

## Research Article

# A Culturally and Linguistically Responsive Vocabulary Approach for Young Latino Dual Language Learners

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**Purpose:** This study examined the role of the language of vocabulary instruction in promoting English vocabulary in preschool Latino dual language learners (DLLs). The authors compared the effectiveness of delivering a single evidence-informed vocabulary approach using English as the language of vocabulary instruction (English culturally responsive [ECR]) versus using a bilingual modality that strategically combined Spanish and English (culturally and linguistically responsive [CLR]).

**Method:** Forty-two DLL Spanish-speaking preschoolers were randomly assigned to the ECR group ( $n = 22$ ) or CLR group ( $n = 20$ ). Thirty English words were presented during small-group shared readings in their preschools 3 times a week for 5 weeks. Multilevel models were used to examine

group differences in postinstruction scores on 2 Spanish and 2 English vocabulary assessments at instruction end and follow-up.

**Results:** Children receiving instruction in the CLR bilingual modality had significantly higher posttest scores (than those receiving the ECR English-only instruction) on Spanish and English vocabulary assessments at instruction end and on the Spanish vocabulary assessment at follow-up, even after controlling for preinstruction scores.

**Conclusions:** The results provide additional evidence of the benefits of strategically combining the first and second language to promote English and Spanish vocabulary development in this population. Future directions for research and clinical applications are discussed.

Latinos are the fastest growing minority group in the United States, accounting for 16.5% of the total U.S. population. The percentage of Latino children in the United States increased from 9% to 24% by 2012 and is expected to reach 36% by 2050 (Federal Interagency Forum on Child and Family Statistics, 2013). These increases suggest that more Spanish-speaking children will be entering preschool in the coming years. Spanish is the home language of about 85% of Head Start's dual language learners (DLLs), children learning a second language (L2; in this case, English) while still developing their first language (L1; in this case, Spanish). DLLs make up 30% of children in Head Start preschool programs (Mathematica Policy Research Institute, 2010).

Given these numbers, it is alarming that many Latino DLLs lag behind their English monolingual peers in vocabulary and literacy as they leave preschool (Moiduddin, Aikens, Tarullo, West, & Xue, 2012; Reardon & Galindo, 2009).

The impact of vocabulary on children's early literacy and later reading outcomes has been firmly established (Dickinson, Griffith, Golinkoff, & Hirsh-Pasek, 2012; Storch & Whitehurst, 2002). Oral vocabulary, in particular, is positively associated with reading outcomes and is a strong predictor of reading achievement in monolingual children through the fourth grade and beyond (Storch & Whitehurst, 2002). Evidence of a similar relationship is emerging for Latino DLLs (August, Carlo, Dressler, & Snow, 2005; Dickinson & Tabors, 2002; Lesaux, Kieffer, Faller, & Kelley, 2010; Storch & Whitehurst, 2002). Given the central role of vocabulary in promoting early literacy and academic outcomes (Lonigan & Whitehurst, 1998; National Early Literacy Panel, 2009; Snow, Burns, & Griffin, 1998), the documented vocabulary gap between Latino DLLs and their English monolingual peers that can persist into high school is a serious concern (August et al., 2005; Carlo et al., 2004; Mancilla-Martinez & Lesaux, 2011; Oller, Pearson, & Cobo-Lewis, 2007; Proctor, Carlo, August, & Snow, 2006).

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Editor: Rhea Paul

Associate Editor: M. Adelaida Restrepo

Received July 9, 2012

Revision received April 17, 2013

Accepted October 13, 2014

DOI: 10.1044/2014\_JSLHR-L-12-0221

**Disclosure:** The authors have declared that no competing interests existed at the time of publication.

The fact that DLLs from low-income families often enter preschool with lower L2 vocabulary skills than their English-monolingual peers does not, however, imply that they are poor L2 vocabulary learners. Because DLLs acquire two sets of vocabulary repertoires, and because their vocabulary knowledge is distributed across languages, in each of their languages, they initially show smaller vocabularies than monolingual children (Conboy & Thal, 2006). Oller et al. (2007) suggest that low vocabulary scores in L2 reflect different rates of vocabulary development in the two languages due to differences in word exposure and usage in each language. Indeed, when DLLs' vocabularies in their L1 and L2 are considered together, their total vocabulary size is similar to that of their monolingual peers (Pearson, Fernández, Lewedeg, & Oller, 1997).

Limitations in the L2 vocabulary instruction that many DLLs receive may also have an impact on their L2 vocabulary development (August et al., 2005; Carlo et al., 2004). Longitudinal research studies examining the learning trajectory of low-income DLLs from pre-K to Grade 11 suggest that even after receiving English-only instruction for several consecutive years, DLLs continue to exhibit a slow rate of L2 oral language development (Mancilla-Martinez & Lesaux, 2010). Despite these findings, most Latino DLLs from low-income families continue to receive English-only vocabulary instruction, which may not effectively support their L2 learning needs (Cheung & Slavin, 2012; Kieffer, 2008; Mancilla-Martinez & Lesaux, 2011). Thus, alternative vocabulary approaches that effectively support their language development need to be considered, particularly at the preschool level.

The current study investigated the role of the language of vocabulary instruction in supporting receptive English vocabulary in low-income DLL preschoolers. The primary purpose was to compare the effectiveness of two instructional modalities presented in the context of the same evidence-informed shared reading vocabulary approach. Both modalities use the same theoretically and empirically supported vocabulary instructional strategies, differing only in the language of vocabulary instruction. One modality is *culturally and linguistically responsive* (CLR), strategically using both L1 and L2 as languages of vocabulary instruction. The other modality uses only English as the language of vocabulary instruction (*English culturally responsive* [ECR]). This allows us to examine the impact of the language of vocabulary instruction in otherwise identical instructional conditions. We hypothesized that in the context of the same evidence-informed shared reading approach, contrasting bilingual and English-only modalities of instruction would yield different receptive vocabulary outcomes. More specifically, we hypothesized that children who received the evidence-informed vocabulary approach that was delivered bilingually using L1 and L2 (the CLR modality) would demonstrate greater receptive vocabulary acquisition in both English and Spanish than those who received the same approach delivered in L2 only (the ECR modality). This prediction was informed by Cummins's (1981) view that a common underlying language-

learning infrastructure shared across languages may support skill development in both languages.

The following section reviews the literature examining the role of the language of vocabulary instruction in supporting L2 vocabulary development in preschool DLLs. We then discuss instructional strategies that have been used empirically to support vocabulary instruction in this population and that have guided the development of the evidence-informed vocabulary approach implemented in our study.

### *The Language of Instruction*

*L2-only modality.* Many early childhood programs in the United States use English as the sole language of instruction. This instructional practice may be based partly on the notion that the acquisition of language skills is directly affected by the language input that the children receive (Paradis, Nicoladis, Crago, & Genesee, 2010; Pearson et al., 1997). Researchers suggest that children's levels of vocabulary knowledge in each language may be predicted by the amount and length of exposure or input received in that language (Hoff et al., 2012; Paradis et al., 2010; Pearson et al., 1997). Consequently, the more extensive their exposure to the target language, the better their acquisition of the target language ought to be.

This approach, however, does not consider the bilingual nature of DLLs' development and the roles that both L1 and L2 play in their vocabulary development. Furthermore, the documented vocabulary gap and discrepancies in reading outcomes between Latino DLLs and their monolingual peers suggest that L2-only instruction does not support L2 development in young DLLs sufficiently for them to achieve at the level of their monolingual peers. In their longitudinal study of 173 low-income Latino DLLs, Mancilla-Martinez and Lesaux (2010) reported that even though participants received English-only instruction from preschool through fifth grade, continued L2-only instruction did not accelerate their vocabulary growth to match the skills of their English monolingual peers. Although gains in L2 were observed, the rate of L2 vocabulary acquisition was slow, resulting in a vocabulary gap that widened over time. A slow rate of L2 vocabulary growth may prevent DLLs from reaching necessary English proficiency fast enough to fully benefit from the L2 education they receive (Kieffer, 2008).

In addition to the L2 vocabulary gap, exclusive use of L2 as the language of vocabulary instruction may also result in slow gains in L1 language abilities (Leseman, 2000; Restrepo et al., 2010; Restrepo, Morgan, & Thompson, 2013; Schaeerlaekens, Zink, & Verheyden, 1995; Schwartz, 2014). Leseman (2000), in his study of Dutch-Turkish preschool DLLs receiving L2-only instruction, also reported that the DLLs' development of vocabulary skills in L1 may have been obstructed by the L2-only vocabulary instruction. These overall limitations of L2-only instruction suggest that alternative approaches that could more effectively support timely L2 vocabulary

acquisition, such as the use of the children's first language in vocabulary instruction, need to be considered.

*Bilingual modality.* Although schools have generally focused on English-only instructional approaches, research reveals no significant advantage of this approach for DLLs over other approaches, such as bilingual modalities of instruction (Barnett, Yarosz, Thomas, Jung, & Blanco, 2007; Durán, Roseth, & Hoffman, 2010; Restrepo et al., 2013). Despite longstanding concerns that instruction in L1 may delay children's acquisition of English, both theoretical models of DLLs' language acquisition and empirical evidence suggest the contrary.

From a theoretical perspective, Cummins' (1981) common underlying proficiency model states that although the surface aspects (e.g., grammar, morphemes, phonemes) of different languages are clearly distinct, there is an underlying linguistic proficiency that L1 shares with L2. MacSwan and Rolstad (2005) suggest that this shared linguistic knowledge is available to language learners regardless of how this knowledge was acquired in the first place. Based on this accessibility of linguistic information, sequential DLLs in the early stages of L2 vocabulary acquisition may use the lexical and conceptual knowledge available to them in L1 to facilitate the learning of L2 words. This perspective supports the use of a bilingual modality of vocabulary instruction through which new L2 vocabulary is first introduced in L1 and is followed by elucidation in L2.

Support for a bilingual modality of vocabulary instruction for L2 vocabulary acquisition is also found in the research literature (Lindholm-Leary, 2014; Schwartz, 2014). These studies and others have reported greater L2 word learning by DLLs exposed to a bilingual modality than those receiving L2-only instruction (Campos, 1995; Farver, Lonigan, & Eppe, 2009; Leseman, 2000; Schwartz, 2014). Lugo-Neris, Jackson, and Goldstein (2010), for example, used "vocabulary extensions" in L1 to enhance preschoolers' English vocabulary in a shared reading approach. They found that vocabulary definitions provided in the children's stronger language, L1, facilitated L2 expressive vocabulary learning more effectively than L2-only instruction, especially for DLLs beginning to learn L2.

In addition to using both languages, the order in which the languages of vocabulary instruction are presented may facilitate L2 vocabulary acquisition in DLL children with and without language impairments (Farver et al., 2009; Kiernan & Swisher, 1990; Restrepo et al., 2013). In studies of DLLs with language impairment, presenting new L2 words in the stronger language, L1, followed by presentation in the weaker language, L2, appeared to facilitate L2 receptive vocabulary acquisition in preschool DLLs beginning L2 instruction (Kiernan & Swisher, 1990; Perozzi & Chavez Sanchez, 1992; Restrepo et al., 2013). Although some of these studies found that faster L2 receptive vocabulary acquisition was achieved after bilingual instruction versus after L2-only instruction (Kiernan & Swisher, 1990; Perozzi & Chavez Sanchez, 1992), a larger study by Restrepo et al. (2013) found that bilingual instruction did not promote faster

gains in L2 than did L2-only instruction. Differences in sample size as well as the focus of the intervention (typically developing children vs. those with language impairment, receptive-only skills vs. receptive and expressive vocabulary skills) may have contributed to these inconsistent findings.

Studies with typically developing DLL preschoolers, however, have reported greater gains in L2 vocabulary with initial presentation in L1 followed by L2 shared readings (Farver et al., 2009; Roberts, 2008). Farver et al. (2009) reported that Head Start preschoolers in their experimental group receiving bilingual instruction (Spanish then English) outperformed both the English-only experimental group and the control group in expressive L2 vocabulary gains. Children receiving the bilingual instruction also demonstrated gains in Spanish-language outcomes, showing that a bilingual modality supporting both languages may increase vocabulary acquisition in both L2 and L1.

However, not every linguistic aspect of L1 may facilitate L2 acquisition. Some studies have found inconsistent, and even negative, correlations between measures of vocabulary labels in L1 and L2 (Collins, 2010; Tabors, Paéz, & Lopez, 2003). These findings suggest that the vocabulary labels that preschool DLLs know in one language may not automatically result in the knowledge of the equivalent vocabulary labels in the other language. Instead, Goodrich, Lonigan, and Farver (2013) suggest that knowledge of and familiarity with words in one language is what moderates word learning in the other. Their results suggest that underlying linguistic skills in L1, such as prior conceptual word knowledge in Spanish, supported the learning of words in English by the preschool Latino DLLs in their study.

In summary, existing research findings examining the impact of language of vocabulary instruction for preschool DLLs are mixed. Some studies report that vocabulary instruction combining L1 and L2 is as effective as L2-only instruction (Barnett et al., 2007; Restrepo et al., 2013; Rodriguez, Diaz, Duran, & Espinosa, 1995; Winsler, Diaz, Espinosa, & Rodriguez, 1999). Other studies indicate that a bilingual modality of vocabulary instruction results in better L2 vocabulary development than L2-only instruction (Farver et al., 2009; Goodrich et al., 2013; Kiernan & Swisher, 1990; Lugo-Neris, Wood Jackson, & Goldstein, 2010; Perozzi & Chavez Sanchez, 1992; Roberts, 2008). Yet other studies suggest that using the different languages of vocabulary instruction in a specific order may result in faster L2 vocabulary development than L2-only instruction (Farver et al., 2009; Goodrich et al., 2013; Kiernan & Swisher, 1990; Lugo-Neris et al., 2010; Perozzi & Chavez Sanchez, 1992; Roberts, 2008). The reasons for these different conclusions likely lie in the manner in which language was operationalized (e.g., receptive measures vs. receptive and expressive measures) as well as sample sizes, length of interventions, and specific populations (e.g., DLLs with language impairments vs. typically developing DLLs) assessed in each study.

Therefore, additional research is needed to examine whether a bilingual modality of vocabulary instruction that

strategically and systematically instructs in both L1 (the stronger language) and L2 is more effective in promoting greater receptive L2 vocabulary development than instruction in L2 only. Further knowledge is also needed to determine whether L1+L2-supported vocabulary instruction will also promote vocabulary acquisition in L1. This knowledge will increase our understanding of L2 receptive vocabulary development in young DLLs by providing insight into the relationship between L1 and L2. In addition, because vocabulary instructional approaches with robust and lasting effects have the greatest potential to support children's vocabulary development, it is also important to examine the lasting impact of these interventions (Biemiller & Boote, 2006; Silverman, 2007). Thus, including a post-instructional follow-up to determine how much of the learned vocabulary is retained over time after completing the instruction could provide useful information that is addressed in few existing studies (Restrepo et al., 2013; Simon-Cerejido & Gutiérrez-Clellen, 2014).

In the current study, a vocabulary approach was designed and implemented in order to examine the role of the language of vocabulary instruction. The next section describes the five evidence-based instructional strategies—interactive storybook reading, multimodal strategies, child-friendly definitions, repeated exposures, and culturally relevant content—that were used in the implementation of the current study.

### ***The Evidence-Informed Vocabulary Instructional Strategies for DLLs***

*Interactive storybook reading.* The first strategy, interactive storybook reading, has been identified as an effective vocabulary-building strategy in a number of studies with monolingual and DLL preschoolers (Beck & McKeown, 2007; Beck, McKeown, & Kucan, 2002; Gutiérrez-Clellen & Simon-Cerejido, 2010; Restrepo et al., 2013; Sénéchal & Cornell, 1993; Simon-Cerejido & Gutiérrez-Clellen, 2014; Whitehurst et al., 1999). During interactive reading, children are encouraged to both listen to the story and become actively involved. The target vocabulary words are delivered in the context of the story while the adult provides opportunities for the children to participate by repeating phrases, answering questions, and manipulating related props. Findings also suggest that interactive shared readings may promote L2 vocabulary more effectively if DLLs learning L2 can engage more actively using L1 (M. Zepeda, Castro, & Cronin, 2011).

*Multimodal strategies.* Multimodal instruction that uses redundant sources of information is the second strategy shown to enhance vocabulary acquisition in both monolingual and DLL preschoolers (Moats, 2001). Varied manners of representing and recalling words in different contexts, such as visual aids, props, and gestures, can supplement verbal explanations and provide additional semantic contexts in which children can establish new word associations (Gersten & Geva, 2003; Silverman, 2007; Silverman & Hines, 2009). Researchers have combined various modalities,

such as showing pictures, acting out words, answering questions, writing, and drawing, as well as related activities during center time, to reinforce the children's understanding of the meaning of new words (Gutiérrez-Clellen, Simon-Cerejido, & Restrepo, 2013; Silverman, DiBara Crandell, & Carlis, 2013).

*Child-friendly definitions.* A third strategy, child-friendly definitions, may also facilitate new word learning by explaining the meaning of new words relative to how they are used in everyday situations (Beck et al., 2002). The benefits of this strategy to the vocabulary skills of both monolingual and DLL preschoolers have been documented in several studies (Collins, 2005; Gutiérrez-Clellen et al., 2013; Hickman, Pollard-Durodola, & Vaughn, 2004; Lugo-Neris et al., 2010; Penno, Wilkinson, & Moore, 2002; Silverman & Hines, 2009).

*Repeated exposures.* The fourth strategy—repeated exposures to target vocabulary words across different contexts—may also facilitate the quality of the word representation children acquire (Beck & McKeown, 2007; Gutiérrez-Clellen et al., 2013; Penno et al., 2002; Stahl, 2003). Research with preschool DLLs reveals that on average at least five to six word presentations within the context of shared readings appear to be needed for the formation of a stable lexical representation (Collins, 2010).

*Culturally relevant content.* Finally, the fifth strategy—culturally relevant content presented through storybooks and materials with familiar themes—may facilitate the activation of prior knowledge to assist in comprehension and vocabulary retention (Conrad, Gong, Sipp, & Wright, 2004). Activation of contextual cues to the meaning of words may also assist children in making predictions and inferences about the story (Freeman & Freeman, 2004). Evidence for a substantial contribution of background knowledge to comprehension in L2 has been found when bilingual children read culturally familiar stories (Droop & Verhoeven, 1998; Freeman & Freeman, 2004; Malik, 1995).

In summary, research on vocabulary instruction indicates that all five of these strategies—interactive storybook reading, explicit instruction through the use of child-friendly definitions and repeated exposures, multimodal presentations, and culturally relevant content—have been used individually to support vocabulary development in both monolingual learners and DLLs. Few studies, however, have combined these strategies while examining the potential benefits of integrating L1 and L2 as the language of vocabulary instruction for DLLs.

### ***Purpose of the Study***

The purpose of the study was to examine the impact of the language of vocabulary instruction in supporting L2 receptive vocabulary acquisition in Latino preschool DLLs from low-income families. We compared the effectiveness of two instructional approaches that differed only in terms of the language of vocabulary instruction and were presented in the context of the same shared reading approach. The bilingual CLR modality strategically combined

L1 and L2 as languages of vocabulary instruction, whereas the contrastive ECR modality used only L2 as the language of vocabulary instruction. Given that L1 was used in the CLR instructional modality, we also examined the benefits of systematic L1 instruction on the participants' learning of new words in L1.

We focused our investigation on receptive vocabulary skills due to the short duration of the study: Learning expressive vocabulary is more time consuming than learning the receptive mode (Nation, 2001). Comprehension typically precedes production, and children generally understand words before they can produce them (Clark, 1993; Oller et al., 2007). Although investigating both expressive and receptive modalities may provide a more comprehensive view of bilingual vocabulary acquisition, in a short-term vocabulary instructional approach like the one reported in this study, gains in receptive vocabulary are likely to be observed before gains in expressive vocabulary. Additionally, because receptive and expressive vocabulary are interrelated and strongly correlated (Tomasello, 2003), findings on receptive vocabulary provide useful information about the initial impact of the language of vocabulary instruction on the vocabulary abilities of this population.

The study was guided by the following research questions:

1. Using an evidence-informed shared reading approach, will DLL preschoolers from low-income environments demonstrate greater immediate gains in English and Spanish receptive vocabulary after receiving the CLR instructional modality rather than the ECR modality?
2. Using an evidence-informed shared reading approach, will DLL preschoolers from low-income environments demonstrate greater maintenance of English and Spanish receptive vocabulary gains 3 weeks after receiving the CLR instructional modality rather than the ECR modality?

## Method

### Participants

The participants were 42 Spanish-speaking children (16 boys and 26 girls) with a mean age of 51.8 months ( $SD = 5.14$  months) at the beginning of the study. The participants spoke Spanish as their first language and used minimal English at study entry. They attended an English-only classroom, had a parent who spoke Spanish, and had no parent or teacher concerns about their overall development, including speech and language skills. In order to be eligible, the participants had to have conceptual vocabulary scores within normal limits on the Expressive One Word Picture Vocabulary Test–Spanish-Bilingual Edition (EOWPVT-SBE; Brownell, 2001) and show familiarity with no more than one third of the target English words on a researcher-developed measure described in the Measures section herein. The children were enrolled in 15 classrooms that had English as the

primary language of instruction in two Head Start preschool programs in central North Carolina.

As reported by their caregivers on a parental questionnaire, the participants were born in the United States, came from predominantly Spanish-speaking households, and were in the process of sequentially acquiring English (see Table 1). Per caregivers' report, 57% of the children began to use some English at about 2 years of age, 24% at 1 year of age, 14% before the first birthday, and 2.4% after age 4. Across these demographic variables, no significant differences between the experimental groups were encountered.

### Procedure

Families were recruited during meetings at the Head Start preschools. Once parental consent was obtained, data on the outcome measures were collected at three points: Pretest (approximately one week prior to the beginning of the instruction), posttest (within one week of completing the instruction), and follow-up (3 weeks after collection of the postinstruction measures). All assessments were conducted individually in a quiet room at the Head Start preschools by trained bilingual speech–language pathology graduate student researchers blind to the purpose of the assessment and the group assignment of the participants. A separate group of six speech-language pathology graduate students delivered the instruction: bilingual students (plus the lead author, who is a native Spanish speaker) to the CLR group and monolingual students to the ECR group. All graduate student researchers were trained to fidelity before assessment and instruction began.

**Table 1.** Parent-reported group demographic characteristics.

Characteristic	CLR, % ( <i>n</i> = 20)	ECR, % ( <i>n</i> = 22)
Percentage of female children	55	68
Maternal home language		
More Spanish than English	85	86
Equal Spanish and English	10	4.6
More English than Spanish	5	4.6
NR	0	4.6
Maternal English proficiency		
Oral expressive skills		
Very little–moderate	70	77
Good–very good, native-like	30	23
Maternal age		
35 and under	95	96
36 and up	5	4.0
Maternal education		
Less than high school	70.0	68.3
High school and above	30.0	31.7
Ethnicity		
Mexican	80	73
Central/South American	20	18.1
NR	0.0	4.5

*Note.* CLR = culturally and linguistically responsive; ECR = English culturally responsive; NR = not reported because the parent could not estimate or did not know.

## Measures

Two standardized measures and two criterion-referenced researcher-developed vocabulary probes were used to measure participants' vocabulary comprehension of the target words. The group means and standard deviations for vocabulary skills for both groups across all vocabulary measures are summarized in Table 2.

*Researcher-developed measures.* Capturing small changes in oral language after short periods of instruction using available norm-referenced tools is challenging because standardized scores are designed to be resistant to these kinds of changes (Silverman, 2007). Consequently, we developed two receptive picture vocabulary probes that were language specific (English and Spanish) to measure changes in the target words in each language. The probes contained a set of 30 nonfamiliar English words and their Spanish translations selected from five storybooks used in the study (six words per book). The range of Cronbach's alphas that were calculated to estimate the internal consistency of the probe items demonstrated moderate reliability (.57–.83). The researcher-developed vocabulary probes were significantly and positively correlated with the standardized measure scores as summarized in Table 3.

Both vocabulary probes used the same pictures in each language version, and the pictures had a high iconic degree of likeness to the object/concept targeted in order to reduce cultural bias. Each target word was presented in a picture plate containing three semantically related foils or distractors, which reduced the chances of guessing the correct answer (Haladyna, Downing, & Rodriguez, 2002). To reduce the likelihood of a familiarity effect with the pictures, the order of the language of presentation was counterbalanced, and the pictures were randomized in both order of appearance and their quadrant position in the presentation plates. The pictures were not used in the instruction.

The researcher-developed vocabulary probes were used at pre-, post-, and follow-up instruction. The pretest English probe also helped to determine eligibility for

participation in the study. For each picture plate, the children were asked to look at the four pictures and point to the one corresponding to the target word spoken, following the general format of the Peabody Picture Vocabulary Test–Fourth Edition (PPVT-4; Dunn & Dunn, 2007; e.g., “Show me \_\_\_” or “*Enséñame*”).

*Standardized measures.* The Receptive One Word Picture Vocabulary Test (ROWPVT; Martin & Brownell, 2000) and the Test de Vocabulario en Imágenes Peabody: Adaptación Hispanoamericana (TVIP; Dunn, Padilla, Lugo, & Dunn, 1986) were administered at pre- and post-instruction to measure receptive vocabulary in English and Spanish, respectively. The ROWPVT evaluates 100 receptive single words in English using illustrations. The standardization sample resembles the demographics of the U.S. population with an internal consistency of .90. The TVIP consists of 125 Spanish receptive vocabulary items translated from the PPVT-4 to assess Spanish-speaking and bilingual students. It was standardized on two monolingual, Spanish-speaking populations. Internal consistency reliability is reported to be .91 to .94 in the relevant age range.

## Design

The participants were randomly assigned to either the CLR group ( $n = 20$ ; 11 girls, nine boys) or the ECR comparison group ( $n = 22$ ; 15 girls, seven boys). Our assignment process followed a randomized block design (Bloom, 2005), where individual children's names from the list of the research study enrollees were assigned to either ECR or CLR status within each of the two Head Start preschools. In this manner, each preschool program contributed a balanced number of CLR and ECR participants to the full sample.

## The Instructional Approach

The instruction implemented in this study was an evidence-informed shared reading vocabulary approach that used two different modalities for the language of vocabulary instruction: a bilingual (Spanish–English)

**Table 2.** Descriptive statistics for CLR and ECR groups for English and Spanish measures.

Variable	CLR-Modality			ECR-Modality		
	Preinstruction <i>M (SD)</i>	Postinstruction <i>M (SD)</i>	Follow-up <i>M (SD)</i>	Preinstruction <i>M (SD)</i>	Postinstruction <i>M (SD)</i>	Follow-up <i>M (SD)</i>
ROWPVT	20.65 (10.05)	27.25 (11.98)	—	20.23 (8.18)	28.73 (11.27)	—
TVIP	19.55 (12.84)	19.20 (12.32)	—	19.68 (10.93)	22.32 (10.54)	—
English language Probe (REVP)	9.90 (2.737)	17.59 (3.187)	16.90 (4.38)	9.27 (3.22)	14.64 (4.67)	15.14 (5.15)
Spanish language Probe (RSVP)	14.0 (4.03)	19.65 (5.84)	20.45 (4.21)	15.41 (3.82)	17.45 (4.11)	19.68 (3.96)

*Note.* CLR = culturally and linguistically responsive; ECR = English culturally responsive; ROWPVT = mean raw scores on the Receptive One Word Picture Vocabulary Test (Martin & Brownell, 2000); TVIP = mean raw scores on the Test de Vocabulario en Imágenes Peabody (Dunn, Padilla, Lugo, & Dunn, 1986); REVP = mean raw score on the Receptive English Vocabulary Probe (researcher developed); RSVP = mean raw scores on Receptive Spanish Vocabulary Probe (researcher developed). Dashes indicate that data were not collected to avoid the administration of too many standardized instruments within a short time interval.

**Table 3.** Correlation coefficients for researcher-developed probes and standardized outcome measures.

Measure	ROWPVT preinstruction	ROWPVT postinstruction	TVIP preinstruction	TVIP postinstruction
REVP preinstruction	.505**	.602**	.174	.085
REVP postinstruction	.323*	.455**	.455**	.312*
REVP follow-up	.479**	.622**	.417**	.339*
RSVP preinstruction	.149	.211	.613**	.508**
RSVP postinstruction	.266	.273	.756**	.674**
RSVP follow-up	.264	.299	.646**	.556**

Note. ROWPVT = Receptive One Word Picture Vocabulary Test; TVIP = Test de Vocabulario en Imágenes Peabody; REVP = Receptive English Vocabulary Probe; RSVP = Receptive Spanish Vocabulary Probe.

\* $p < .05$  (2-tailed). \*\* $p < .01$  (2-tailed).

modality (CLR modality) and an English-only modality (ECR modality). The only contrastive feature in the delivery of the vocabulary approach was the language of vocabulary instruction. This contrast allowed us to examine the role of the language of vocabulary instruction under otherwise identical instructional conditions.

The shared reading instruction combined the five previously discussed evidence-informed vocabulary development strategies: storybook reading, child-friendly definitions, repeated exposures, multimodal presentations, and culturally relevant content. The instruction included pre-, during-, and postreading activities. During prereading, the target vocabulary was introduced using explicit and multimodal instruction. Illustrations of the target words were shown and labeled once while looking through the book. In the during-reading activities, the story was read, and the children received three additional exposures to the target words. The children were asked to show a “thumbs up” each time they heard the target words and to verbally imitate the words after the model. Child-friendly definitions were provided as the target words appeared in the story, and story-related props were shown (e.g., real cornhusks were used when defining *cornhusk*). During postreading activities, children received the fifth and final exposure to the target words as the researcher labeled the target words and gave the children related manipulatives.

The culturally relevant aspect was incorporated in the content of the instruction by including culturally relevant storybooks, visual aids, and props. Two sets of criteria were used to select culturally relevant books and props: (a) they had to depict similarities between the topic/book characters and the participants’ lives and their families, and (b) they had to contain familiar aspects and details to activate/build on the children’s prior knowledge (e.g., making tamales, breaking a piñata, rolling tortillas). Each week, one of the five storybooks was presented three times for 20 min each (60 min per week), and the instruction lasted 5 weeks.

The CLR condition used a bilingual modality of instruction that strategically combined L1 and L2. The shared reading was delivered in L1 during Day 1, whereas a bilingual modality of instruction was used on Day 2 in which the target words were presented first in L1, then

in L2. This order of presentation of the target words in L1 during Day 1, followed by the bilingual presentation (Spanish then English) on Day 2, was aimed at facilitating the scaffolding of L2 by L1 to promote L2 learning. On Day 3, the instruction was presented only in L2 in order to support the progression toward directly linking L2 words to their meanings (concepts). This weekly cycle was repeated for the 5 weeks of the instruction. (See Appendix A for the shared reading format.) In the ECR modality, all pre-, during-, and postreading activities were completed only in English throughout the 3 days of the weekly cycle, and identical books and props were used.

Children in both the CLR and ECR conditions received the instruction in small groups (three to four children) in a quiet room in their preschool centers. The six instructors adhered to a strict reading protocol using a written script to ensure procedural fidelity across sessions and conditions. Combinations of instructor and children were varied within instruction group at each session to reduce potential bias due to peer (e.g., one child dominating) and/or instructor (e.g., personality of instructor) effects.

### Storybooks

Five storybooks were selected that (a) represented themes that authentically reflect the backgrounds of many children who are DLLs, (b) provided direct personal connections to the events of the story, (c) exhibited similarities in the depiction of their stories between the book characters’ experiences and those of the DLLs and their families, and (d) contained familiar phrases and or places (Freeman & Freeman, 2004). The storybooks, listed in Appendix B, also contained narrative text, at least six target English vocabulary words unlikely to be known by the children, and pictorial representations of the target words, and were available in both English and Spanish.

### Vocabulary Words

The words used in the instruction were selected because they were needed to understand the content of the shared reading, were less familiar to the children (based on the preinstruction assessment), needed explicit and

direct instruction, and could be depicted easily. In terms of frequency of word use, the target words were either Tier 1 or Tier 2 words according to the Beck et al. (2002) criteria. The Tier 1 words that were used included high-frequency words (e.g., *bowl*, *lamb*) that the literature suggests many DLLs do not have in their core L2 lexicon. The Tier 2 words used were medium-high-frequency words (e.g., *embrace*, *smear*, *slicing*) needed to build an academic vocabulary. The sociocultural appropriateness of the target words was established by consulting native Mexican Spanish speakers from similar socioeconomic backgrounds.

### **Fidelity of Implementation**

To ensure procedural fidelity, all shared readings of both experimental conditions were audiotaped, and 65% of the recordings were randomly reviewed. The instructors in both conditions (a) used the appropriate language of instruction (Spanish, bilingual, or English-only) 100% of the time and (b) completed all steps in the prereading activity and in the during-reading activity at least 94% and 97% of the time, respectively. The instructor also presented and repeated the target words according to the reading script at least 90% of the time across all the activities. Overall, the procedural fidelity was excellent and comparable across conditions.

### **Results**

The research questions focused on the potential benefit of CLR compared with ECR instructional delivery in the context of an evidence-informed receptive vocabulary approach. Our analysis was designed to detect posttest differences between the CLR and ECR groups on Spanish and English receptive vocabulary measures at postinstruction and follow-up.

Data analysis first examined means, standard deviations, and correlations for sample characteristics and pre- and posttest measures, including comparisons of CLR and ECR baseline characteristics. We then conducted statistical tests of posttest group differences on four outcomes at instruction end. Finally, we conducted statistical tests of posttest differences in two outcomes at follow-up. All posttest differences were examined using multilevel analysis of covariance models estimated with SAS Version 9.2. The multilevel models accounted for student nesting within classrooms and included a dummy variable for Head Start program following recommendations for analysis of data from block randomized designs (Bloom, 2005). The reduced form equation for each of the posttest models was

$$Y_{ij} = \gamma_{00} + \gamma_{01}(\text{pretest})_{ij} + \gamma_{02}(\text{treatment})_{ij} + \gamma_{03}(\text{program})_{ij} + r_j + e_{ij} \quad (1)$$

We centered the pretests to have a mean of zero, and we coded treatment  $-.5$  for ECR and  $.5$  for CLR for the purpose of interpreting the intercept and treatment

terms. In this model specification,  $Y_{ij}$  represents the outcome  $Y$  for child  $i$  in classroom  $j$ . The term  $\gamma_{00}$  is the model intercept, which in this specification is the average posttest score across all children in the sample (across both groups). The term  $\gamma_{01}$  refers to the linear relation between the pretest and the posttest. The term  $\gamma_{02}$  refers to the difference in posttest mean scores for CLR group members compared with ECR group members, and the significance test of this term is the formal test of instruction. The term  $\gamma_{03}$  is an estimate of mean differences in posttest scores between the two Head Start programs. The terms  $r_j$  and  $e_{ij}$  represent random effects for classroom intercepts and an error term for student outcomes, respectively. There were no missing data, and all statistical tests were based on the complete sample ( $n = 42$ ).

### **Descriptive Statistics at Baseline**

Most children in the sample were from families of Mexican origin. The mothers spoke Spanish and had little to moderate English proficiency (see Table 1). The CLR and ECR groups were very similar in terms of maternal characteristics, child ethnicity, and pretest scores. For the children, the statistical comparisons of group means conducted at baseline via a general linear model revealed no evidence of group differences on preinstruction scores for standardized expressive vocabulary (conceptual; EOWPVT-SBE),  $F(1, 40) = 1.76, p = .19$ ; standardized English receptive vocabulary (ROWPVT),  $F(1, 40) = 0.02, p = .88$ ; standardized Spanish receptive vocabulary (TVIP),  $F(1, 40) = 0.00, p = .97$ ; the English Vocabulary Probe,  $F(1, 40) = 0.46, p = .50$ ; and the Spanish Vocabulary Probe,  $F(1, 40) = 1.36, p = .25$  (see Table 2).

To test the convergent validity of the researcher-developed probes with the standardized measures (ROWPVT and TVIP), the participants' scores across the measures were compared. Table 3 presents all correlations between researcher-developed vocabulary measures and raw outcomes from standard measures with significance tests reported. Within time point (pre- and postinstruction) and language, the researcher-developed vocabulary probes were significantly and positively correlated with the standardized measure scores.

### **Group Differences at the End of Instruction**

Intercepts (all significantly different from zero), model parameters, adjusted means, and  $d$ -type effect sizes from the multilevel analysis of covariance models are presented in Table 4. Children in the CLR group demonstrated higher English vocabulary acquisition (CLR-adjusted English mean = 17.33; ECR-adjusted English mean = 14.66) and Spanish vocabulary acquisition (CLR-adjusted Spanish mean = 20.28; ECR-adjusted Spanish mean = 16.88) than those in the ECR group on the researcher-developed probes at the end of instruction, with no significant differences based on Head Start site. On average, the children in the CLR group scored 2.67 points



**Table 4.** Multilevel model results at end of instruction and follow-up.

Model parameters	Probes at end of instruction		Standardized tests at end of instruction		Probes at follow-up	
	English B (SE)	Spanish B (SE)	English ROWPVT B (SE)	Spanish TVIP B (SE)	English B (SE)	Spanish B (SE)
Intercept	16.00 (.66)	18.58 (.59)	27.98 (1.18)	20.76 (.94)	16.00 (.68)	20.09 (.44)
Pretest	.56 (.58)**	.86 (.15)***	.95 (.14)***	.82 (.08)***	.54 (.23)*	.77 (.11)***
CLR effect	2.67 (1.15)*	3.41 (1.97)**	-1.88 (2.37)	-3.01 (1.88)	1.42 (1.37)	1.86 (.89)*
Site	-.05 (1.31)	.06 (1.17)	-1.39 (2.43)	1.55 (1.88)	-2.50 (1.37)	-.24 (.87)
Adjusted means						
CLR	17.33	20.28	27.04	19.25	16.72	21.02
ECR	14.66	16.88	28.92	22.27	15.30	19.16
Effect size <sup>a</sup>	.67	.69	—	—	—	.45

Note. ROWPVT = raw scores for the Receptive One Word Picture Vocabulary Test; TVIP = raw scores for the Test de Vocabulario en Imágenes Peabody; CLR = culturally and linguistically responsive; ECR = English culturally responsive.

<sup>a</sup>Effect sizes for the significant group differences estimated in the multilevel models were calculated by dividing the parameter for CLR by the pooled standard deviation of the outcome. Dashes indicate data not collected to avoid the administration of too many standardized instruments within a short time interval.

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

higher than those in the ECR group on the English probe at posttest ( $p < .05$ ,  $d = 0.67$ ). Whereas children in the CLR group learned an average of 7.69 English words by the end of the instruction, the children in the ECR group learned an average of 5.37 English words. Similarly, the children in the CLR group scored 3.41 points higher on average than those in the ECR group on the Spanish probe at posttest ( $p < .01$ ,  $d = 0.69$ ). Whereas children in the CLR group learned an average of 5.65 Spanish words, those in the ECR group learned an average of 2.04 Spanish words by the end of the instruction. As expected, no significant group differences were observed in the standard measures of receptive vocabulary

### Maintenance of Differences at Follow-Up

Our analysis yielded a significant group difference at follow-up. Participants in the CLR group maintained higher Spanish vocabulary acquisition 3 weeks postinstruction. The CLR group's average score was 1.86 points higher than that of the ECR group on the Spanish probe at follow-up ( $p < .05$ ,  $d = 0.45$ ). However, there were no significant group differences in the maintenance of English vocabulary at follow-up.

### Discussion

This study investigated the role of the language of vocabulary instruction in supporting receptive English vocabulary development by preschool-aged Spanish-speaking DLLs after receiving an evidence-informed vocabulary instruction. Specifically, the study examined whether vocabulary instruction that used a bilingual modality (CLR) promoted greater changes in the participants' English and Spanish receptive vocabulary compared with an English-only (ECR) modality. The study also examined whether greater maintenance of English and Spanish vocabulary was achieved by the CLR participants 3 weeks after completion

of the instruction, compared with the ECR modality. The instructional modalities differed only in language of instruction, keeping content, frequency and quality of instruction constant.

### Bilingual Modality as the Language of Vocabulary Instruction

The findings of this study revealed that immediately following the instruction, children in the CLR group (bilingual) acquired significantly more English vocabulary than the children in the ECR group, who received L2-only instruction. These results replicate previous studies reporting a greater increase in L2 vocabulary following a bilingual modality of instruction compared with L2 only (Farver et al., 2009; Kiernan & Swisher, 1990; Lugo-Neris et al., 2010; Perozzi & Chavez Sanchez, 1992).

The increased acquisition of L2 vocabulary in the CLR group may be related to the strategic use of the bilingual modality of word presentation. Both the theoretical model of DLLs' language acquisition and empirical studies suggest that presenting L2 target words in L1 first allows existing lexical and conceptual knowledge in L1 to facilitate the learning of L2 (Cummins, 1981; Farver et al., 2009; Goodrich et al., 2013; Kroll & Stewart, 1994; Roberts, 2008). In our CLR modality, the presentation of the target words was strategically designed to benefit from the L1+L2 scaffolding. On Day 1 the target words were presented in Spanish, followed by Spanish-English presentation on Day 2, and English only on Day 3.

These findings also replicate results from previous studies suggesting that a systematic bilingual instructional delivery does not seem to impede L2 vocabulary development (Barnett et al., 2007; Lindholm-Leary, 2014; Restrepo et al., 2013; Rodriguez et al., 1995; Winsler et al., 1999). Rather than supporting the widespread belief that L2-only instruction leads to better receptive vocabulary outcomes in L2 for preschool DLLs, these results suggest that L2

vocabulary development is more effectively supported by strategically combining L1 and L2. However, the advantage between these two different modalities of the language of vocabulary instruction was not observed at follow-up. This lack of differences in English receptive vocabulary at follow-up between groups, also reported by Restrepo et al. (2013), may suggest the need for continued, systematic, and consistent bilingual instructional to maintain the level of L2 acquisition gained through the short-term instruction. A potential explanation for these results is that the participants in our study returned to regular L2-only classroom instruction once the instruction was concluded and did not receive further L1+L2 instruction.

Other findings of this study also replicate previous research suggesting that gains in L1 are observed after purposeful and systematic L1 instruction (Kan & Kohnert, 2005; Lindholm-Leary, 2014; Restrepo et al., 2010, 2013; Rodriguez et al., 1995; Schwartz, 2014; Winsler et al., 1999). The bilingual modality of our vocabulary instruction probably promoted the children's use of language learning resources in L1 and L2 to advance vocabulary acquisition not only in L2 but also in L1. In addition, the postinstruction advantages in L1 vocabulary were maintained 3 weeks after completing the instruction, providing preliminary evidence of the robustness of the CLR modality in promoting and maintaining L1 vocabulary acquisition.

### ***L2-Only Modality as the Language of Vocabulary Instruction***

Immediately following the instruction, children in the ECR group acquired significantly less English vocabulary than the children in the CLR group, who received the bilingual instruction. Regarding Spanish language skills, children in the ECR group also demonstrated limited acquisition of Spanish vocabulary compared with the CLR group. These results suggest that without purposeful, consistent, and systematic instruction in L1, vocabulary gains in L1 may be minimal, and children may be more vulnerable to language loss in L1 (Anderson, 1999). These findings replicate previous work reporting limited gains in oral language skills in L1 from L2-only instruction (Castilla, Restrepo, & Perez-Leroux, 2009; Leseman, 2000; Restrepo et al., 2013; Schaerlaekens et al., 1995; Simon-Cerejido & Gutiérrez-Clellen, 2014), suggesting that L2-only instruction may not adequately support the language development needs of young DLLs.

### ***Limitations and Future Directions***

The primary limitation of this study was the small number of participants, which limits the generalization of the results to the larger population of low-income preschool Latino DLLs. It would be useful to examine the benefits of the CLR modality for both expressive and receptive vocabulary abilities with a larger sample size.

A further limitation is that our research study examined the role of the language of vocabulary instruction

outside of preschool classroom instruction. Therefore, the interpretations and implications of our findings are limited to comparisons of instructional delivery (ECR vs. CLR) in a similar context using an evidence-informed vocabulary approach. Thus, our findings do not allow us to make inferences about whether children participating in the evidence-informed shared readings acquired more vocabulary than they would have when in a preschool classroom. These early findings point to the need for continued research on the language of vocabulary instruction comparing preschool classroom instruction and vocabulary instructional approaches in a bilingual modality. More studies on the delivery of bilingual modalities of instruction by classroom teachers also will be useful in evaluating tailored vocabulary instruction in the classroom (Lindholm-Leary, 2014; Simon-Cerejido & Gutiérrez-Clellen, 2014). Furthermore, the findings that children in the CLR group did not maintain their English advantage at follow-up suggests the need for more research. Additional research studies that include longer instructional duration, such as integrating vocabulary instruction in the classroom curriculum, could help determine whether the target words are better maintained. Finally, because the evidence-based instructional approach used in this study combined various strategies, additional research examining both their individual contribution and their interactions could increase our understanding of key instructional strategies.

### ***Implications for Clinical and Classroom Practices***

An important clinical implication of the findings, consistent with other research, is that bilingual vocabulary instruction does not seem to impede the development of L2 vocabulary abilities and may support both L2 and L1 vocabulary abilities more effectively than instruction in L2 only (Castilla et al., 2009; Farver et al., 2009; Lugo-Neris et al., 2010; Restrepo et al., 2013; Simon-Cerejido & Gutiérrez-Clellen, 2014). Hence, vocabulary instruction that uses a child's stronger language to capitalize on the child's conceptual L1 knowledge prior to introducing the concept in L2 may be beneficial for beginning DLLs, especially if the strategic use of L1 is delivered in the context of evidence-informed shared reading approaches combining culturally relevant content, explicit vocabulary instruction, repeated exposures, and multimodal strategies. In addition, shared reading instructional programs that integrate some of the evidence-based strategies used in the current study could also be an approach to promote vocabulary development in preschoolers (Gutiérrez-Clellen et al., 2013; Hamilton & Schwanenflugel, 2011; Justice & McGinty, 2009).

### ***Acknowledgments***

This research was supported by Head Start Research Scholar Grant 90YR005001, awarded to the first author from the Office of Planning, Research and Evaluation, Administration for Children and Families, U.S. Department of Health and Human

Services. We appreciate the generous Head Start support and thank the children and staff of the Head Start preschool sites who made this study possible. We also thank the anonymous reviewers for their many helpful suggestions that improved both the content and the presentation of this article.

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## Appendix A

### Format for Shared Readings for the Culturally and Linguistically Responsive Modality

Activity	Instructor's role	Children's role	Language of vocabulary instruction
Day 1			
Prereading activities	Point to and label each target word	Look and hear target word once	All in Spanish
During-reading activities	Read the book; while reading, point to target words	Look and hear target word	All in Spanish
	Ask children to imitate target words/show thumbs up	Repeat target word/show thumbs up	
	Provide child-friendly definitions and show props	Hear definitions, look at props	
After-reading activities	Point to and label picture of target word in book	Hear target word 3 times	All in Spanish
	Encourage children to label/show thumbs up	Look and hear word once	
	Provide props or invite children to imitate gestures	Label/repeat word	
Day 2			
Prereading activities	Point to and label each target word	Look and hear target word	Label in Spanish first then in English
During-reading activities	Read the book; while reading, point to target words	Look and hear target word three times	English
	Label and encourage children to imitate target words	Repeat target word	English
	Provide child-friendly definitions and shows props	Hear definition, look at props	Spanish
After-reading activities	Point to and label picture of target word in book	Look and hear word once	All in English
	Encourage children to label	Label/repeat word	
	Provide props or invite children to imitate gestures	Manipulate props or imitate gesture	
Day 3	Same as Day 2 but without prereading activities	Same as Day 2 but without prereading activities	All in English

## Appendix B

### List of Books and Target Vocabulary

Author/book title	Target English vocabulary	Spanish translation of target words
Galindo, C. (2008). <i>It's bedtime, cucuy/A la cama cucuy</i> . Houston, TX: Arte Publico Press.	<i>tongue, tugging, shout, brow, whispers, lamb</i>	<i>lengua, jalando, grito, ceja, susurra, ternero</i>
Gonzales Bertrand, D. (2010). <i>The party for Papá Luis/La fiesta de Papá Luis</i> [Bilingual ed.]. Houston, TX: Piñata Books.	<i>counting, blending, cage, grinning, shoulder, pole</i>	<i>contando, mezclando, jaula, sonriendo, hombro, palo</i>
Gonzales Bertrand, D. (1997). <i>Sip, slurp, soup, soup/Caldo, caldo, caldo</i> . Houston, TX: Piñata Books.	<i>stewpot, slicing, ladle, embraces, rolling, bowl</i>	<i>olla, picar, cucharón, abraza, enrollar, tazón</i>
Ottolenghi, C. (2002). <i>The little red hen/La gallinita roja</i> . Greensboro, NC: Carson-Dellosa Publishing.	<i>shed, wheat, beak, wheelbarrow, grain, oven</i>	<i>granero, trigo, pico, carretilla, grano, horno</i>
Zepeda, G. (2008). <i>Growing up with tamales/Los tamales de Ana</i> . Houston, TX: Arte Publico Press.	<i>cornhusk, smear, tongs, handlebars, apron, steering</i>	<i>hoja de maíz, untar, pinzas, manubrio, mandil, manejar</i>