



The connection between drama, language and cognition in preschool dual language learners (DLLs)

By Dr. Lama K. Farran
Communication Sciences and Disorders
University of West Georgia
lfarran@westga.edu

Dr. Diana Mindrila
Educational Research
University of West Georgia
dmindril@westga.edu

This study examined the connection between drama, language, and cognition in 61 preschool Latino children. Parents and teachers completed surveys and observations of children's behaviors. Results showed that parent home language use and observations of their children's behaviors following drama exposure were related to children's cognition. Recommendations for practice and future research are presented.

Keywords: Home Language Use; Language; Dual Language Learners; Latino; Drama; Cognition; Teacher Report

The demographic and linguistic landscapes are changing at an incredibly rapid rate in the United States schools with many students whose first home language (L1) is not English. Current estimates indicate a dramatic increase in the number of public school students who are dual language learners (DLLs) from 8.7 percent or approximately 4.1

million students in 2002-2003 to 9.2 percent, or approximately 4.4 million students in the 2012-2013 academic year (National Center for Education Statistics, 2015). Similarly, the state of Georgia has also witnessed an increase in DLLs ages 0-8 years, with numbers tripling between 1990 and 2012. This increase has posed new challenges for educational programs to build their capacity so that they are better equipped to properly meet the needs of linguistically and culturally diverse populations.

Related to this demographic shift is the parallel increase in young children's enrollment in preschools and early childcare centers, which has been associated with academic and cognitive gains, especially in language, literacy, and math (Magnuson, Lahaie, & Waldfogel, 2006). Despite this trend, Latino children and children of immigrants enroll at a lower rate compared to children of nonimmigrants (Turney & Kao; 2009), which is unfortunate when considering that Latino children are more likely to perform poorly upon school entry compared to their same age peers by an estimated three years in academic and social-emotional domains (Center for Early Care and Education Research, Dual Language Learners 2011).

While the specific mechanisms for the low performance of Latino children remain unclear, the available evidence suggests a confluence of multiple risk factors may be at play for Latino children compared to other groups, especially for those who are DLLs. These include parents' low income and low literacy levels, and the low status of the Spanish language in the US.

Against this background, research also suggests that bilingualism may confer a cognitive and linguistic advantage brought about by learning two languages simultaneously (Bialystok, 2001). Young Latino children who enroll in bilingual programs

may thus be especially at an advantage for cognitive and linguistic gains, potentially offsetting the impact of parents' low SES and low literacy levels. Specifically, bilingual children who are exposed to their home language (L1) in early childhood tend to demonstrate higher language performance in their second language (L2) and better cognitive skills upon their preschool or elementary school entry compared to bilingual children who do not experience early exposure to their L1 (August & Shanahan, 2008; Hammer, Davison, Lawrence, & Miccio, 2009; Páez, Tabors, & Lopez, 2007). Similarly, bilingual programs that expose young children to drama have been proven to be beneficial to children's future academic and cognitive outcomes (Diamond, Barnett, Thomas, & Munro, 2007).

The facilitative effect of home language use on cognitive skills of bilinguals has been attributed to the increased cognitive demands brought about by learning and managing two or more languages simultaneously—a well-established finding in research on bilingualism (Bialystok, 2001; Gold, Kim, Johnson, Kryscio, & Smith, 2013; Marian & Shook, 2012). In a recent study, Leon Guerrero, Smith, and Luk (2016) examined the relation between home language use and cognition in preschool children and found interactions between proportions of Spanish language use, chronological age, and performance on a cognitive control task. Results indicate that the consistent use of home language moderates the development of cognitive control in preschool children. These findings bolster the importance of maintaining home language as a foundation for L1 and L2 language learning and cognition.

Similar findings were also reported by the Center for Early Care and Education Research- Dual Language Learners (2014) attesting to the bilingual advantage being

evident as early as the first year of life. Specifically, bilingual infants showed an advantage over monolingual infants in executive function, namely inhibitory control tasks (e.g., tasks that require selectively attending to competing options and the ability to suppress interfering information). These findings seem to suggest that mere exposure to two languages and not necessarily spoken language competence, impacts cognitive skills positively. Moreover, research on early development shows that bilingual infants demonstrate superior prerequisite skills to theory of mind and executive control tasks (e.g., emotional control and attention shift) irrespective of the home language (s) to which infants are exposed (Carlson & Meltzoff, 2008). When compared to monolinguals, bilingual children also experience their languages concurrently, and this experience tends to enhance functional plasticity and induce changes in brain organization that differs significantly from that of monolinguals' (Conboy & Kuhl, 2011). Finally, bilingual children have been shown to outperform their monolingual counterparts on metalinguistic awareness tasks, namely syntactic and morphological awareness tasks (Davidson, Raschke, & Pervez, 2010).

Clearly, the evidence that supports the bilingual advantage in young children is well established. There is now mounting evidence that links children's positive academic and developmental outcomes to drama. Studies that rely on caregiver (parent, teacher) report and direct assessment of participants (teachers, children) show that drama integration positively affects multiple domains, including language (e.g., vocabulary), cognition (e.g., self-regulation, executive function), social, and academic skills. We briefly present these findings next.

Greenfader and Brouillette (2013) examined the effect of the Teaching Artist Project (TAP), a professional development program that promotes K-1 classroom teachers' utilization of drama and creative movement, on children's language outcomes. Results indicate statistically significant benefits for Kindergarten children who participated in TAP as evidenced by their higher scores on standardized assessment (Listening and speaking subtests of the California English Language Development Test; CELDT).

In a study cast in Vygotskian theory, Elias and Berk (2002) tested the effect of drama on self-regulation skills, which are foundational to the development of relationships and language, including vocabulary in preschool children. The results reveal that the use of drama contributes significantly to the development of self-regulation and language, particularly vocabulary.

In another study that uses Vygotskian's theory, Diamond, Barnett, Thomas, and Munro (2007) examined the cognitive skills of preschool children, namely executive functions skills. Participants were 24 teachers and 147 preschoolers who were randomly assigned to either "Tools of the Mind" (an educational curriculum that fosters the development of executive skills especially self-regulation through dramatic play and movement) or a control curriculum. Teachers in the Tools curriculum spent 80% of their time training in executive functions using drama. Results reveal that children in the Tools group performed better than controls on all executive function measures after controlling for child age and gender, and their performance was predictive of children's future academic outcomes one year later.

Further support for the beneficial role of drama was reported by Kruger, Orton, and Bays (2003), who examined the effect of a drama professional development program on language and literacy outcomes of 452 DLL kindergarteners in six Title 1 schools, assigned to either treatment or control conditions. Teachers in the treatment group received professional learning workshops focusing on drama, while the control teachers received the state's standard arts curriculum. Post intervention results revealed that the drama group performed significantly better on measures of English oral language (vocabulary) and academic outcomes in language and cognition. The drama intervention was thus instrumental in promoting the educational outcomes of DLLs, as these do not always excel academically due to their limited command of English as a second language.

Given the reviewed studies pointing to the benefits of home language use and drama exposure, in this paper, we were interested in extending previous research to younger children in the preschool years, by examining the relationship between drama exposure, language, and cognition in a sample of preschool Latino DLLs.

Purpose

The purpose of this study is twofold. First the study seeks to examine the associations between parent home language use and teacher report of children's cognition in the context of the classroom. Second, this study explores the relationship between parent observation of their children's behaviors following drama exposure and teacher report of children's cognition in the preschool context. As such, this study aimed at answering the following research questions:

1. Is there a significant association between parent language use and children's cognitive skills (executive language skills) as measured by teacher Behavior Rating Inventory of Executive Function-Preschool (BRIEF-P) ratings?
2. Is there a significant association between parent observation of children's behaviors following their exposure to drama and children's cognitive skills (executive language skills) as measured by teacher BRIEF-P ratings?

Method

Participants were 61 parents and five general education teachers (four bilingual and one monolingual) of typically developing children who attended a preschool in the Metro Atlanta area (Saturday school 2 x per month August 2014- May 2015). Children were Latinos who came from predominantly low socioeconomic status (SES) backgrounds and their primary home language was Spanish. Parents and teachers participated in a bilingual preschool-wide program "Building Early Language and Literacy through Drama" as follows:

Parents/families component

Parents attended learning through the arts workshops at the preschool, in which teaching artists from a regional Arts Center in Atlanta demonstrated the use of drama strategies and how to infuse them in language and literacy learning and teaching. Throughout the workshops, parents received support from the teaching artists, who scaffolded parents' learning of drama strategies by modeling and encouraging role play on how to use objects to represent story characters, ask guiding questions, and visualize a setting by using body, voice, and imagination. Parents, with the assistance of bilingual parent coaches at the preschool, were asked to complete a paper survey

related to their experience with and endorsement of drama in their children's home language and literacy practices at home and school.

Teaching residency component

Preschool teachers participated in a residency component and attended 12 sessions (four units, each unit consisting of three sessions, and each session lasting approximately 45 minutes: 25-30 minute classroom sessions, each followed by a 10-15 minute discussion held at the preschool). The sessions were held approximately every three weeks and focused on teaching drama strategies. Teaching artists worked closely with inservice teachers to provide coaching and instructional models that facilitated (1) making connections between drama and curriculum content; and (2) highlighting the potential impact of those connections on student learning. This collaborative model between teaching artists and inservice teachers allowed the dyad to plan lessons with instructional strategies that targeted Common Core State Standards and Georgia Fine Art Standards, potentially benefiting students from standards-based instruction that incorporated drama-integration strategies and enhanced students' self-regulation and language skills. Inservice teachers were also provided with the opportunity to reflect upon and demonstrate new knowledge and understandings. Overall, the residency sessions focused on teaching preschool children bilingual drama lessons, which were delivered by the classroom teachers with help from teaching artists. The children also participated in bilingual drama workshops with their parents twice per year.

Measures

Parent Observation of Child Behavior Related to Drama Experience. Parents were asked to complete this checklist after they attended the drama workshops with

their children. The checklist was developed by the researcher based on published research studies on drama, language, and cognition (Diamond et al., 2007; Leon et al., 2016). Items were designed to include variables thought to play a key role in children's developmental outcomes across language, communication, and executive function (See Diamond et al., 2007; Elias and Berk, 2001). The checklist consists of 18 items that assess parent observation of child behavior in the areas of language (uses a combination of words and gestures to express wants and needs), communication (demonstrates or shows concern for others, uses words effectively with others), and executive function (e.g., changes routines and activities from one to the next without difficulty, and makes inferences and predicts what will happen next). This checklist was translated to Spanish, and then back-translated to English, and takes 8-10 minutes to complete. See Appendix I.

Parent Questionnaire. *Language Use and Literacy Practices* (adapted from Duursma et al., 2007), translated to Spanish, and back-translated to English. This questionnaire consists of 40 questions that assess parent input regarding home language use, parental help with language and literacy, parental education, parental home income, parental reading frequency, and literacy practices in the home. It uses a Likert scale (Language Use Scale items range from "Only Spanish", "Mainly in Spanish", "English & Spanish equally", "Mainly in English", and "only English". The Frequency of Language Use items ranged from "Prenatal", "Birth", "6 Months", "1 Year", "2 Years", and "3 Years".) This questionnaire takes 10 minutes to complete. See Appendix II.

Behavior Rating Inventory of Executive Function-Preschool Version (BRIEF-P), English and Spanish version (Gioia, Epsy, & Isquish, 2002). Teachers were asked to rate children's executive functions within the school's environment. Permission was obtained from the publisher to use this norm-referenced measure, which assesses multiple aspects of executive functioning such as Inhibit, Shift, Emotional Control, Working memory, and Plan/Organize. It takes 10 minutes to complete.

Parent Drama Experience Survey. This survey assesses the extent to which parents endorse their children's experience with drama. It is researcher-developed and uses a four-point likert scale (Strongly Disagree, Disagree, Agree, Strongly Agree). See Appendix III.

Data Analytic Plan

Descriptive Analysis. Descriptive statistics were computed to explore the distribution of parent and teacher responses on the two instruments. Parent reports of language use were summarized by computing the percentage of parents choosing each response option. This procedure showed the proportion of parents who started speaking to their child in Spanish and in English at each age level.

Teacher responses on the BRIEF-P were obtained for the following: (1) Inhibit, which assesses inhibitory control—the ability to inhibit impulses when needed or at the right time; (2) Shift, which assesses the ability to shift or move from one task or aspect of a task to another based upon contextual or situational demands; (3) Emotional Control (EC), which assesses the ability to control emotional regulation and control using executive function skills; (4) Working Memory (WM), which assesses the ability to

hold information in mind for the purpose of completing a task, encoding information, sustaining problem-solving, and following multistep instructions; (5) Plan/Organize (PO), which assesses the ability to plan, organize, and manage various tasks based upon the context in which they occur; (6) Inhibitory Self-Control Index (ISCI), which combines the Inhibit and Emotional control scales; (7) Flexibility Index (FI), which represents the ability to act flexibly in response to contextual demands, and is important requisite for behavioral regulation; (8) Emergent Metacognition Index (EMI), composed of the Working Memory and Plan/Organize scales, it assesses the ability to hold information and events in working memory, permitting better planning, organization, and problem-solving skills; and (9) Global Executive Composite (GEC), which reflects performance on all BRIEF-P scales. GEC is used as a summary score of children's current executive function skills.

The BRIEF-P teacher responses are measured using Inconsistency and Negativity scales, whereby a higher number indicates greater inconsistency or greater negativity. Likewise, the closer the number is to zero, the better the performance. For instance, the item "Becomes upset with new situations" is included in the Shift scale; a higher score on this item indicates difficulties moving freely from one situation to another (Sherman, & Brooks, 2010).

BRIEF-P scale scores are reported as T scores ($M=50$, $SD=10$). These standardized scores are norm referenced and should be interpreted in relation to the population mean and standard deviation. For instance, a score of $T=76$ on the Shift scale is in the 98th percentile and indicates significant difficulties with behavior and cognitive flexibility (Sherman, & Brooks, 2010). For the current sample, the distribution

of scale scores was investigated by computing the sample mean (M), standard deviation (SD), minimum (Min), and maximum (Max) value for each scale.

Correlational Analysis. Polyserial correlation coefficients were computed to estimate the degree of association between variables measuring parents' language use and BRIEF-P scale scores. These coefficients are used to estimate the degree of association between an ordinal variable and a continuous variable (Olsson, 1982) and take values between -1 and 1. Negative values indicate that higher values in one variable are associated with lower values in the other variable, while positive coefficients indicate that higher values in one variable are associated with higher values in the other variable (Olsson, 1982). Values closer to zero indicate a weak relationship, whereas coefficients that approach the values 1 or -1 indicate stronger associations between variables (Cohen, 1989). Coefficients were considered statistically significant when the corresponding probability (p) was lower than .05.

Results

Descriptive Analysis

Parent Language Use. Participating parents were asked to indicate the age when they began speaking to their child in Spanish and English respectively. The great majority of parents reported beginning to speak in Spanish to their children during the prenatal period or at birth and only few of the parents reported beginning to speak English in the first year of life. The great majority of the respondents began speaking English to their children after the age of one. The same pattern of responses was observed in both parents. Specifically, 78% of mothers and 76% of fathers began to speak to their child in Spanish before or at the child's birth. In contrast, 66% of the

mothers and 56% of the fathers began speaking English to their child only after the age of one (Figure 1 and Figure 2).

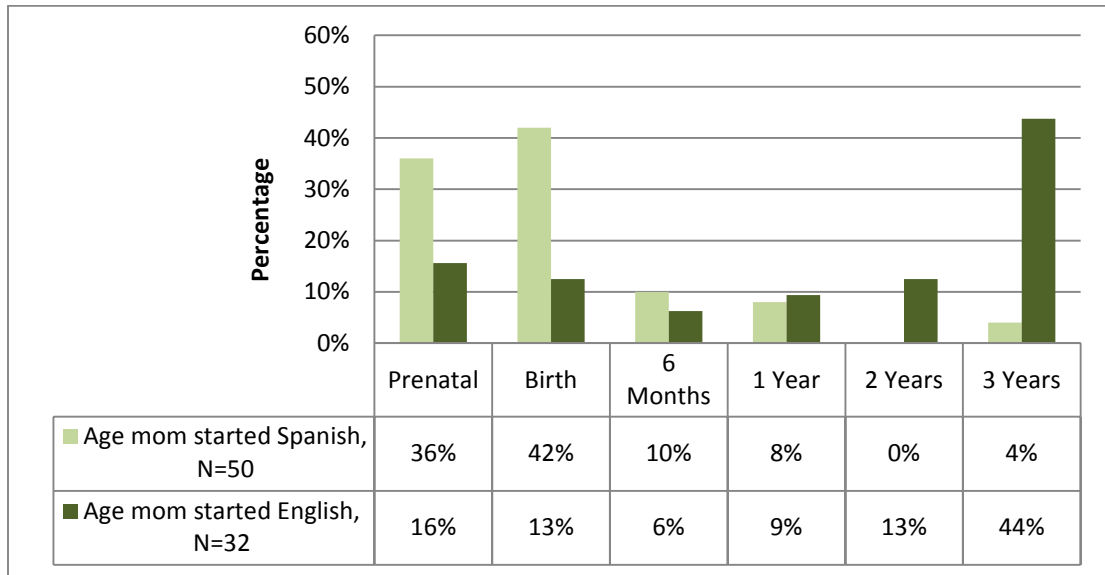


Figure 1. Proportion of mothers who began to speak to their child in Spanish/English by age

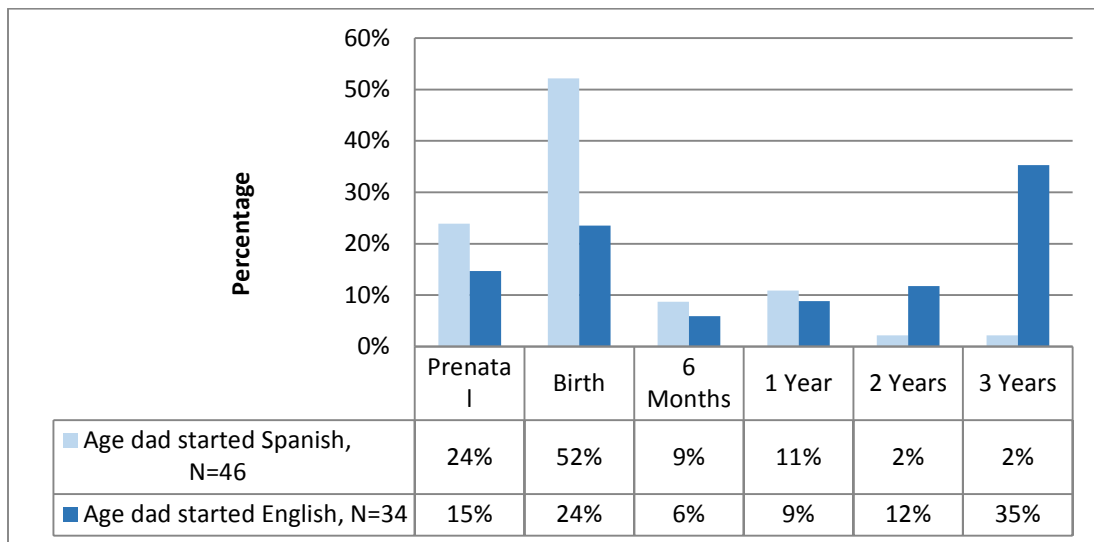


Figure 2. Proportion of fathers who began to speak to their child in Spanish/English by age

Teacher BRIEF-P Ratings. Average scale scores ranged between 44.81 for the Flexibility Index (FI) scale and 61.46 for the Working Memory (WMem) scale. The lowest score was recorded on the Plan/Organize (PO) scale (Min=28.0), while the largest score was recorded on the WMem scale (Max=103) (Table 1).

Table 1: *BRIEF-P Average Scale Scores*

	N	Min	Max	M	SD
Inhib	61	39.0	102.0	52.984	15.3183
Shift	61	18.0	82.0	48.230	11.2448
EmCont	61	19.0	88.0	46.590	12.0684
WMem	61	40.0	103.0	61.459	17.5780
PO	61	28.0	96.0	54.230	15.2899
ISCI	36	38	81	48.06	11.006
FI	36	37	73	44.81	7.441
EMI	36	39	98	57.14	18.037
GEC	36	37	162	54.61	23.281

Correlational Analysis

Correlational analysis revealed several significant associations between parents' language use and teacher BRIEF-P scale scores. For instance, as the age at which the mother started communicating with the child in Spanish increased, scores on the Shift, WMem, PO, and EMI also increased. Similarly, as the age at which the father started communicating with the child in Spanish increased, scores on the WMem scales also

increased. Nevertheless, the age at which parents started communicating in English with their child was not significantly associated with BRIEF-P scale scores (Table 2).

Table 2: *Correlations among Parent Language Use and Teacher BRIEF-P*

		Age mom started Spanish	Age mom started English	Age dad started Spanish	Age dad started English
Inhib	<i>r</i>	.268	.048	.002	-.277
	<i>p</i>	.060	.795	.989	.112
	N	50	32	46	34
Shift	<i>r</i>	.340*	.080	.156	-.114
	<i>p</i>	.016	.662	.300	.522
	N	50	32	46	34
EmCont	<i>r</i>	.243	.176	-.035	-.165
	<i>p</i>	.089	.335	.817	.350
	N	50	32	46	34
WMem	<i>r</i>	.474**	-.016	.305*	-.162
	<i>p</i>	.001	.932	.039	.360
	N	50	32	46	34

PO	<i>r</i>	.438**	.072	.315*	-.074
	<i>p</i>	.001	.694	.033	.675
	N	50	32	46	34
ISCI	<i>r</i>	.292	-.133	.124	-.282
	<i>p</i>	.111	.598	.531	.273
	N	31	18	28	17
FI	<i>r</i>	.328	.160	.100	-.024
	<i>p</i>	.071	.526	.612	.929
	N	31	18	28	17
EMI	<i>r</i>	.432*	-.127	.302	-.365
	<i>p</i>	.015	.614	.119	.150
	N	31	18	28	17
GEC	<i>r</i>	.267	-.299	.120	-.342
	<i>p</i>	.147	.228	.544	.179
	N	31	18	28	17

Note: *Correlation is significant at the 0.05 level

**Correlation is significant at the 0.01 level

Associations were also evident among parent observations of child behavior following drama exposure and teacher ratings of children's executive function skills.

Specifically, children’s ability to infer or predict an event was positively related to teacher BRIEF-P rating of children’s ability to inhibit a response, shift attention, and demonstrate higher emotional control (Table 2).

Of note, 58 out of 61 parents (approximately 95%) provided the highest likert scale rating of 4 (strongly agree), while the remaining three out of 61 parents (approximately 5%) provided a rating of 3 (agree) on the following questionnaire item that assessed parents’ endorsement of drama: “Using drama strategies in the home enhances my child’s thinking skills.” Although, this item was not included in the correlational analysis, the overwhelmingly high rating parents provided seems to reflect their positive attitudes and beliefs about using drama.

Table 3: *Correlation between parent observation of child behavior related to drama and teacher BRIEF-P*

		Routine	Infer/
		Change	Predict
Inhib	r	0.16	0.31*
	p	0.23	0.03
	N	55	53
Shift	r	0.36*	0.35*
	p	0.01	0.01
	N	55	53

EmCont	r	0.25	0.42*
	p	0.06	0.00
	N	55	53
PO	r	0.21	0.28*
	p	0.12	0.04
	N	55	53

Note. * Correlation is significant at the 0.05 level
 Inhib = Inhibit; EmCont = Emotional Control; PO = Plan/Organize

Discussion

The findings of this study show positive associations between parent report and teacher report related to Latino DLLs' language and cognitive outcomes. The first research question examined whether parent report of home language (Spanish) use was associated with teacher report of children's executive function skills. Results indicate a positive relationship between parents' early use of Spanish in the home and teacher report of executive function in the preschool context. Specifically, when mothers began speaking in Spanish with their children at a later age, ratings on the WMem, PO, and EMI scales were higher, indicating a poor performance. Similarly, when fathers began speaking in Spanish with their children at a later age, children received higher ratings on the WMem scale, which suggests a low performance. In contrast, the age at which parents began speaking in English with their child was not significantly related to teachers' ratings of the child on the BRIEF-P.

Findings thus highlight the paramount role of home language use in children's cognition (Center for Early Care and Education Research, 2014; Pérez et al., 2007). As

the results suggest, the parents' early use of Spanish in the home is related to teachers' report of children's higher cognitive skills, namely attention shift, working memory, planning/ organizational skills, and emergent metacognition. These findings are in line with previous research on the central role home language use plays in cognitive and linguistic outcomes of DLLs (Hammer et al., 2009; Páez et al., 2007).

The second research question explored whether parent observation of child behavior following drama exposure is related to children's executive function skills per teacher report. The results demonstrate positive associations between parent observations of children's ability to infer and predict future events, and children's executive function as measured by teacher BRIEF-P ratings, namely the ability to inhibit a response, shift attention, and demonstrate higher emotional control. Related to this finding, although not directly examined, 95% of parents reported that drama likely enhances their children's thinking skills, as shown through parent responses on the *Parent Drama Experience Survey*. These findings support previous research on the positive association between parent and teacher report measures of language and cognition, especially considering parents' high endorsement of drama experience, a well-substantiated finding in previous research (Diamond et al., 2007).

The use of home language in the early years may thus be associated with a cognitive advantage providing bilingual children with the resources needed for optimal school readiness particularly in the language domain (Magnuson et al., 2006). Moreover, using both parent and teacher report and obtaining data from multiple sources likely contributes to a better understanding of the variables that affect DLLs' outcomes in the preschool years. Based on parents' high rating on the drama survey,

the results suggest that infusing drama as part of language instruction in the preschool years may be associated with better cognitive outcomes in this sample of DLLs, although direct testing of the role of drama may be warranted in the future.

Recommendations for Practice

These findings suggest the need to provide the ideal context for language instruction with DLLs with focus on the following recommendations for practice:

1. Continuous support to implement strategies that capitalize on children's use of their first language (L1) (Goldenberg, Hicks, & Lit, 2012) and teaching basic language skills in children's L1 by eliciting help from community members and parents as needed. Teachers could also send home books in children's L1 to make language and literacy materials available and accessible to parents in their primary language, letting them know that teachers consider children's home language to be important.
2. Ongoing access to culturally relevant resources that facilitate infusing language input in children's L1 and L2, both of which are needed for academic success. This would require connecting classroom instruction to home language practices that aim at preserving DLLs' L1 and promoting their L2 development and maintenance;
3. Frequent communication between parents and teachers regarding the use of drama as an optimal channel to promote children's language learning. For example, using drama could prove beneficial in supporting young DLLs' cognitive growth in meaningful contexts (e.g., home, classroom).

4. Infusing drama across the curriculum to encourage children to express themselves and maximize their communicative success. Perhaps the most important (and least investigated) aspect of drama lies in providing a voice for DLLs who may not always succeed in communicating their thoughts and intentions when relying only on spoken language due to their limited command of English. Thus, drama could provide that extra tool or “illocutionary force” (Austin, 1962; Searle, 1969) for DLLs to communicate their intentions and engage in higher order thinking so they can succeed across the language, cognitive, and social domains.

Limitations

This study has several limitations. First, the study relied primarily on parent and teacher report measures of language, communication, and cognition. While such measures are important to use and have been found to be valid and reliable in previous research, they are highly susceptible to social desirability and must be coupled with direct assessment of children's behaviors. Second, the number of participants was small, which limited our options for data analysis. Thus, we used correlational analyses, which only indicate the degree to which two or more variables are related to each other; they do not imply causation. Lastly, we did not include results from the *Parent Drama Experience Survey* in the analyses due to the limited number of completed surveys. Rather, we simply used descriptive statistics to present parent responses to items directly related to the current study.

Implications

Teachers may implement drama into their practices to improve DLLs' language skills in first (L1) and second (L2) language. Teachers may also rely on preserving the home language and use it as foundation to build future cognitive and linguistic skills—a finding that has been well substantiated in previous research with DLLs (Bialystok, 2001; Farran, Bingham, & Matthews, 2014; Hammer et al., 2009).

While bilingual education has been particularly challenging to implement in certain states across the US (August & Shanahan, 2006; Center for Early Care and Education Research-Dual Language Learners, 2011a), the present findings, although preliminary, bolster the idea that changes in educational policy may very well begin in the classroom and with individual teachers of children who come from diverse linguistic and cultural backgrounds. The research evidence indicates that caregivers' (e.g. parents, teachers) reports likely reflect and shape their practices, thereby impacting young DLLs' academic, social, and cognitive outcomes, and ultimately driving systemic changes that determine the policies in early childhood education.

Future Directions

Given the preliminary results and limitations of the present study, we recommend that the connection between language use, drama, and cognition be measured in future research using (1) multiple assessments such as caregiver report and direct assessment of children's skills; (2) intervention research with random assignment of caregivers and children to treatment (e.g. drama) versus control conditions; and (3) longitudinal design that would allow us to track the impact of home language and drama on children's developmental outcomes over time.

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