A publication of the New York State Association for Bilingual Education

Journal of Multilingual Education Research

Volume 5 Article 3

2014

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Cover Page Footnote

ENDNOTES 1 The US Census uses the terms “Hispanic” and “Latino” interchangeably to refer to individuals of any race from “Mexican, Puerto Rican, Cuban, Central or South American, or some other Hispanic origin.” This study uses the terms interchangeably as well. 2 García, Kleifgen and Falchi (2008) coined the term “emergent bilinguals” to refer to individuals in the beginning stages of acquiring a second language. For this study, “emergent bilingual” (EB) is preferable to “English Language Learner” in that it acknowledges an individual’s existing skills and language practices rather than emphasize the language he/she is learning and consequently does not know. The choice of terms and descriptions for any group aptly conveys an underlying message; in that sense, choosing to use the term “emergent bilingual” is an acknowledgement of the strengths, skills, and potential of the young children featured in this study. ACKNOWLEDGEMENTS I would like to thank Project Launch and the evaluation team from the Westchester Institute for Human Development (WIHD) and the Westchester Children’s Association (WCA) for their partnership in collecting the EDI surveys. Also, I acknowledge and applaud the extraordinary efforts of the faculty and staff at “Harbor” who give generously of their time and effort on behalf of emergent bilinguals.

Ready for *La Escuela*: School Readiness and the Languages of Instruction in Kindergarten

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School readiness has captured our attention. Across the country, policymakers, politicians, advocates, educators, and community members are forging alliances to increase children's access to the kinds of early childhood experiences that will best prepare them for success in school. At the same time, census figures indicate that the child population in the United States is changing and young Latinos account for most of that change (O'Hare, 2011).

As a population, Latinos experience greater rates of poverty and other risk factors that adversely affect school readiness (Ackerman & Tazi, 2015). In addition, many Latino children enter kindergarten speaking little or no English (Gormley, 2008). Once in kindergarten, many Latinos encounter differences in the language or languages of instruction by virtue of their status as "English Language Learners."

The study described in this article looked at the patterns of school readiness on the *Early Development Instrument* (EDI) in one New York school district that offered both bilingual instruction (Transitional Bilingual Education and Dual Language) and English only to Spanish-speaking kindergartners. The EDI surveys kindergarten teachers' perceptions about children's school readiness for First Grade across five developmental domains. Children who received bilingual instruction in kindergarten (n=84) had higher ratings in three of the five developmental domains and were nearly four times more likely to be rated as *Very Ready for School* in four or more domains than the group that received English only instruction (n=74). All the children may have benefitted from attending kindergarten, but these findings suggest that bilingual instruction for Spanish-speaking children was a more effective approach to enhance their school readiness.

Keywords: Hispanics/Latinos, kindergarten, early childhood education, emergent bilinguals, Bilingual Education, Early Development Instrument (EDI), school readiness, New York State

There is growing consensus among policymakers that investing in early childhood education (ECE) can yield enormous returns. The potential to eradicate achievement gaps or intervene before gaps become intractable, promises cost savings and benefits, such as reduced dropout rates, retention rates, and rates of classification for special education (Wat, 2010). These benefits have great appeal as the country strives to make improvements in education that will equalize achievement across

diverse populations and also enhance our overall performance in global comparisons. Increasingly the discussion on ECE focuses on advancing school readiness over other typical programming for young children; that is, securing the kinds of early learning experiences that build the skills most associated with success in school (Snow, 2007). Thus, helping young children become better prepared before entering school is being recognized as an untapped source of *preventing* the problems with education confronting us as a nation (Doggett & Wat, 2010; Wat, 2010).

At the federal level, 500 million dollars were channeled to the states under the *Race to the Top - Early Learning Challenge* (RTT-ELC) initiative launched in 2011 for the creation of school readiness measures and systems that track outcomes for young children. To date, 20 states have been awarded an average of 50 million dollars each for this effort (U.S. Department of Education, 2013). While New York has not yet been awarded RTT-ELC funds, the Governor, Andrew Cuomo, recently pledged to support universal access to pre-kindergarten for New York's children to better prepare them for school (Craig & McKinley, 2014).

New York State is experiencing continued growth in racial, ethnic, socio-economic and linguistic diversity in school populations further complicating the efforts to enhance school readiness (Fortuny, Hernandez, & Chaudry, 2010). In New York, the child population is also linguistically diverse; in 2013, over 146,000 children ages 0 to 5 spoke languages other than English in their homes (State of New York, 2013) while the enrollment of "Limited English Proficient" children in half and full day kindergarten exceeded 24,000 (New York State Education Department, 2013). Clearly, preparing for the needs of the growing number of children who speak languages other than English is a prominent issue for the state. Since school readiness for these children may present unique challenges, exploring it becomes an essential step towards building their school success.

The study discussed in this article looks at rates of school readiness as measured by the *Early Development Instrument* (EDI) in one suburban New York community with a growing Spanish-speaking population. The EDI is a population measure of school readiness based on kindergarten teachers' ratings of their students in five developmental domains: Physical Health and Well-being, Social Competence, Emotional Maturity, Language and Cognitive Development, and Communication Skills and General Knowledge. The EDI is a useful tool for communities to gauge patterns of school readiness across developmental domains among diverse populations at a macro, community-wide level. Scores on the EDI enable comparisons between population groups and differing conditions. Using scores from the EDI, results for Spanish-speaking children were compared across two instructional approaches for kindergarten – bilingual versus English-only in exploring the following research questions: Is there an association between the languages of instruction in kindergarten and ratings on the five EDI domains of school readiness? In particular, what patterns of school readiness emerge for each instructional group?

The discussion highlights how school readiness before first grade may be enhanced for Spanish-speaking Latino children by providing them instruction in both English and in Spanish over the course of kindergarten. The kindergarten year is a

critical preparatory academic experience; any findings that suggest a means to fortify children's academic foundation can contribute significantly to the efforts to support this growing population. Positive findings can also influence the policies governing the availability of bilingual instruction for young children. Given these possibilities, exploring the associations between school readiness and the languages of instruction in kindergarten represents an important discussion at a time when much attention is being paid to early childhood education. The purpose of this study was to inform this discussion in an effort to contribute to improved conditions for Latino early learners.

I begin the discussion by describing the conditions confronting the growing number of Latino children in the United States. A review of the literature indicated that early experiences such as, increased rates of poverty, limited English proficiency and decreased preschool enrollment are factors associated with decreased rates of school readiness. The scholarly sources examined point to how bilingual instruction in the early grades is associated with particular gains that would benefit Latino children. I then compare the patterns of school readiness as measured by the EDI in one community where both bilingual instruction and English-only instruction was made available to young Latino children. The implications of finding higher ratings of school readiness for Latino children who were instructed bilingually are discussed.

Literature Review

Latinos – A Growing Population

To a great extent, the growing linguistic diversity in the states is driven by the increase in the number of Hispanics/Latinos[1]. In 2010 Hispanics accounted for 47% of the nation's immigrant population (U.S. Census Bureau News, 2010). In 2007-2008, New York was home to 8% of the nation's young children of immigrants; placing it in the top six states nationwide (Fortuny, Hernandez, & Chaudry, 2010). However, the overwhelming majority (93%) of Latino preschool children are born in the United States (Fry & Gonzales, 2008). The Latino population in the United States is largely Spanish-speaking; three out of four young Latino children live in homes where Spanish is spoken regularly (García & Jensen, 2009); these children enter schools as emergent bilinguals[2] (EBs).

Poverty levels for Latino children are disproportionately high (García & Jensen, 2009; Lopez & Velasco, 2011). Poverty in early childhood (versus later childhood or adolescence) has particular deleterious effects. The National Research Council Institute of Medicine includes in its report, *From Neurons to Neighborhoods:*

> Indeed, there is good evidence to suggest that the long-term prediction of academic achievement, school dropout, and even adult literacy from the socioeconomic status of one's family during the early childhood years is attributable to the effects of social class on early school achievement. (Shonkoff & Phillips, 2000, p. 159).

Latino children experience the highest levels of poverty among Latino youth; in 2009 the poverty rate for Hispanic children under age 5 was higher than for children ages 6 to 17 and, in every state in the nation, the poverty rate for Hispanics exceeded the poverty rate for all children combined (Children's Defense Fund, 2011). Sustained

increases in population coupled with persistent links to poverty, render Latino children particularly vulnerable to academic failure. As a group, Latinos are more likely to experience academic risk due to poverty than their white counterparts (García & Gonzales, 2006). This translates into decreased educational attainment over time and lower rates of college education; one in ten Latinos has a college degree, compared to one in four for whites (Gándara & Contreras, 2009).

Early Childhood Education and the Language of Instruction

The fact is that the number of children who speak little or no English at school entry is rapidly growing (U.S. Department of Education, 2014). However, although there is growing consensus on the benefits of early childhood education, in particular for poor minority children, there is little consistency across the country on how educational programs should be structured to meet children's needs (Yoshikawa et al., 2013). In particular, for Latino children who come from Spanish speaking homes and enter schools speaking little or no English, there is no organized approach across the country to structure their foundational experiences in school (García & Jensen, 2009).

This finding is puzzling in light of the available research-based knowledge on language and literacy development and promising instructional practices. For instance, there is a strong connection between language skills and the development of literacy skills (Dickinson & Neuman, 2006). In fact, of all the factors contributing to the acquisition of early literacy skills, strong vocabulary development was found to persist as a significant predictor of early success (Biemiller, 2006). The connection between vocabulary and reading success informs the emphasis on the development of oral language skills, particularly vocabulary, during the first years in school and warrants more investigation on the languages of instruction for children who speak little or no English as they start school.

A growing number of studies on instructional approaches in early childhood reveal benefits from teaching young children in their home language along with English particularly to advance early literacy skills. Burchinal, Field, Lopez, Howes, & Pianta (2012) found that Spanish language instruction was associated with better reading readiness for Spanish-speaking children. In an analysis of cross-linguistic transfer and emergent literacy, Gabriele, Troseth, Martohardjono and Otheguy (2009) report for bilingual Kindergartners receiving bilingual instruction in English and Spanish that syntactic comprehension in the L1 (Spanish) is a better predictor of reading readiness than syntactic comprehension in the L2 (English). Recognizing the link between oral language development and emergent literacy development, Hammer, Lawrence and Miccio (2007) found cross-linguistic transfer emanating from growth in Spanish oral language skills that predicted English early reading skills in kindergarten. Likewise, Bialystok (2007) found that for young bilinguals, vocabulary mastery in Spanish supports reading comprehension in English.

The longitudinal studies conducted by Collier and Thomas (2009) point to the efficacy of bilingual instruction to close achievement gaps over time particularly for emergent bilinguals living in poverty. Notably, in Rolstad, Mahoney and Glass' meta-analysis of comparison studies (2005), English-only instruction represented no advantage to emergent bilinguals. Similarly, Barnett, Yarosz, Thomas, Jung and Blanco

(2007) studied a preschool *Two-way Bilingual* (English/Spanish) and reported "stronger Spanish language gains at no expense to English language development" (p. 20). These studies suggest that bilingual instruction in the years before first grade may have cumulative benefits in addressing school readiness by combining the enrichment of early school experience with the efficacy of accessing background knowledge and building on existing strengths in the home language.

Generally, state pre-kindergarten policies do not address the language of instruction. While states may allow the use of bilingual instruction, there is no organized effort to increase access to bilingual instruction at the early childhood level. The most recent report from the National Institute for Early Education Research (Barnett et al., 2009) reviewed pre-kindergarten policies for young language learners in 2009 and listed those states that permit but do not require bilingual classes (AR, DE, GA, IL, KY, LA, MD, MI, MN, NB, NJ, NM, NY, OR, PA, SC, WA, and WI). In 2010 Illinois became the first state to require bilingual instruction be offered at the pre-kindergarten level as part of the regulations governing *English Language Learners* (Zehr, 2010); Texas was the second state to mandate bilingual instruction at the pre-kindergarten level when there are 20 or more children enrolled speaking the same home language (Texas Education Agency, 2012). The New York's Universal Pre-Kindergarten (UPK) guidelines, in effect now, do not address the language of instruction; regulations mandating bilingual instruction for emergent bilinguals begin at kindergarten entry (New York State Education Department, 2008).

There are several models of bilingual instruction for kindergarten children being implemented across the United States. Each is organized towards an ultimate academic goal for students ranging from providing introductory support in the home language to developing bilingualism and biliteracy. Transitional bilingual education (TBE) programs view the use of the home language as a temporary support in the early stages of English acquisition but maintain the goal of exiting children out of this type of instruction once they become proficient in English; Dual Language (DL) programs (also known as two-way immersion programs) maintain the use of two languages, English and a target language, throughout the duration of the program and typically combine a population of children who speak English at home with an equal number who speak the target language at home (García, 2009). Increased interest in *Dual Language* programs (Gándara, 2010), which give access to bilingual education to "English language learners" (ELL) as well as native English speakers, may signal a growing awareness that bilingualism and biliteracy are desirable goals for all children.

School Readiness

The *National Association for the Education of Young Children* (NAEYC) definition of school readiness of 1995 still stands today. They present school readiness as the combined conditions of children's overall competencies coupled with schools' preparedness to meet individual needs. Most importantly, NAEYC advocates for a multi-dimensional and age appropriate conceptualization of school readiness that appropriately weighs academics and places value on the dispositions and social-emotional competencies that young children need for healthy development (NAEYC, 1995). As a country we have intensified our focus on school readiness and it has

captured the public imagination; a survey by *Education Next* found that 60% of the public and 73% of teachers polled support government funded pre - kindergarten to enhance school readiness (Henderson & Peterson, 2013).

Children enter schools with an array of backgrounds, needs, abilities and resources that mirror the experiences in their first years of life. Children's preparation is dependent on what has been made available to them by their families and their communities. Latino children experience higher rates of adverse conditions that impact school readiness, such as high poverty levels, decreased rates of preschool enrollment, underemployment for the adults in the family, and limited parental education (Ackerman & Tazi, 2015). In terms of competencies children demonstrate at school entry, such as general knowledge, social skills, and emergent literacy skills, poverty is associated with lower rates of school readiness (Espinosa, 2010).

School readiness among Latino children is a critical issue in both movements for educational reform and social justice in diverse populations. In schools, comparisons of academic achievement across population sub groups predict a crisis for the educational trajectories of Latino students that begins with decreased school readiness. In the 2011 National Assessment of Educational Progress (NAEP) for reading, of the fourth-graders who scored below the 25th percentile (i.e., below a score of 200) 35% were Hispanic, 33% were White, 25% were Black, and 3% were Asian (National Center for Education Statistics. (2011b). Likewise, in the NAEP mathematics assessment among fourth-graders who scored below the 25th percentile (i.e., below a score of 222) in 2011, 34% were Hispanic, 31% were White, 28% were Black, and 2% were Asian (National Center for Education Statistics, 2011a). Similar gaps in achievement are evident long before fourth grade. Results from *The Early Childhood Longitudinal Study, Birth Cohort* (ECLS-B) reveal gaps in early reading and math skills for Latino children even as they enter kindergarten (Flanagan & McPhee, 2009). There is a need to interrupt cycles of underachievement by garnering any research-based academic programs and practices that may prevent or close gaps at the earliest opportunity; the school readiness of Latino children is an urgent matter.

Method

Study Context and Instructional Programs

In the spring of 2013, one suburban community of the New York metropolitan area was invited to participate in an EDI survey collection as part of a grant studying school readiness. In this study the community is pseudonymously called "Harbor." In conducting the study at Harbor, its ethnic, linguistic, and socioeconomic characteristics were considered. This district enrolled over 4,000 students in a town of approximately 29,000. According to the New York State Report Card for 2011-2012 (New York State Education Department, 2012), 74% of the population of the Harbor School District was Hispanic/Latino and school records indicated this group was predominantly from Mexico and Central American countries; 60% were eligible for free or reduced price lunch (a federal measure of poverty); and 26% district-wide were classified as ELLs. In the 2012-2013 academic year, there were 380 children registered in kindergarten. The mean age for kindergartners in the spring of 2013 was 5.8.

District-wide, there were 210 kindergarten students (63.1%) who spoke Spanish at home at Harbor. During the 2012-2013 academic year, the English proficiency of these children was assessed at kindergarten entry using the *Language Assessment Battery – Revised (LAB-R)* in accordance with the New York State regulations governing the education of English language learners (New York State Education Department, 2007). Of these children, 158 (75%) did not meet the criteria for English proficiency; these children constitute the sample of the study. Guidance from the New York State Department of Education indicates that, "Students who are identified as English proficient, must be placed in the general education program; those identified as ELL must be placed in a Bilingual Education or free-standing ESL program" (New York State Education Department, 2007, np). Following these regulations, the 158 Spanish-speaking emergent bilinguals who were not deemed English proficient on the LAB-R were placed in one of two types of programs: English-only instruction with *English as a Second Language* (ESL) support or bilingual instruction (either transitional bilingual education or dual language) distributed over the four elementary schools at Harbor. All schools offered ESL support but two schools offered bilingual programs – either *Transitional Bilingual Education* (TBE) or *Dual Language* (DL). Table 1 illustrates the distribution of emergent bilinguals across programs at the four elementary schools at Harbor.

Table 1
Emergent Bilinguals and Instructional Programs at Harbor Elementary Schools N = 158

	School A	School B	School C	School D
English Only with ESL Support	17.1% (27)	14.6% (23)	13.3% (21)	1.9% (3)
Transitional Bilingual	0	43% (68)	0	0
Dual Language	0	0	0	10.1% (16)
Total	27	91	21	19

The kindergarten curriculum at Harbor was uniformly implemented across all elementary schools. Utilizing a balanced literacy approach, curricular goals and assessments for reading and writing were the same for all four schools. Instruction in all subjects was organized around the *Common Core Learning Standards* (New York State Education Department, 2010). Expectations, benchmarks and summative assessments were also uniform across the schools and reported uniformly at year-end.

The bilingual programs (TBE and DL) were taught by bilingual teachers who controlled the allocation of languages. In the TBE program the children received Spanish language instruction with gradual introduction to English. While in September of the kindergarten year, instruction was offered mostly in Spanish, by January, instruction in the TBE classroom transitioned to mostly English with support in Spanish as needed. Use of the Spanish language by the children was always welcomed in the TBE classroom; although instruction was presented in English in the second half of the year, the children were free to ask questions or converse in Spanish to aid in comprehension and learning.

The DL program utilized a 50/50 model with a bilingual teacher who alternated the language of instruction (English or Spanish) in equal proportions on a weekly basis. Half of the children in the DL program spoke English exclusively at home while the other half spoke Spanish at home. The only children from the DL program featured in this study were the Spanish-speaking. The pattern of alternating language of instruction in the DL remained the same for the entire kindergarten year with Spanish language instruction occupying half of the instructional time.

Participants

There were 15 teachers serving 380 kindergarten children, most of whom were tenured after three or more years at the grade level. All teachers were certified in early childhood education. In addition, the five teachers teaching bilingually had New York State bilingual certification.

All parents were informed of the EDI survey collection and given the opportunity to opt out of participation. Of the 380 kindergarteners in Harbor school district, 333 (88%) were included in the EDI collection; 47 children in all were excluded because their parents opted not to participate or because the children had been in attendance at the school for less than one month which disqualified them for consideration according to the specifications on the EDI.

This study included all Spanish-speaking emergent bilinguals (as measured by the LAB-R in the kindergarten cohort (*N*=158) in the EDI collection. Two groups were created based on the instructional program the children received. The first was coded "any bilingual instruction" and included all children in both the *Transitional Bilingual Education* and the *Dual Language* group (*n*= 84) while the remaining group was identified as receiving "English only or monolingual instruction" with ESL support (*n*=74). Table 2 illustrates the demographic features of both groups. It is important to note that, in these characteristics, the two groups are comparable.

Table 2
Spanish-speaking Emergent Bilinguals in Two Instructional Groups N=158

	Any Bilingual Instruction *n*=84	English Only *n*=74
Boys	50.0% (42)	50.0% (37)
Girls	50.0% (42)	50.0% (37)
Children Living in Poverty	83.3% (70)	82.4% (61)
IEP -- Receiving Special Education Services	4.8% (4)	9.5 % (7)
Average Age	5.8	5.8

The configuration of instructional approaches (bilingual in Spanish and English or English-only instruction) available to young children in the Harbor school district

enabled a study particularly suited to explore school readiness for children who enter school speaking little or no English. Conducted in the spring of 2013, this study represents the school readiness of children attending kindergarten in the 2012-2013 academic year.

Instrument

For the purposes of the study the instrument used to assess school readiness was the Early Development Instrument (EDI): A Population-based Measure for Communities (Janus et al., 2007). This survey instrument captures community-wide patterns of school readiness across five developmental domains before children enter first grade. Developed nearly 20 years ago by researchers at the Offord Centre in Canada, the EDI has been used with nearly 200,000 Canadian children and has also become widely used throughout Australia. In the United States, the EDI has been used with nearly 18,000 children across different states since 1996 (Transforming Early Childhood Community Systems, 2011).

The EDI is a survey of 104 questions about a child's competencies and behaviors that are rated by the kindergarten teacher. When all kindergarten children in a given community are rated with the EDI, it is possible to make comparisons across differing populations of children based on demographic features such as race, ethnicity, socioeconomic status and home language. The EDI is designed to be collected every two or three years in order to capture or monitor improvements or changes in a community's patterns of school readiness.

This school readiness survey was developed "to provide communities with a feasible, acceptable and psychometrically reliable instrument that could be used for whole populations of children to monitor community efforts to improve early years' outcomes over time" (Janus & Offord, 2007, p. 12). The EDI has strong psychometric statistics for validity and reliability. Concurrent validity has been found generally moderate when comparing the EDI domains to similar domains tested with commonly used instruments in early childhood: *Peabody Picture Vocabulary Test,* the *Who Am I?* test, and the *First STEp* (Janus et al., 2007). Test and retest correlations were high (.82-.94) as was inter-rater reliability between children's teachers and their childcare providers (.53-.80; Janus & Offord, 2007).

Kindergarten teachers complete one EDI survey for each of their students once during the year. The survey contains 104 questions pertaining to a child's functioning and/or behavior. Teachers respond to specific questions with discrete Yes/No responses (e.g. "Do you believe this child has a special need?") or questions with Likert scales (e.g., "Very Good/Good, Average, and Poor/Very Poor"). All questions correspond to one of five developmental domains: *Physical Health & Well-being, Social Competence, Emotional Maturity, Language & Cognitive Development,* and *Communication Skills & General Knowledge*. Appendix A contains a description of each domain and the significance of scoring at the lower or higher extremes of the range. After completing the survey, responses are tallied in a 10 point scale for each developmental domain. From these calculations, the EDI rates school readiness from percentile cutoff scores established by the norming sample.

Scoring at the 75th percentile or higher indicates that a child is *Very Ready for School* whereas scoring at the 10th percentile or lower indicates that the child is *Vulnerable* at school entry. However, the EDI is not a diagnostic screening; it would not be used to rate the readiness of an individual child. Results from the EDI are not used to determine if an individual child needs academic intervention services or a referral for evaluation; instead, results are always interpreted in the aggregate as a population measure. This means that results would be used to look at the overall performance of population subgroups to identify patterns of school readiness for any demographic feature. For example, a question may be posed regarding gender and school readiness: How ready are boys compared to girls across developmental domains? A question may be posed regarding socio-economic status: In which domains do children living in poverty exhibit strength or vulnerability?

The EDI normative sample included children with diverse language backgrounds (including English, French, Punjabi, Spanish, and Cantonese). In order to test the reliability of the EDI for diverse language groups, scores from three groups were analyzed: a monolingual group that spoke the language of instruction (English); a bilingual group who spoke the language of instruction but also spoke another language at home; and a group of second language learners who only spoke the home language (Janus, Hughes, & Duku, 2010). Results indicated that

> The SSL [second language learner] group of children had consistently lower outcomes than the bilingual or language-control groups. For the language groups, however, the strong differences were only shown in the language and communication areas…The most common pattern was that bilingual children did better than the controls in the physical development, social, and sometimes emotional development, did as well in language and tended to do slightly worse in the communication areas (p. 4).

These researchers' analysis of the normative data suggested that bilingualism conferred some advantages in four of the five domains. In *Communication & General Knowledge* bilinguals performed *slightly worse* than monolingual children; this finding may be consistent with research indicating that bilingual children command a smaller vocabulary in each of their languages than monolingual children (Bialystok, 2009).

In this study, all the children were categorized as *English Language Learners* (*N*=158), however, one group was taught in two languages (the home language and English, *n*=84) while another was taught only in English (*n*=74). The Harbor School district offered limited access to bilingual instruction (TBE and Dual Language in English and Spanish) in kindergarten; a variable was created to link the instructional program (bilingual or English only) to the EDI collection making it possible to compare rates of school readiness for Spanish-speaking children based on the language or languages of instruction. Appendix A illustrates a detailed description of the developmental domains and the specific skills that form the EDI survey.

Procedure

Prior to data collection, 15 teachers were trained on completing the EDI survey. Substitutes were provided to enable kindergarten teachers to complete EDI surveys for all their students. The surveys were completed electronically at a password protected

website where teachers accessed an individual survey for each of their students. Teachers completed an average of 25 EDI surveys, one per student. In addition to the EDI questions, each survey was coded to indicate whether the student received bilingual (either TBE or Dual Language) instruction or monolingual (English only) instruction.

Results from all the EDI surveys were tallied and scores for each domain were calculated on a ten point scale, percentile cut-offs were identified. A variable was created indicating whether the child was rated as *very ready for school* by scoring at or above the 75th percentile in each domain. These initial calculations are all conducted by the Transforming Early Childhood Community Systems Center and returned to the investigator in a de-identified Excel dataset. All subsequent statistical analyses were conducted by the investigator using SPSS version 22.

For each domain, an independent samples *t*-test was conducted comparing the average scores across the two instructional groups using the Welch-Satterthwaite method (also called the unequal variance *t*-test) and making adjustments for the degrees of freedom. Ruxton (2016) recommends this approach arguing, "the unequal variance *t*-test performs as well as, or better than, the Student's *t*-test in terms of control of both Type I and Type II error rates whenever the underlying distributions are normal" (p. 688).

In each domain, distributions for both groups were sufficiently normal for the purposes of conducting a *t*-test; skew $<|2.0|$ and kurtosis $<|9.0|$ (Schmider, Ziegler, Danay, Beyer, & Bühner, 2010). Effect sizes were calculated using Cohen's *d* where .2, .5 and .8 are considered small, medium, and large, respectively (Cohen, 1992).

In addition to analyzing scores on each domain, a Chi-Square was conducted to compare across instructional programs, the frequency of meeting the 75th percentile (indicating being *very ready for school*) in four or more domains. This analysis did not identify which domains met the 75th percentile but rather that a child met four or more.

Results

In the *t* tests on each of the domains of the EDI, bilingual instruction was associated with statistically significant higher scores in the domains of *Social Competence, Language & Cognitive Development,* and *Communication Skills & General Knowledge.* Effect sizes were in the medium range. In two domains (*Physical Health & Well-being* and *Emotional Maturity)* both groups were rated comparably. Table 3 illustrates results from the *t* test.

Table 3
t Test on Domains of the EDI

	Bilingual Instructional Group *n* = 84		**Monolingual Instructional Group *n* = 74**					
EDI Domains of School Readiness	***M***	***SD***	***M***	***SD***	***t***	***df***	***p***	***d***
Physical Health & Well-being	8.71	0.96	8.75	1.31	-0.258	133	0.797	-0.04
Social Competence	8.27	1.87	7.12	2.12	3.579	147	0.000	0.57
Emotional Maturity	8.00	1.12	7.83	1.42	0.857	139	0.393	0.14
Language & Cognitive Development	9.25	1.17	8.30	1.69	4.052	127	0.000	0.65
Communication Skills & General Knowledge	6.73	2.85	5.51	2.78	2.720	154	0.007	0.43

A Chi-square analysis was conducted on the variable meeting the 75th percentile (being *very ready for school*) in four or more domains to compare overall school readiness ratings between the two instructional groups (Table 4). A significant association was found between meeting the 75th percentile in four or more domains and being instructed bilingually X^2 (1, n =158) = 4.79, p = .03.

Table 4
Chi-square Test on being "Very Ready for School" on 4 or more Domains of the EDI

Very Ready on 4 or More Domains		**Bilingual Instructional Group *n*= 84**	**Monolingual Instructional Group *n*=74**	**Total**
Yes	Count	12	3	15
	Expected	8	7	15
No	Count	72	71	143
	Expected	76	67	143
	Count	84	74	158
Total	Expected	84	74	158

The emergent bilinguals who received bilingual instruction in kindergarten were nearly four times (3.9) more likely to rate as *very ready for school* in four or more (out of five) domains of school readiness than those children who received English-only instruction.

In summary, bilingual instruction was associated with statistically significant higher scores in three out of five domains of the EDI and a greater rate of being *very*

ready for school in four or more domains with scores meeting the 75th percentile. English-only instruction was not associated with any statistically significant difference or advantage.

Discussion

Scoring comparably in *Physical Health & Well-being* is a reminder of the typical kindergartner. Entirely dependent on their families and communities for early preparatory experiences, scores in this domain may be indicative of what is available to children at Harbor in the years before kindergarten. These children are neighbors sharing in many of the same resources such as a health clinic, parks, and a library. As a group with high rates of poverty, they may have common experiences with overcrowded homes or substandard conditions that can impact health or typical motor skills such as holding pencils or scissors, running and climbing, and physical stamina and coordination. Likewise, in the domain of *Emotional Maturity,* we are reminded that the children are all five years old. This domain rates qualities such as impulse control and empathy. Both groups performed comparably in this domain.

In the domains of *Social Competence; Language & Cognitive Development* and *Communication Skills & General Knowledge,* this study has uncovered enhancements to school readiness associated with bilingual instruction in kindergarten. Children who were bilingually instructed were viewed by their teachers as more socially competent, better able to navigate their environment already in the very first exposure to their peers and public life. In the domain of *Language & Cognitive Development,* children who were bilingually instructed were rated as more interested and prepared for early academic skills such as literacy and numeracy. Teachers' ratings in this domain specifically address a child's capacity to understand and write words and simple sentences as well as recognize numbers and shapes. These are critical skills to develop in kindergarten; in fact, much of kindergarten instruction is organized around these early academic skills. Perhaps experiencing no disruption between prior knowledge or vocabulary in the home language and new concepts presented in school, the best conditions were created for their academic skills to flourish. This mirrors Hammer, Lawrence and Miccio (2007) findings of cross-linguistic influences in early literacy skills among bilingual children; they found that language development in either language predicted literacy skills in the other.

Higher ratings in *Communication Skills & General Knowledge* for the children who were bilingually instructed point to greater use of language and facility in expressing their ideas. This finding is in contrast to Janus, Hughes, and Duku (2010) who found that bilingual children "tended to do slightly worse in the communication areas" (p. 4). It is important to note that in this study all the children are emergent bilinguals. It is the language of instruction that differs in the comparison. So it is bilingual *instruction* that is associated with the difference in ratings. In the bilingual school environment, children had access to their entire linguistic repertoire – vocabulary in both languages, self-expression in both languages – their teachers may have been better able to observe and build on the kinds of oral language skills that form the basis of academic language.

The children who were bilingually instructed were also nearly four times (3.9) more likely to score at or above the 75th percentile in four or more domains. Scoring in

the 75th percentile or higher in any domains indicates being *very ready for school*. Since all five domains are inter-related and overlapping, this finding suggests that the advantages garnered from bilingual instruction can become generalized across developmental domains. For example, the environment that promotes greater expressive language for the bilingual child will enhance academic learning but could promote that child's social competence as well since language is an integral aspect of these domains of school readiness. Greater social competence may then lead to more positive reinforcement with school peers or teachers, and so on. This novel finding warrants more study as it suggests that multiple competencies inherent in the current conceptualization of school readiness are potentially enhanced with bilingual instruction in kindergarten.

Limitations

This study utilized the EDI as it is intended, as a population measure of school readiness. The EDI enables comparisons for population groups such as the Spanish-speaking emergent bilinguals in this sample. Aggregating this group and analyzing their scores as one sub-population in a community provides a unique and useful macro level perspective. However, such an analysis does not, by design, consider individual conditions at the four Harbor schools. While all the schools share significant elements such as curriculum, assessment, teacher qualifications, and professional development, it is difficult to know how they might differ and how that difference might reflect in teachers' ratings of their students. Likewise, bilingual programs were offered in only two of the four schools. It is unknown to what extent this is the result of advocacy by administrators or teachers who are more appreciative of bilingual education. It is simply the district's design.

The study also aggregates two types of bilingual programs – transitional and dual language. This approach considers the use of the home language, in this case Spanish, as a common denominator for comparisons. The children were all exposed to Spanish language instruction for at least 50 percent of the instructional time by the spring of kindergarten when EDI data were collected. While the ultimate goals of these programs may be different, and children will transition out of transitional bilingual education program but not from the dual language one, their connection is the use of the home language in kindergarten. Here too, the unique nature of the EDI as a population measure facilitates broader comparisons at the aggregate level.

Although careful attention was paid to selecting a sample of Spanish-speaking English language learners whose experience in kindergarten differed only in the languages of instruction, there are no baseline data indicating what strengths or weaknesses the children exhibited when they first began in school. Instead, Table 2 served to illustrate some demographic features of the sample suggesting common experiences and comparability of the sample.

Results from the EDI have been used throughout Australia (Centre for Community Child Health and Telethon Institute for Child Health Research, 2009) to galvanize communities to invest in the services or resources that best prepare young children for school. Its utility for the United States in uncovering large scale patterns of school readiness among diverse populations and then responding to these patterns

with increased supports remains largely unexplored. Additionally, there are no known studies on the EDI which focus on Latino children in the United States. The common features of this population, such as home languages and increased rates of poverty, are surely elements that impact school readiness in other communities. A discussion on the results of this study is limited by the lack of comparable data from other communities that may add insights into what is taking place for Latino children in Harbor.

Implications

At a time when New York and the country look to preventing achievement gaps between diverse groups through universal access to early education, promising instructional approaches for the growing population of Spanish-speaking Latino children must be highlighted. The urgency to prevent achievement gaps through early childhood experiences that prepare young Latinos well for academic learning drives the search for effective pedagogy for this growing population. A finding that *bilingual* instruction during kindergarten is associated with teachers' ratings of greater school readiness for Spanish-speaking emergent bilinguals has great implications for all stakeholders.

The seminal studies on the lasting effects of early childhood education involve only English-speaking children (Barnett & Masse, 2007; Nores, Belfield, Barnett, & Schweinhart, 2005) not EBs. This is a significant gap in the research suggesting the urgency to explore the long-term effects of bilingual instruction in early childhood to ascertain in what ways the languages of instruction might change the trajectory of learning and academic outcomes for EBs. Instruments such as the EDI offer an unparalleled opportunity to assess patterns of school readiness across entire communities and then concentrate our advocacy on differentiated approaches for diverse populations such as EBs.

Communities and schools alike are responsible to create the conditions that best prepare children for school and for academic achievement; at a time when both the public and educators share in the desire to promote school readiness (Henderson & Peterson, 2013), we must also give our focus to bilingual instruction for young Latinos. The findings here suggest that we need to be advocating for bilingual instruction at the kindergarten level.

Conclusion

This study finds its place against a backdrop of multiple challenges. There is an urgency to equalize opportunities for children and improve their educational outcomes beginning with access to early childhood education. In New York State this has prompted an unprecedented expansion of pre-kindergarten programs. At the same time, there are large numbers of young children who enter school speaking little or no English. Planning for their instruction is another challenge. These multiple challenges can become forces at odds with the creation of bilingual instructional programs for young children. Yet, accepting that English-only instruction for young emergent bilinguals is at least better than none at all, disregards the possible gains garnered from bilingual instruction. A finding that young emergent bilinguals are nearly four times more likely to be *very ready for school* in four out of five developmental domains when

they are instructed bilingually in kindergarten suggests the need to explore this approach.

Policymakers and practitioners alike rely on numbers to validate their choices. In the case of investments in school readiness, these numbers must speak to greater potency, higher achievement, and more guarantees. This study offers a specific kind of validation: if we want to enhance the school readiness of a growing demographic that experiences multiple risk factors of poverty and limited English proficiency, we need to adopt an approach that builds on the efficacy of bilingual instruction as we expand access to early childhood programs. And insofar as we imperil the talent and achievement of our children when we are slow to act – the time is now.

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ACKNOWLEDGEMENTS

I would like to thank Project Launch, the evaluation team from the Westchester Institute for Human Development (WIHD), and the Westchester Children's Association (WCA) for their partnership in collecting the EDI surveys. Also, I acknowledge and applaud the extraordinary efforts of the faculty and staff at Harbor who give generously of their time and effort on behalf of emergent bilinguals at a time when budgets are tight and doing more with less is the new "normal."

Appendix A

Domains of the Early Development Instrument					
Domain	**Physical Health and Well-being**	**Social Competence**	**Emotional Maturity**	**Language and Cognitive Development**	**Communication Skills and General Knowledge**
Description	This domain includes gross and fine motor skills, holding a pencil, running on the playground, motor coordination, adequate energy levels for classroom activities, independence in looking after own needs, and daily living skills.	This domain includes curiosity about the world, eagerness to try new experiences, knowledge of standards of acceptable behavior in a public place, ability to control own behavior, appropriate respect for adult authority, cooperation with others, following rules, and ability to play and work with other children.	This domain includes the ability to reflect before acting, balance between too fearful and too impulsive, ability to deal with feelings at the age-appropriate level, and empathic response to other people's feelings.	This domain includes reading awareness, age-appropriate reading and writing skills, age-appropriate numeracy skills, board games, ability to understand similarities and differences, and ability to recite back specific pieces of information from memory.	This domain includes skills to communicate needs and wants in socially appropriate ways, symbolic use of language, storytelling, and age-appropriate knowledge about the life and world around them.
Performance	Children scoring in the lower range on this domain can generally be characterized as having average or poor fine and gross motor skills, as sometimes being tired or hungry, usually clumsy, with flagging energy levels, and average overall physical development. Children scoring in the higher range on this domain can generally be characterized as being physically ready to tackle a new day at school, generally independent, and as having excellent motor skills.	Children scoring in the lower range on this domain can generally be characterized as having poor overall social skills, with regular serious problems in more than one area of getting along with other children, accepting responsibility for own actions, following rules and class routines, respect for adults, children and other property, with self-confidence, self-control, adjustment to change, usually unable to work independently. Children scoring in the higher range on this domain can generally be characterized as never having a problem getting along, working, or playing with other children; are respectful to adults, self-confident, have no difficulty following class routines, and are capable of prosocial behaviour.	Children scoring in the lower range on this domain can generally be characterized as having regular problems managing aggressive behaviour, as being prone to disobedience, and/or easily distractible, inattentive, impulsive, usually unable to show helping behaviour towards other children, and who are sometime upset when left by a caregiver. Children scoring in the higher range on this domain can generally be characterized as almost never having shown aggressive, anxious or impulsive behaviour; as having a good ability to concentrate, and are often helping other children.	Children scoring in the lower range on this domain can generally be characterized as having problems in both reading/writing and numeracy, unable to read and write simple words; uninterested in trying, and often unable to attach sounds to letters, have difficulty remembering things, counting to 20, recognizing and comparing numbers, and are usually not interested in numbers. Children scoring in the higher range on this domain can generally be characterized as being interested in books, reading and writing, and rudimentary math, capable of reading and writing simple sentences and complex words, able to count and recognize numbers and geometric shapes.	Children scoring in the lower range on this domain can generally be characterized as having poor communication skills and articulation, limited command of English, having difficulties in talking to others, understanding and being understood, and have poor general knowledge. Children scoring in the higher range on this domain can generally be characterized as having excellent communication skills, can tell a story and communicate with both children and adults, have no problem with articulation.
Number of Items Pertaining to this Domain	13	26	30	26	8

Sources: Janus & Duku, 2007 p. 384; Mothercraft Community Data Group at http://www.mothercraft.ca/index.php?q=403#Physical

NOTES

[1] The U.S. Census Bureau uses the terms "Hispanic" and "Latino" interchangeably to refer to individuals of any race from "Mexican, Puerto Rican, Cuban, Central or South American, or some other Hispanic origin." This study uses the terms interchangeably as well.

[2] García, Kleifgen and Falchi (2008) coined the term "emergent bilinguals" to refer to individuals in the beginning stages of acquiring a second language. For this study, "emergent bilingual" (EB) is preferable to "English Language Learner" in that it acknowledges an individual's existing skills and language practices rather than emphasize the language he/she is learning and consequently *does not know.* The choice of terms and descriptions for any group aptly conveys an underlying message; in that sense, choosing to use the term "emergent bilingual" is an acknowledgement of the strengths, skills, and potential of the young children featured in this study.