanish vocabulary in a sample of 177 DLL preschool students and found that they made gains in both languages but more so in English than Spanish (Maier, Bohlmann, & Palacios, 2016). The differences in English and Spanish scores may be due to various factors that have been examined in previous research, including time of exposure and parent’s socio-economic status (Bohman, Bedore, Peña, Mendez-Perez, & Gillam, 2010), amount of exposure of each language (Thordardottir, 2011), and language exposure at home (Pendergast, Bingham, & Patton-Terry, 2015). This finding is consistent with that of Lewis, Sandilos, Hammer, Sawyer, and Méndez (2016) which found that DLL preschoolers’ Spanish expressive vocabulary was supported by exposure to and use of Spanish at home.

## **DLL Students' Social-Emotional Abilities and Vocabulary Outcomes**

Given that both social-emotional competencies and language develop simultaneously in the early childhood years, researchers have begun to examine the relationship between social-emotional abilities and expressive vocabulary in DLL students' development. According to Kim, Curby, & Winsler (2014), social and behavioral skills in kindergarten were important predictors of DLL students' English proficiency from kindergarten to 5<sup>th</sup> grade. For instance, DLL students with better social skills scores showed higher initial English proficiency in Kindergarten compared to peers with lower social scores. However, students with behavioral concerns reported by teachers (with externalizing behaviors being more prominent) showed steeper growth in English proficiency over time. While this study focused on social and behavioral skills, others have examined the related impact of self-regulation on language outcomes. This is particularly important given the foundational role that self-regulation plays in children's emotional, behavioral, and social wellbeing (Rosanbalm & Murray, 2017). Lonigan, Allan, Goodrich, Farrington, & Phillips (2017) found that self-regulation, specifically inhibitory control, at the beginning of the participating students' preschool year was associated with academic outcomes at the end of their preschool year for both monolingual English-speaking children and Spanish-speaking language minority children. While the field of social-emotional development and relationships have identified the role of language as predictors of social-emotional skills, the initial social-emotional changes that happen as students begin school can have implications in how students interact and use language across school settings.

*Self-regulation and vocabulary outcomes:* Prior studies have found positive associations between early regulatory skills and concurrent and later vocabulary levels (Bohlmann et al., 2015; Raver et al., 2011; Sektman, McClelland, Acock, & Morrison, 2010). Bohlmann and



colleagues' (2015) study findings provide preliminary evidence for a bidirectional relation between self-regulation and English expressive vocabulary skills during preschool among DLL students. Student gains in self-regulation, compliance and executive control, in the spring of preschool (Time 2) made larger gains in expressive vocabulary during the fall of the subsequent academic year (Time 3) in the child's second year of preschool or kindergarten. The inverse relationship was also found. However, they did not detect these bidirectional relationships in the fall of preschool (Time 1) with the spring (Time 2) and the following fall (Time 3). The authors note that "self-regulation may be particularly important earlier in the preschool period for the acquisition and development of vocabulary skills" (p. 1106). It is still unclear if degree of competence in two languages, or language in general, played a role in these findings. It is a gain to students that needs to be explored further given the importance placed on students learning more than one language to build autonomous language learning throughout the day and not be dependent on teachers (Bailey & Heritage, 2018). This study examined this reciprocal relationship with additional social-emotional variables as predictors (i.e., social competence and problem behaviors) on expressive vocabulary outcomes.

***Social competence and vocabulary outcomes:*** A qualitative study by Piker (2013) investigated the influence of play on English language learning of DLL students and found that the four focal children in the study more often played with Spanish-speaking peers than English-speaking peers and used Spanish to communicate with Spanish-speaking peers. As a result, the children had few opportunities to develop their English expressive language. Most of their interactions with their English-speaking peers did not seem to support the children's English language. In fact, the English-speaking children's response to the Spanish-speaking focal child during these social settings determined whether the interaction supported second language

learning. For example, one of the four focal children that was observed, David, played with both Spanish and English-speaking friends during a Free Play event. In one instance, David asked his friend in English to cut a picture from a magazine, but his friend didn't respond. According to Piker (2013), the misunderstanding limited the boys in sustaining the play conversation. Other research has highlighted the importance of social pretend play which gives children opportunities to “negotiate, share, help, cooperate, compromise, and collaborate in interactions with other children” (Spivak & Howes, 2011, p. 16). This study aimed to determine more generally whether in fact social relationships had an impact on vocabulary outcomes.

***Problem behaviors and vocabulary outcomes:*** Like the previous two constructs, to date, little research has explored the relationship between problem behaviors and vocabulary outcomes within DLL students. A recent study by Hagan-Burke et al. (2016) examined the associations between expressive vocabulary and problem behaviors among 138 DLL students in preschool programs. They found that expressive vocabulary was a statistically significant predictor of internalizing problem behaviors. This study examines the reverse relationship; that is, to what extent do problem behaviors predict expressive vocabulary since there is less research.

### **Theoretical Framework**

This study is guided by Bronfenbrenner's bioecological theory (Bronfenbrenner & Morris, 2006) and Vygotsky's sociocultural theory (Rogoff, 2003; Vygotsky, 1978). Bioecological systems theory posits that development is influenced by different environmental systems (e.g., schools and community) whereas sociocultural theory states that development is influenced directly by social interactions. Human development is nested within these macro and micro systems. From a young age, children learn social and language processes in the home that are inevitably influenced from larger outside institutions. Consequently, children begin

schooling with a set of social and language repertoires that develop as they make sense of their individual and expanded group interactions. For example, a child that is surrounded by a relatively positive home environment with little disagreement and confrontations will have to learn how to react and manage interactions with, for example, sad, angry, peers in a new environment. Using both theories will provide a comprehensive picture about the factors that influence Spanish-English DLL students' development. For this study, the classroom experiences and teacher appraisals of social skills of students are necessary to understand their vocabulary outcomes.

### **Study Aims**

The purpose of this quantitative correlational exploratory study was to understand the relationship between fall teacher rated social-emotional abilities and spring vocabulary outcomes for kindergarten DLL students across a representative sample of elementary schools in California. The independent variable, social-emotional abilities, is defined as children's competency to initiate and maintain relationships (i.e., cooperation, engagement, self-control) and manage internalizing and externalizing behaviors. The dependent variable, expressive vocabulary, is defined as the words that a child can produce by speaking, namely, children's understanding and production of words for people, objects, and actions. This is a relevant relationship to examine given language learning is influenced directly by social interactions with others (Rogoff, 2003; Vygotsky, 1978).

### **Research Questions:**

- 1) What are the relationships between teacher-rated social-emotional abilities and the English and Spanish expressive vocabularies of kindergarten DLL students?

- 2) Do teacher-rated social-emotional abilities of kindergarten DLL students in the fall predict their English and Spanish expressive vocabulary outcomes in the spring?

## **Methods**

### **Data Source**

Data for this study were collected by the American Institutes for Research (AIR) for the Study of California's Transitional Kindergarten (TK) Program. In total, 20 California school districts, 168 elementary schools, and over 6,000 students participated in the study during the 2014-15 (Cohort 1) and 2015-16 (Cohort 2) school years<sup>2</sup>. The participating school districts in the study are largely representative of California's districts in terms of urbanicity and district size, with both urban and smaller rural districts intentionally included (Manship et al., 2017). The demographic characteristics of the participating students in the study are also comparable to California kindergarten population in terms of gender, race/ethnicity, free or reduced-price lunch eligibility, English learner status, special education, and parental education (Manship et al., 2017).

### **Participants**

The TK study had district, school and student level inclusion criteria to ensure a representative sample size. First, five district level inclusion criteria were applied, which included, that the district be “a regular school districts (i.e., one not run by a county office of education)” and “that the school be in operation 2013-14” (Manship et al., 2017, p. 60). The other three inclusion criteria were specific to TK student enrollment. Districts were sampled by

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<sup>2</sup> Cohort 1 is made up of children whom entered kindergarten in the 2014-15 school year, with half eligible for TK in the year before (it included children born between October 2 and December 2) and half whom were not eligible (it included children born between December 3 and February 2). Cohort 2 is made up of children whom entered kindergarten in 2015-16, again, with approximately half having been eligible for TK and half not been eligible for TK the prior year.

urbanicity and proportion of EL students which totaled to 94 districts. These 94 districts were assigned a random number and were selected and invited to participate in the study beginning with the smallest random number and working up to the highest random number. Schools were randomly selected within large-sized participating districts and all schools that had TK classrooms within small to medium sized participating districts were invited to participate.

To select the participants for this study, DLL status was determined using parent survey data about languages spoken in the home. If parents indicated in the survey that their child spoke English and Spanish, they were considered Spanish-English speaking DLL students. English only and other DLL students were excluded from this study given that the original study did not administer assessments for students that spoke a language other than English and/or Spanish<sup>3</sup>.

The *preLAS* ®2000 oral language subtests *Simon Says* and *Art Show* (Duncan, De Avila, & CTB Macmillan/McGraw-Hill, 1998) were administered to each participating student as a screener to determine whether they had sufficient English proficiency to participate in assessments given in English. This is a norm-reference test for children ages 3-6. In this study, there is a range in proficiency, with some students rated as English proficient and fewer students rated as non-English proficient<sup>4</sup>. Over 50% of students in this study's sample were enrolled in large urban districts. The rest of the students are in medium and small sized school districts. In total, 1,955 students with a mean age of 5.76 years old ( $SD = .11$ ) were included in the sample. The students are 50% female and predominately Hispanic (88%) and free or reduced-priced lunch eligible (82%). More than half of the parents of participating students (51%) reported that their income

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<sup>3</sup> The only exception is the administration of The Head Toes Knees Shoulders (HTKS) task. This was administered in a few Asian languages to a few students.

<sup>4</sup> In this study, if children scored 12 or more correct out of 20 for the two *preLAS*®2000 subtests, they are considered English-proficient. Children who scored less than 12 out of 20 are considered non-English proficient.

level was at or below \$25,000 and that their education level was a high school diploma or GED or less (51%). 17% of parents have some college but no degree, 12% a technical or vocational certification or training, 4% an Associate's degree, 6% a Bachelor's degree, and 3% have a Master's degree, professional degree. This demographic information is also included in Table A1 of Appendix A.

## **Procedures**

A parent survey, child assessments, classroom observations, and teacher surveys were part of the TK study data collection procedure. In the process of obtaining consent from parents, they were asked to complete a paper survey asking six brief questions about their children and family. Parents received a small gift card incentive for returning the consent and parent survey, regardless of whether they chose to participate in the study. Survey of kindergarten teachers and direct assessments of students English and/or Spanish language, mathematics, executive function, and social-emotional abilities were administered in fall 2014 and spring 2015 for Cohort 1 and fall 2015 and spring 2016 for Cohort 2. Kindergarten teachers who had consented kindergarten students in their classrooms received two surveys. One survey asked about their classroom practices and the second asked them to rate the social skills and behaviors of participating students using items from the Social Skills Improvement System (SSIS) Rating Scales (Gresham & Elliott, 2008).

The study team sent teachers an e-mail invitation with a hyperlink to the online surveys. Teachers received a small gift card incentive to complete a survey for each student participating in the study (Manship et al., 2017). For the assessments, the *preLAS* ®2000 oral language subtests (Duncan, De Avila, & CTB Macmillan/McGraw-Hill, 1998) were first administered and

took assessors about five minutes to complete. If students scored less than 12 out of 20<sup>5</sup> correct in both oral language subtests and they spoke a language other than English and/or Spanish, as indicated by the parent survey, they were thanked and returned to class.

After the *preLAS* ®2000 (Duncan, De Avila, & CTB Macmillan/McGraw-Hill, 1998) was administered, trained assessors administered several English and/or Spanish assessment tasks<sup>6</sup> to participating students depending on their proficiency score (described below). To measure students' language and literacy skills, the *Clinical Evaluation of Language Fundamentals Preschool–2* (CELF-P2) Expressive Vocabulary subtest, *Clinical Evaluation of Language Fundamentals Preschool–2* (CELF-P2) Phonological Awareness subtest (Semel, Wiig, & Secord, 2004), and Woodcock-Johnson III Letter-Word Identification subtest were administered. The Woodcock-Johnson III Quantitative Concepts and Applied Problems subtests evaluated students' mathematical skills. Lastly, The Head Toes Knees Shoulders (HTKS) activity (Ponitz et al., 2009) tested students' executive function.

The assessments were held in a quiet setting in the students' schools by assessors with experience working with young children. All assessors attended in-person trainings and were tested to establish reliability on the measures. Assessors were also checked for reliability and accuracy at the beginning and midpoint of the data collection period (Manship et al., 2017). Interrater reliability was established by having two assessors score student responses, calculate the percentage of agreement between the two kindergarten cohorts, and debrief on scoring discrepancies. Assessors that did not establish reliability were scheduled for a second interrater

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<sup>5</sup> These thresholds are modeled after the Early Childhood Longitudinal Study, Birth Cohort--U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011) Restricted-Use Data File.

<sup>6</sup> Please see the Manship et al. (2017) study report on pg. 6 for details about administration of the English and Spanish assessments.

reliability check for their next scheduled assessments. Some of the study staff also visited a few sites during data collection to ensure assessors conducted assessments reliably and maintained positive rapport with school staff and children.

This study includes all eligible kindergarten students regardless of previous TK enrollment with information about the Spanish and English languages spoken by the child as reported in the parent survey, teachers report of students' social-emotional abilities from the fall 2014 and 2015 surveys and the English and Spanish *Clinical Evaluation of Language Fundamentals Preschool–2* (CELF-P2) Expressive Vocabulary subtest from the spring 2015 and 2016 child assessment data.

## **Measures**

***Teacher Report of Students' Social-Emotional Abilities.*** The SSIS Rating Scales (Gresham & Elliott, 2008) are a norm-reference tool for ages 3-18 that evaluates participating students' social-emotional competencies. Social-emotional abilities are operationalized in this study as cooperation, engagement, self-control, externalizing behavior, and internalizing behavior. Although this tool includes multiple subscales, only five subscales, for a total of 39 items, were selected to make this task less burdensome to teachers (Manship et al., 2017). Some of the items include “follow your directions, invites others to join in activities, starts conversations with peers, withdraws from others, fights with others, acts lonely” (Gresham & Elliott, 2008). The teachers rated each item using a 4-point Likert scale of (1) never, (2) seldom, (3) often, (4) almost always. Table B1 in Appendix B provides information about each subscale. This measure is scored using the mean rating across items (Range: 1-4) for each subscale. The reliability coefficient (alpha) ranges from .79 to .89 across the subscales (Tourangeau et al., 2012).



*Expressive Vocabulary Assessment.* The CELF-P2 (Semel, Wiig, & Secord, 2004) is a criterion-referenced test that assesses language skills for ages 5-21 and validated on diverse samples. This study used the spring 2015 and spring 2016 CELF-P2 English Expressive Vocabulary and Spanish Vocabulario Expresivo subtests to measure students' English and Spanish expressive vocabulary<sup>7</sup>, that is, the words that a child can produce by speaking. This assessment asked students to identify and label people and objects as well as actions. Assessors scored the student's responses, giving either full or partial credit based on whether the student said exact target words or something similar (Manship et al., 2017). The English expressive vocabulary (EV) assessment was discontinued once the student missed seven consecutive items and the Spanish EV assessment was discontinued once the student missed five consecutive items to determine the student's upper bound on the assessment. This assessment uses raw scores, namely, sum of items correct (Range: 0-40). The reliability coefficient (alpha) for this subtest is .94 (Semel, Wiig, & Secord, 2004).

### **Data Analytic Plan**

First, descriptive statistics were conducted to describe several characteristics common to the entire sample including measures of central tendency (i.e., the mean) and variability (i.e., standard deviations) (Mertens, 2015). Partial correlations were run to describe the strength and direction of the relations between/amongst the independent and outcome variables, controlling for gender. Lastly, linear mixed models were conducted in IBM SPSS ® Statistics. Mixed models represent the relationships between fall 2014 and 2015 teacher rated social-emotional abilities on language outcomes in the spring 2015 and 2016, controlling for districts to account

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<sup>7</sup> The Spanish is a parallel edition and not a translation of CELF-P2  
<https://www.pearsonclinical.com/language/products/100000167/celf-preschool-2-spanish.html#tab-details>

for variance. To test whether the effects of expressive vocabulary on social-emotional abilities were modulated through gender, the effects of this interaction with each of the five social-emotional variables—cooperation, engagement, self-control, and internalizing and externalizing behaviors were examined. Intraclass correlation coefficients (ICCs) was reported for each model to capture the similarity of the responses in the expressive vocabulary outcomes within a district. This was calculated as a ratio of group-level error variance over the total error variance (West, Welch, & Galecki, 2015). ICCs for expressive vocabulary and the social and emotional variables suggest the impact of district-level clustering. The ICCs range from .08 to .09 (See Appendix C for the values of each predictor). This indicates that between 8% to 9% of the total variation in expressive vocabulary outcomes can be accounted for by which district each student is part of. These findings are similar to the ICC estimations conducted for previous educational achievement studies (Hedges & Hedberg, 2007; Hale et al., 2014).

### **Data Diagnostics**

Skewness and kurtosis values were examined to test for multicollinearity. No values exceeded the 2.0 critical value for skewness nor the 7.0 critical value for kurtosis (George & Mallery, 2010). In addition, no extreme values in the data set were detected. Bivariate correlation tested for linearity. Significant correlations indicated linearity, which meets the linear assumption. A plot of standardized residuals confirmed no violation of homoscedasticity.

The power analysis program, G\*Power (Faul, Erdfelder, Lang, & Buchner, 2007) was used to conduct a post hoc power analysis. *F* tests from the test family and a linear multiple regression fixed model test with  $R^2$  deviation from zero for statistical test were selected. Input

parameters included  $\alpha = .05$ ,  $N=1671^8$ , 5 predictors, and  $R^2=.5$ . A large effect size and large sample size yielded a power value of 1.0, indicating ample power to test the effects of the variables of interest.

## Results

### Descriptive Statistics and Correlations

Descriptive statistics and correlations can be found in Table 1. All social-emotional variables were positively correlated with one another. Cooperation and self-control ( $r=.76$ ,  $p < .01$ ), cooperation and externalizing behavior ( $r=.71$ ,  $p < .01$ ), and engagement and self-control ( $r=.73$ ,  $p < .01$ ) indicated significantly and moderately high positive relationships. Overall, social-emotional variables were significantly and positively correlated with English EV, but not Spanish EV<sup>9</sup>. Stronger associations were observed between engagement and English EV ( $r=.19$ ,  $p < .01$ ) and between cooperation and English EV ( $r=.12$ ,  $p < .01$ ). It is interesting to note that the correlation between English EV and Spanish EV was low ( $r=.15$ ,  $p < .01$ ).

Table 1  
*Correlations and Descriptive Statistics for Fall Social-Emotional Ratings and Spring Language Outcomes*

Variable	1	2	3	4	5	6	7
1. Cooperation							
2. Engagement	.68**						

<sup>8</sup> There were 284 missing cases from the original sample of 1955. The missing data are missing at random. These patterns were analyzed using the SPSS multiple imputation command.

<sup>9</sup> Although the correlations between fall social-emotional abilities and spring Spanish EV outcomes were small and not significant, a linear mixed model was conducted to (1) test the significant main effects of social-emotional variables (i.e., engagement, cooperation, self-control, internalizing behavior, externalizing behavior) on Spanish expressive vocabulary and (2) the interactions between the social-emotional variables and gender. There were no significant main effects of social-emotional variables and no significant interactions between any of the social-emotional variables and gender and therefore the results were not included in the sections that follow. A possible hypothesis for this finding is that the SSIS measure is designed for teachers to rate the frequency of the behavior over the course of a certain amount of time and it is possible that teachers didn't distinguish behaviors across language settings.

3. Externalizing Behavior	.71**	.46**					
4. Internalizing Behavior	.40**	.56**	.51**				
5. Self-Control	.76**	.73**	.68**	.45**			
6. English EV	.12**	.19**	.05*	.11**	.11**		
7. Spanish EV	.01	.05	-.03	.04	.02	.15**	
<i>M</i>	3.33	3.37	3.65	3.71	3.29	21.45	22.01
<i>SD</i>	.65	.56	.45	.40	.64	7.02	8.57

*Note.* Cooperation, Engagement, Externalizing Behavior, and Internalizing Behavior scores range from 1-4: (1) never, (2) seldom, (3) often, (4) almost always. Externalizing behavior and internalizing behavior are reverse coded so that higher imply fewer problem behaviors.

English EV raw scores can range from 0-40, with 0 being low and 40 being high.

Spanish EV raw scores can range from 0-36, with 0 being low and 36 being high.

Cooperation  $N=1608$ , engagement  $N=1594$ , externalizing behavior  $N=1606$ , internalizing behavior  $N=1603$ , self-control  $N=1594$ , English EV  $N=1865$ , Spanish EV  $N=1759$ . There were 516 cases missing data which accounts for 26% of the 1955 original sample. The missing data are missing at random and not included in this analysis. These patterns of missing values were analyzed using the SPSS multiple imputation command.

\*\*  $p < 0.01$ . \*  $p < 0.05$ .

## Linear Mixed Models

### *English Expressive Vocabulary*

The main effects of social-emotional indicators (i.e., engagement, cooperation, self-control, internalizing behavior, externalizing behavior) on English expressive vocabulary were both positive and significant (see Appendix C). For instance, the estimated fixed effects of engagement in the fall on expressive vocabulary in the spring were positive (2.88) and significant ( $p < .01$ ), suggesting that students with higher engagement ratings in the fall of their kindergarten year had a higher predicted gain in expressive vocabulary achievement in the spring of kindergarten, after adjusting for the effects of the covariate (i.e., gender). That is, students with better social-emotional ratings by teachers in the fall had high expressive vocabulary scores in the spring, as compared with those with lower teacher ratings. Better social-emotional functioning in the fall predicted higher expressive vocabulary scores in the spring assessment. There were, however, no significant interaction effects between social-emotional variables and

gender. This suggests that the effect of gender on social and emotional variables does not tend to differ.

### **Discussion**

Young Spanish-English DLL students comprise a growing number of today's student population. DLL students are exposed to diverse cultural and language experiences at a young age, either at the home with multilingual parents, siblings, caregivers or in multilingual early education programs that differ from those of their monolingual peers which very likely influence their social and emotional behavior as they navigate academic settings. In turn, this may have implications to their own language development as children navigate their relationships with others. The current exploratory study aimed to understand if teacher-rated social-emotional indicators in the fall were related to kindergarten age students' English and Spanish vocabulary outcomes in the spring. Teacher ratings of individual students' social interactions and behaviors are advantageous for several reasons including the amount of time they spend observing teacher-student and student-student interactions in both educational and social settings compared to parents, for example. In addition, teachers have many students in their classrooms that can serve as a reference group as they rate individual students.

The current study explores the relationship between social and emotional indicators and expressive vocabulary. Findings support previous research such that social skills and behavior and expressive vocabulary are positively correlated. However, this was only the case with English vocabulary and not Spanish vocabulary outcomes. Further analysis revealed that students with higher engagement, cooperation, self-control and lower internalizing behavior and externalizing behavior ratings in the fall of their kindergarten year had higher predicted gains in English expressive vocabulary achievement in the spring of kindergarten, after adjusting for the

effects of the covariate (i.e., gender). Overall then, the results are consistent with previous research that has found that students with better social skills scores and self-regulation show English language proficiency and expressive vocabulary outcomes in Kindergarten (g., Bohlmann et al., 2015; Kim et al., 2014). It may not come as a surprise that working well with others as well as initiating conversations, joining activities, and interacting with peers reap benefits for English vocabulary outcomes given the need to use language to develop these skills.

In contrast, gains in social and emotional behaviors were not associated with higher Spanish vocabulary outcomes revealing some additional insights. To date, there is limited research that has examined Spanish vocabulary outcomes within English-Spanish DLL young students. Although there is no information about students' degree of bilingualism, most of the DLL students in this study sample passed the *preLAS* subtests which might suggest that students in the study are relatively proficient English speakers. This might help explain some of the differing results between the English and Spanish vocabulary outcomes. For example, language of instruction, quality of instruction, and exposure to and usage of Spanish at home, which are all important factors for DLL student's language development, were not explored in this current study. It would be informative to further explore the associations between social skills and behaviors with the Spanish language outcomes of DLL students while considering the language and quality of instruction across classrooms.

### **Limitations**

The present study uses a teacher survey to understand students' social skills and behaviors. While survey method is commonly used in the field of educational research, it is important to recognize that social-emotional behaviors can be dynamic across contexts even within the time frame that teachers were asked to consider as they filled out their responses. A

student can experience a range of internal and external behaviors across time and space that might make it difficult for teachers to separate out differences. In addition, the students that the teachers have in their classroom and may serve as a reference group is dependent upon the classroom composition, for example, ethnicity, gender, class size, which may impact the nature and range of language proficiencies of the students a teacher is comparing (e.g., Garcia, Sulik, & Obradović, 2019). Relatedly, teacher characteristics and their interactions with and feelings about individual students have important implications (Mashburn et al., 2008; Spivak & Howes, 2011) that this study did not explore.

Another limitation is that the current study examines only student level predictors and outcomes. There is a need for further analytic work on the data set, such as understanding classroom characteristics and teacher practices given that young children spend most of the time in a classroom. Prior research has found links between classroom characteristics and teacher practices and DLL students' social and emotional outcomes. Downer and colleagues (2012), for instance, found that the quality of emotional support (e.g., positive climate, teacher sensitivity) and classroom organization (e.g., behavior management, productivity) provided by pre-kindergarten teachers were related to gains in DLL students' social abilities (e.g., participation in class discussions) across the year. However, the quality of classroom organization was also negatively related to DLL students' problem behaviors. Other evidence has also revealed the importance of language of instruction. For example, DLL students that are instructed in their native language have demonstrated growth in their native, Spanish-language abilities and make progress to close the achievement gap in their English language abilities (Rodriguez, Duran, Diaz, & Espinosa, 1995; Thomas & Collier, 2003).

More research is needed to determine other teacher practices, including the amount of time in which the instruction is conducted in a non-English language and the amount and quality of support that teachers provide to students with different language abilities, in relation to DLL students' social and emotional competencies.

### **Conclusion**

The findings of the current study show important associations between students' social skills and behaviors on English vocabulary outcomes. Despite the differing vocabulary outcomes between Spanish and English, these findings can inform practitioners about the importance of observing social interactions and emotional expressions in a range of language learning contexts. For instance, teachers can make efforts to monitor children who feel sad and lonely, which are students that typically receive less attention in the classroom, and similarly have received less attention in research (Christensen, Young, & Marchant, 2007) and see how their language develops across different language learning settings. Improving the understanding of school factors' influence on language and literacy skills development amongst DLL students are important given the continued need to better understand their long-term academic successes.



Appendix A

Table A1  
*Demographic Characteristics of Students and their Families*

	%	Total <i>N=1955<sup>a</sup></i> <i>n</i>
<b>Gender</b>		
Male	50%	969
Female	50%	986
<b>Race/Ethnicity</b>		
African American	0.2%	4
Asian	1%	10
Hispanic	88%	1716
Native American	1%	21
Pacific Islander	0.1%	2
White	6%	123
Other	1%	24
Students with disabilities	4%	73
Free or reduced-price lunch eligibility	82%	1611
<b>Household income</b>		
\$0 to \$25,000	51%	1005
\$25,001 to \$50,000	27%	518
\$50,001 to \$75,000	7%	143
\$75,001 to \$100,000	3%	59
\$100,001 to \$125,000	1%	24
\$125,001 or more	2%	42
<b>Parental education</b>		
Less than high school diploma	21%	400
A high school diploma or GED	30%	595
Some college but no degree	17%	334

Completed a technical or vocational certification or training	12%	231
Associate's degree	4%	84
Bachelor's degree	6%	117
Master's degree, professional degree	3%	58

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*Note.* <sup>a</sup> There are a few missing cases. The missing variables range from 10 to 164 and are missing at random. These patterns were analyzed using the SPSS multiple imputation command.

Appendix B

Table B1  
*Teacher-rated Social Skills and Problem Behaviors*

<b>SSIS Measure</b>	<b>Skill</b>
<b>Social Skills</b>	
Cooperation	Helping others, sharing materials, and complying with rules and directions.
Engagement	Joining activities in progress and inviting others to join, initiating conversations, making friends, and interacting well with others.
Self-control	Responding appropriately to conflict (e.g., disagreeing and teasing) and non-conflict situations (taking turns and compromising).
<b>Competing Problem Behaviors</b>	
Externalizing Behavior	Being verbally and physically aggressive, failing to control temper, and arguing.
Internalizing Behavior	Feeling anxious, sad, and lonely; exhibiting poor self-esteem.

*Note.* Adapted from Manship et al. (2017).

Appendix C

Table C1  
*Fall Engagement Effects on Spring English Expressive Vocabulary*

Parameter	$\beta$	Std. Error	df	t	Sig	95% CI
Fixed Effects						
Intercept	11.72	1.58	487.18	7.42	.00**	[8.62, 14.82]
Engagement	2.88	.44	1524.47	6.62	.00**	[2.03, 3.74]
Female	2.37	2.13	1522.08	1.12	.27	[-1.80, 6.55]
Engagement x Female	-.77	.62	1521.77	-1.24	.22	[-1.99, .45]
Random Effects						
Residual	44.79	1.63			.00**	[41.71, 48.10]
Intercept (district)	4.55	2.44			.06	[1.59, 13.03]

Note. CI = confidence interval.

The binary variable female (0 = male, 1 = female) is treated as a continuous predictor variable in the analysis.

ICC= .09.

N=1573.

\*\*  $p < 0.01$ .

Table C2  
*Fall Cooperation Effects on Spring English Expressive Vocabulary*

Parameter	$\beta$	Std. Error	df	t	Sig	95% CI
Fixed Effects						
Intercept	16.00	1.33	298.02	12.07	.00**	[13.39, 18.61]
Cooperation	1.65	.37	1541.21	4.48	.00**	[-.93, 2.37]
Female	1.30	1.86	1531.12	.70	.48	[-2.34, 4.95]
Cooperation X Female	-.47	.55	1530.83	-.86	.39	[-1.54, .60]

Random Effects

Residual	46.07	1.67		.00**	[42.92, 49.46]
Intercept (district)	4.19	2.35		.08	[1.39, 12.61]

*Note.* CI = confidence interval.

The binary variable female (0 = male, 1 = female) is treated as a continuous predictor variable in the analysis.

ICC=.08.

N=1551.

\*\*  $p < 0.01$ .

Table C3

*Fall Self-Control Effects on Spring English Expressive Vocabulary*

Parameter	$\beta$	Std. Error	df	t	Sig	95% CI
<b>Fixed Effects</b>						
Intercept	16.46	1.34	301.71	12.24	.00**	[13.81, 19.11]
Self-Control	1.54	.38	1528.13	4.10	.00**	[.80, 2.28]
Female	1.04	1.86	1522.45	.56	.58	[-2.62, 4.70]
Self-Control x Female	-.40	.56	1522.06	-.72	.47	[-1.49, .69]
<b>Random Effects</b>						
Residual	46.09	1.68			.00**	[42.92, 49.50]
Intercept (district)	4.34	2.36			.07	[1.49, 12.61]

*Note.* CI = confidence interval.

The binary variable female (0 = male, 1 = female) is treated as a continuous predictor variable in the analysis.

ICC= .09.

N=1537.

\*\*  $p < 0.01$ .

Table C4

*Fall Externalizing Behavior Effects on Spring English Expressive Vocabulary*

Parameter	$\beta$	<i>Std. Error</i>	<i>df</i>	<i>t</i>	<i>Sig</i>	<i>95% CI</i>
Fixed Effects						
Intercept	17.06	1.95	895.84	8.74	.00**	[13.22, 20.89]
Externalizing Behavior	1.18	.52	1536.28	2.27	.02*	[-.16, 2.20]
Female	2.15	2.95	1530.99	.73	.47	[-3.64, 7.95]
Externalizing Behavior X Female	-.62	.80	1531.06	-.77	.44	[-2.19, .95]
Random Effects						
Residual	46.75	1.69			.00**	[43.54, 50.19]
Intercept (district)	3.81	2.21			.08	[1.22, 11.85]

*Note.* CI = confidence interval.

The binary variable female (0 = male, 1 = female) is treated as a continuous predictor variable in the analysis.

ICC = .08.

N = 1549.

\*\*  $p < 0.01$ . \*  $p < .05$ .

Table C5

*Fall Internalizing Behavior Effects on Spring English Expressive Vocabulary*

Parameter	$\beta$	<i>Std. Error</i>	<i>df</i>	<i>t</i>	<i>Sig</i>	<i>95% CI</i>
Fixed Effects						
Intercept	12.57	2.35	1132.51	5.35	.00**	[7.96, 17.18]
Internalizing Behavior	2.37	.61	1530.54	3.86	.00**	[1.164, 3.57]

Female	1.99	3.32	1532.71	.60	.55	[-4.52, 8.50]
Internalizing Behavior x Female	-.55	.89	1532.07	-.62	.53	[-2.30, 1.19]
Random Effects						
Residual	46.28	1.68			.00**	[43.10, 49.69]
Intercept (district)	4.03	2.28			.08	[1.33, 12.21]

*Note.* CI = confidence interval.

The binary variable female (0 = male, 1 = female) is treated as a continuous predictor variable in the analysis.

$N=1546$

ICC= .08.

\*\*  $p < 0.01$ .

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