Bilingual English–Spanish Assessment™ (BESA™)

MANUAL

Excerpted from Bilingual English-Spanish Assessment™ (BESA™) Manual
By Elizabeth D. Peña, Ph.D., CCC-SLP, Vera F. Gutiérrez-Clellen, Ph.D., CCC-SLP,
Aquiles Iglesias, Ph.D., CCC-SLP, Brian A. Goldstein, Ph.D., CCC-SLP, & Lisa M. Bedore, Ph.D., CCC-SLP
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BILINGUAL ENGLISH-SPANISH ASSESSMENT™

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by

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CHAPTER 1

Overview and Rationale for the BESA

The *Bilingual English–Spanish Assessment™ (BESA™)* was developed in response to the need for valid, reliable instruments for assessment of speech and language ability, along a continuum, in Spanish–English bilingual children ages 4 through 6 years. The BESA consists of two questionnaires, one activity, and three subtests in two languages. The questionnaires provide speech-language professionals with information about the child's language environment as well as aspects of parent and teacher concern. The Pragmatics activity provides an opportunity for the examiner to interact with the child and observe language use. The three subtests address the language domains of morphosyntax, semantics, and phonology in Spanish and English. Each component may be used independently or combined as part of an assessment battery; all subtests are norm referenced. The BESA should be administered by experienced Spanish–English bilingual speech-language professionals to ensure that valid results are obtained and interpreted accurately.

BESA COMPONENTS AND SUBTESTS

The BESA is a comprehensive assessment of a child's speech and language abilities in English and Spanish. Two ancillary questionnaires (BIOS and ITALK), should be completed to document language exposure and use while also allowing the examiner to develop a profile of parent and teacher concerns. BESA subtests address domains of phonology, morphosyntax, and semantics separately for both Spanish and English. There are three standardized and norm-referenced subtests addressing language ability and one criterion-referenced activity allowing observation of pragmatic language. Depending on whether both languages are tested and which subtests are included, administration of all BESA components may take between 1 hour (for one language) and 2 hours (for both languages).

Bilingual Input-Output Survey (BIOS)

The *Bilingual Input-Output Survey (BIOS)* helps the examiner to know when and in what context each of the child's two languages were used on a year-to-year basis. It is typically completed as part of an interview by the examiner. In this survey, parents are asked about the language exposure history of the child. In addition, parents and teachers are asked what language the child hears and uses during a typical school day and during a typical weekend day on an hour-by-hour basis. This information provides clinicians with information about relative use and exposure to each language

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and should be used prior to assessment to guide whether to test children in Spanish, English, or both. The parent survey (BIOS-Home) takes 10–15 minutes to complete; the teacher survey (BIOS-School) can be completed in 5–10 minutes.

Inventory to Assess Language Knowledge (ITALK)

The *Inventory to Assess Language Knowledge (ITALK)* addresses relative use of a child's two languages and five areas of speech and language development (vocabulary, grammar, sentence production, comprehension, and phonology) in Spanish and English. It is completed by the examiner as a parent and teacher interview. Parents and teachers are asked to identify the child's perceived level of performance in each language. Given before the BESA, the ITALK provides a summary of parent and teacher concerns that can be used to guide target areas of assessment. Results of the inventory can be used to interpret diagnostic results from BESA or other speech and language tests. The ITALK can be completed in 10 minutes or less.

BESA Pragmatics Activity

The Pragmatics activity is based on Fey's (1986) model of assertiveness and responsiveness. In an interactive format, children are asked to "help wrap a present" with the examiner. Through this realistic situation, obligatory contexts are set up to elicit different assertive and responsive acts. The Pragmatics activity utilizes English, Spanish, or both languages together (via code-switching), depending on the child's preferred language of interaction based on results from the BIOS and ITALK. The activity should be used to identify children who may encounter difficulties in situations that require the children to be active participants (e.g., in the classroom). If administered at the beginning of a battery of tests, the Pragmatics activity provides an excellent opportunity to establish rapport with the child and will also provide clinicians with an indication of how collaborative and interactive the child will be during the rest of the assessment. This activity takes 5–10 minutes to complete.

BESA Phonology Subtest

The Phonology subtest is a single-word phonological assessment. Its primary purpose is to differentially diagnose typical from atypical phonological skills in Spanish–English bilingual children. Analyses are also included that allow the examiner to profile a child's phonological skills in each language. The assessment includes two measures. The Spanish measure assesses phonological production of 28 Spanish words. The English measure assesses phonological production of 31 English words. The Phonology subtest takes 10–15 minutes to administer in each language, depending on the individual child (20–30 minutes total).

BESA Morphosyntax Subtest

The Morphosyntax subtest employs cloze and sentence repetition tasks to target grammatical morphemes and sentence structures that were predicted to be difficult for children with language impairment (LI) in English or Spanish (Bedore & Leonard, 1998, 2001; Leonard, 2014). Forms tested in English include plural –s, possessive –s, past and present tense, third-person singular, progressives, copulas, auxiliary do + negatives, and passives as well as sentence repetition items to test complex verb forms, conjunctions, and embedded prepositions and noun phrases. Forms tested in Spanish include articles, progressives, clitics, and subjunctives using a cloze procedure. Preterite,

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complex verb forms, and conjunctions are included using sentence repetition. For each language, a grammatical cloze subscore, a sentence repetition subscore, and a total score that is a composite of those two subscores are derived. The Morphosyntax subtest takes approximately 15 minutes to administer in each language (30 minutes total).

BESA Semantics Subtest

The Semantics subtest targets six tasks: analogies, characteristic properties, categorization, functions, linguistic concepts, and similarities and differences. These six item types were based on the literature describing acquisition of semantic breadth and depth in order to tap into how children organize and gain access to their lexical system (Peña, Bedore, & Rappazzo, 2003).

The English Semantics subtest has a total of 25 items: 10 receptive and 15 expressive. The Spanish Semantics subtest also has 25 items: 12 receptive and 13 expressive. Scoring allows for code-mixing—giving children credit for a correct response in either language. Subscores are provided for semantics receptive and semantics expressive, and a total semantics score is also provided for each language. The Semantics subtest takes about 15 minutes to administer in each language (30 minutes total).

USES OF THE BESA

The BESA is designed to be used with children who speak English, Spanish, or both. The BESA subtests are psychometrically sound and yield scaled and standard scores for each of the domain tests (phonology, morphosyntax, and semantics). The BIOS and ITALK questionnaires provide criterion-based guidelines to determine language(s) of testing and to develop an assessment strategy. The tests can be used together for a complete speech and language battery, or tests specific to the diagnostic question can be selected. Presently, the test is appropriate for children between the ages of 4;0 and 6;11. The BESA can be used to

1. Identify LI in bilingual and monolingual Latino children
2. Document progress in speech and language related to intervention
3. Document the dominant language in each domain, including morphosyntax, semantics, and phonology
4. Conduct research studies of bilingual children with and without language impairment

Identification of Language Impairment

The BESA is specifically designed to assess speech and language in English–Spanish bilingual children's two languages. The primary use of the BESA is to identify phonological and/or language impairment in bilingual and English language learner (ELL) children via a standardized protocol. The objective scores obtained on the BESA across three domains can be used in combination with clinical observations and language samples, as well as with other standardized measures, to identify children with speech and/or language impairment. Through use of a combination of BESA subtests, clinicians can document children's speech and language strengths and weaknesses.

Documentation of Progress

A second use of the BESA is to monitor children's progress in speech and language. After initiation of a speech and language intervention program, children's progress

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should be regularly documented. It is recommended that more sensitive daily probes be used to monitor children's session-to-session progress and that this information be used to make decisions about the direction of the intervention. The BESA, however, is sensitive to year-to-year changes in children's speech and language growth and the particular language in which progress is being made. Thus, in addition to more sensitive measures of daily progress, the BESA can be used at broader intervals (e.g., annually or semiannually) to gauge progress in a specific program of intervention, to document continued need for intervention, and to document achievement of treatment goals for exiting services.

Documentation of Language Input and Output

Documentation of a bilingual student's dominant language is a challenge in school settings. Many children who have exposure to more than one language demonstrate mixed dominance, whereby they perform higher in one language in one domain but higher in the other language in a different domain. It is therefore important to know what a child's relative dominance is across different domains of speech and language. This information can be useful for planning intervention as well as for planning educational programming for bilingual children. The BIOS-Home and BIOS-School surveys together provide an objective measure of children's input and output of Spanish and English. This information helps speech-language pathologists, parents, teachers, and administrators to know how much the child hears and uses each language and in what contexts. This information is independent of performance, which can be affected by child characteristics such as language ability. In addition to the BIOS, the Spanish and English standardized test scores can be compared directly for phonology, morphosyntax, and semantics to determine a child's best language for a particular domain. If children's standard scores across domains are within 5 points of each other, we consider them to be balanced.

Research Uses

There are a number of ways that the BESA subtests can be used in research. ITALK can be used to gain parent and teacher observations about the child's performance across five domains of speech and language in Spanish and English as part of qualifying data for a study. BIOS can be used to document weekly input and output in Spanish and English as a way of grouping children by language experience and/or by year of first exposure. For bilingual children with LI, BIOS provides a measure that is independent of their test performance on speech and language tasks.

The three domain subtests can be used together or independently to assess children's speech and language. These can be used to qualify children for a study or to group children by ability.

As of this writing, we have conducted and published several studies with the longer, experimental versions of BESA subtests (Peña, Bedore, & Kester, 2016). In addition, researchers across the country have used the experimental versions of BESA in studies of bilingual Spanish–English speakers (Castilla, Restrepo, & Perez-Leroux, 2009; Fabiano-Smith & Barlow, 2010; Kapantzoglou, Fergadiotis, & Restrepo, 2017; Restrepo, Morgan, & Thompson, 2013; Rodriguez, Bustamante, Wood, & Sundeman, 2017). Researchers in Spanish-speaking countries are in the process of using the Spanish version of these measures in research studies (Auza, Harom, & Murata, 2018; Jackson-Maldonado, Hoist, Mejia, Peña, & Bedore, 2015). The BESA (or BESA subtests) has been included in two evidence-based reviews (Dollaghan & Horner, 2011; McLeod & Verdon, 2014). We hope to see continued use of the BESA in research; this can only help to improve the measure.

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NEED FOR BILINGUAL ASSESSMENT INSTRUMENTS

Spanish speakers are the largest language minority in the United States, and they make up 79% of school-age English-language learners. Typically, these children begin to learn English when they enter preschool. Evaluation of these children is particularly challenging, because diagnostic assessments cannot rely solely on the child's proficiency in the second language. School-based speech-language pathologists who work with young bilingual/bicultural children are highly aware of the need for more information about bilingualism (Caesar & Kohler, 2007; Winter, 1999). Speech-language pathologists know that they need to assess and treat these children in different ways. Some speech-language pathologists prefer to err on the side of providing intervention for children who may not need it, whereas others are less likely to refer for services if the child is younger (presumably related to needing time to develop bilingual competence).

In general, a challenge for test developers in the field of speech-language pathology has been to develop tests with good classification accuracy. For English monolingual children, there are a handful of available tests that provide sufficient evidence about reliability, validity, and classification accuracy for clinical use (Betz, Eickhoff, Sullivan, Nippold, & Schneider, 2013; Friberg, 2010; McCauley & Swisher, 1984a, 1984b; Spaulding, Plante, & Farinella, 2006). For bilingual children, however, there are very few assessment tools and fewer with evidence about reliability and validity.

Important considerations for the development of language tests for bilingual children are their cultural and linguistic appropriateness as well as the extent to which they address variability in children's first and second language experiences. Early attempts to develop tests for other language groups included translation, but it is generally agreed that translated tests do not have the same psychometric properties as the original test (Arnold & Matus, 2000; Bracken & Barona, 1991; Peña, 2007). In addition, to identify speech and language impairment, it is critical that the test is developed based on the markers of the target language that are likely to help make diagnostic decisions. Translated tests from English may emphasize forms that are not clinically sensitive in another language. Another challenge in the assessment of bilinguals is that children vary greatly in the amount and kind of experiences they have in each language. It is difficult to know in what language bilinguals should be tested, and if they are tested in both languages, there are few guidelines for combining the results of testing in the two languages. In the development of the BESA, we addressed many of these issues in order to help clinicians make accurate, reliable diagnostic decisions.

Testing Bilingual Children

The BESA is based on the growing literature on the acquisition of Spanish in the United States where children are exposed to or learning English, and on the literature on LI in each language. Data on Spanish-speaking children with LI show that the elements that may discriminate children with LI from their typically developing peers are different in Spanish and English (see Leonard, 2014 for an overview of cross-linguistic differences). Thus, to create a test with a comparable level of difficulty in English and Spanish, language-specific item sets are needed. For example, a study of children's performance on vocabulary tests shows that tasks used to assess vocabulary may not be as familiar to Latino children as to mainstream children (Peña & Quinn, 1997). In addition, children may demonstrate their knowledge in different ways. Such a result means it is necessary to build tests around tasks that are familiar to test takers. Given the variability in bilingual speakers' knowledge, a test (and scoring procedure) that permits speakers to demonstrate their knowledge on a variety of item types, while also offering

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response alternatives regarding content and code-switching, has the potential to reveal the child's true language abilities.

THEORETICAL BACKGROUND

Normal Bilingual Acquisition

In Bialystok's description of the conditions under which bilingual children acquire language, she stated that "monolingual and bilingual children move in different cognitive worlds, experience different linguistic environments, and are challenged to communicate using different resources remaining sensitive to different abstract dimensions" (2001, p. 88). It is important to understand the context in which children are learning each language and the particular demands of those languages. To develop effective bilingual language assessment instruments, it is important to identify linguistic markers (e.g., grammatical forms, semantic knowledge) that differentiate between children with and without LI in each of their two languages.

As a group, bilingual children vary greatly in the amount and types of experiences that they have in each language. This is a special challenge for developing language assessment tools for bilingual language learners. Some children start learning two languages from birth; others start learning their second language later, when they start school. Yet other children may start getting exposed to their second language via older siblings. Different contexts for hearing and using two language results in considerable variability among children. It is important to document both similarities and differences in monolingual and bilingual language development in the areas of pragmatics, phonology, morphosyntax, and semantics.

Pragmatics is the ability to use language in social communication, conveying the communication needs and intentions of the speaker and the listener. According to Fey (1986), the speech acts used in conversations can be categorized as assertive and responsive acts. *Assertive acts* comprise the ability to initiate topics and various forms of requests or statements about events. *Responsive acts* comprise responses to a communication partner. Both assertive and responsive acts can be verbal or nonverbal.

Most research on phonological development has taken place with monolingual English speakers. There are fewer studies focusing on Spanish–English bilingual children. Overall, findings from existing studies on bilingual children indicate that phonological development is similar, although not identical, to that of monolingual speakers (Fabiano-Smith & Barlow, 2010; Gildersleeve-Neumann & Wright, 2010; Grech & Dodd, 2008; Xuereb, Grech, & Dodd, 2011). Although there are studies indicating that monolinguals exhibit a more rapid rate of acquisition compared to bilinguals, the phonological skills of bilinguals are still within developmental expectations compared to monolingual children (see Goldstein & Gildersleeve-Neumann, 2012). More specifically, the trajectory of phonological development for bilingual children is not remarkably different from that of monolingual speakers in either language. Their phonologies exhibit the same universal properties that monolingual children show. They initially exhibit stops, nasals, glides, and simple syllable structures and develop anterior sounds before posterior ones and sonorants before obstruents. As children get older, their phonological systems become attuned to the specific ambient languages they are acquiring, and they are able to separate the two languages. As is the case with monolingual speakers, their phonological system has largely developed by age 7 to 8 years, and they are able to produce phonologically long and complex syllables and words.

A common hallmark of typical phonological development in second language learners is cross-linguistic influence (Wilson, Davidson, & Martin, 2014). For example, the

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Spanish flap might be used in an English production such that "rake" /ɹek/ is produced as [ɾek]. These effects are often bidirectional, not only from Language A to Language B but also from Language B to Language A. For example, the Spanish word "flor" /floɾ/ may be produced with the English –r, yielding [floɹ].

Grammar emerges as children have increased exposure to each of their languages, resulting in the production of longer and more complex sentences (Deuchar & Quay, 2000). Bilingual children produce many of the same types of grammatical errors as monolinguals (Bland-Stewart & Fitzgerald, 2001; Gutiérrez-Clellen, Restrepo, & Simon-Cereijido, 2006; Gutiérrez-Clellen & Simon-Cereijido, 2007; Gutiérrez-Clellen, Simon-Cereijido, & Wagner, 2008; Restrepo & Kruth, 2000). Yet knowledge of linguistic rules in each language may differ to some extent between monolinguals and bilinguals. For example, Punjabi–English bilingual school-age children used English-influenced word order when speaking in Punjabi (Martin, Krishnamurthy, Bhardwaj, & Charles, 2003). These cross-language influences are also observed in adults. For example, Montrul (2002) found that adult Spanish–English bilinguals who acquired both languages before age 7 use the imperfect/preterite distinction differently across languages than do monolingual Spanish speakers.

Work with Spanish-speaking children who are exposed to English shows that by age 8 to 9 years, children produce complex noun phrases, relative clauses, and greater clausal density, and they use these structures to make effective use of nominal, pronominal, elliptical, and demonstrative reference in narrative tasks (Gutiérrez-Clellen & Iglesias, 1992). These are skills that are evident in English learning as well. Complex semantic knowledge in narratives is reflected in bilingual children's use of mental-state verbs to express subtle differences in characters' perceptions of events in a story in Spanish as well as in English (Gutiérrez-Clellen, 2002; Silliman, Huntley Bahr, Brea, Hnath-Chisolm, & Mahecha, 2001). At the same time, bilinguals do not demonstrate the exact same set of skills as do their monolingual peers. For example, in a study of Spanish–English bilingual children's narrative production, Fiestas and Peña (2004) found that children told stories of similar length and number of propositions, but the specific story components they included were related to the language in which the story was told.

In development, bilingual children acquire the same kinds of words and structures as do their monolingual peers—even if the specific words they know vary. For example, similar to monolingual development, bilingual toddlers demonstrate rapid growth in vocabulary knowledge. Bilingual children use many of the same lexical constraints to narrow down word meaning as do their monolingual peers (Frank & Poulin-Dubois, 2002; Merriman & Kutlesic, 1993; Poulin-Dubois, Frank, Graham, & Elkin, 1999), but they may not know the same words in each language. For example, depending on their experiences, children may provide the words *banana*, *orange*, and *apple* in English but *papaya*, *mango*, and *piña* (*pineapple*) in Spanish. From infancy through adulthood, bilinguals demonstrate shared and unique vocabulary (Deuchar & Quay, 2000). Gaps in vocabulary can be problematic for school-age children who must use specific words in academic tasks (Carlo et al., 2004). However, bilinguals may use their knowledge of vocabulary in one language as a bootstrap to facilitate word learning in the other (Gawlitzek-Maiwald & Tracy, 1996; Ordóñez, Carlo, Snow, & McLaughlin, 2002).

Variation in Bilingual Language Proficiency as a Function of Exposure

A unique aspect of bilingual language development is proficiency as a function of language learning experiences. The amount of time children use and hear each language influences children's language performance. For example, Anderson (1995, 2001) documented gradual decreases in accuracy of number and gender agreement, as well as decreasing syntactic complexity, in case studies of children who used more English

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than Spanish over time. Montrul (2002) found that young adults who acquired English between birth and 7 years used the imperfect/preterite distinction less accurately than did individuals who immigrated to the United States and started to acquire English between 8 years and college age. Differing degrees of exposure may also affect access to lexical semantic knowledge. Kohnert and colleagues observed age-related changes in Spanish–English bilinguals' ability to produce and comprehend words in English and Spanish from the age of 5 through young adulthood (Anderson, 2001; Kohnert & Bates, 2002; Kohnert, Bates, & Hernández, 1999; Kohnert, Hernández, & Bates, 1998).

Exposure to each language may also influence performance differently across domains. For example, Bohman, Bedore, Peña, Mendez-Perez, and Gillam (2010) found that language use was significantly correlated with grammatical production, whereas hearing and using a language were significantly correlated with measures of semantics. Similarly, Bedore et al. (2012) found that across different levels of first- and second-language exposure, children varied on their performance on semantics and morphosyntax tasks. This level of variation in bilinguals may result in "mixed" language performance in which children are stronger in one language in one domain but in the other language in another domain. Our research (e.g., Bedore, Peña, Gillam, & Ho, 2010; Bedore, Peña, Griffin, & Hixon, 2016) documents that about 66% of the bilinguals we tested showed mixed dominance. These findings are consistent with other language pairs as well; for example, French–English bilinguals (Paradis, Crago, Genesee, & Rice, 2003).

LANGUAGE IMPAIRMENT IN BILINGUALS

Bilingual children with speech and language impairment have many of the same difficulties in the domains of speech and language as monolingual children. Children with LI may have difficulties with grammatical morphology and language productivity. Some children have additional difficulties with comprehension of language. Furthermore, children with LI are characterized by their difficulties in learning, organizing, and retrieving words, and making lexical-semantic associations. Sometimes children with LI have difficulties using language appropriately, and this may result in communicative breakdowns when interacting with adults and peers. In the speech area, children may have difficulty producing all the sounds of their language, making it difficult to understand what they are saying.

It is difficult to determine whether speech and language errors made by bilinguals are due to language differences or to speech and language impairment (Botting, Conti-Ramsden, & Crutchley, 1997; Damico, Oller, & Storey, 1983; Schiff-Meyers, 1992). Differences in grammar, distributed semantic knowledge, cultural experience, and sound systems can affect bilinguals' performance on assessments focusing on pragmatics, phonology, morphosyntax, and semantics. Research over the last 10 years has demonstrated an increased focus on understanding the nature of speech and language impairment in bilingual children (Blom & Boerma, 2017; Goldstein & Gildersleeve-Neumann, 2012; O'Toole & Hickey, 2013; Paradis, Jia, & Arppe, 2017; Peña & Bedore, 2009).

Pragmatics and Language Impairment

Although there is some contradictory evidence about the existence of pragmatics deficits in children diagnosed with specific language impairment (SLI), there are subsets of language-impaired children who demonstrate difficulty in responding to and expressing communicative intent. The work of Bonifacio et al. (2007) clearly demonstrated that children who are both less assertive and less responsive are likely to be at greater risk for LI, because their lack of assertiveness and responsiveness limits the quantity and quality of their interactions with others.

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Phonological Impairment in Bilinguals

There are relatively few studies examining phonological skills in bilingual children with phonological disorders. Not surprisingly, bilingual children with phonological disorders exhibit more errors, lower consonant accuracy scores, and higher percentages of occurrence for phonological error patterns than do either typically developing bilingual children or typically developing monolingual children of either language (Goldstein, 2000). Moreover, the types of errors the bilingual children exhibited are similar to those produced by monolingual speakers with phonological disorders. Such types include errors on fricatives, clusters, and liquids. Typical error patterns are cluster reduction, unstressed syllable deletion, and liquid simplification. Bilingual children also show error types not typically associated with typically developing monolingual or bilingual speakers, such as backing and initial consonant deletion. It should be noted, however, that bilingual children will not necessarily exhibit error types with the same frequency in each language. For example, in Spanish–English bilinguals, final consonant deletion will be higher in English than in Spanish, because Spanish contains fewer final consonants in its inventory (Goldstein et al., 2008).

Phonology and Language Impairment

The earliest signs of LI are often delays in the onset of speech and language. At preschool and early school age, children who demonstrate deficits in vocabulary and grammar also demonstrate weak phonological skills (Shriberg & Austin, 1998). Phonological impairment has been associated with deficits in grammatical production, a hallmark deficit of LI (Cooperson, Bedore, & Peña, 2013; Shriberg & Austin). Common phonological processes such as weak syllable deletion are associated with lower-than-expected production of grammatical forms (Aguilar-Mediavilla, Sanz-Torrent, & Serra-Raventós, 2007; Royle & Stine, 2013). Often, children with LI demonstrate single-word receptive vocabulary within the average range for their age. However, comparisons with typically developing children show that their scores are often significantly below those of their typical peers (McGregor, 2009).

Morphosyntax and Language Impairment in Bilinguals

In the area of morphosyntax, findings indicate that bilingual children with LI demonstrate patterns of impairment similar to but not exactly like those of their monolingual peers with primary LI. For example, Salameh, Håkansson, and Nettelbladt (2004) followed Swedish–Arabic bilingual preschoolers with and without LI over a 1-year period. Although children with LI demonstrated delays in both languages, their development followed the predicted trajectory in each of their languages. These findings appear to be similar across many other language pairs as well. Paradis and colleagues (2003) compared the grammatical errors of French–English bilingual children to those of their monolingual peers in each language. The bilinguals with LI produced errors in tense-related morphemes in each of their languages.

There are also some error patterns, however, that are somewhat different from those of monolingual children with and without LI. Jacobson and Schwartz (2002) reported that in English, bilingual school-age children with LI produced qualitatively different errors in verb marking than did their typically developing peers. Typically developing bilingual children overregularized irregular verbs (e.g., *runned* for *ran*). In contrast, children with LI used the unmarked form (e.g., *run* for *ran*). Restrepo and Kruth (2000) compared the language skills of two 7-year-olds (one with and one without LI) who had begun to acquire English at school entry. In spite of the similar patterns of

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exposure to the two languages, the children demonstrated different patterns of grammatical production. The child with LI demonstrated greater loss of her first language than did her typical language peer, as indicated by changes in mean length utterance (MLU) and grammaticality. In English, she used fewer verb forms, and those that are commonly difficult for children with LI (e.g., past-tense forms, third-person singular present tense) were produced less accurately.

In the area of grammatical morphology, Spanish–English and French–English bilinguals have patterns of error similar to those of monolingual English speakers (Gutiérrez-Clellen & Simon-Cereijido, 2007) when English is their dominant language. For example, Gutiérrez-Clellen et al. (2008) compared bilingual Spanish–English speakers and English-as-a-first-language speakers, with and without LI, on measures of verb marking and subject use. They found that both groups of children with LI scored significantly lower than their typical peers. In this analysis, there were no significant effects associated with bilingual status. Similarly, German monolingual and Turkish–German bilingual children with LI showed similar patterns of error on agreement-marked verb forms (Rothweiler, Chilla, & Clahsen, 2012). A comparison of monolingual Dutch and bilingual Frisian–Dutch children with LI demonstrated more agreement errors and greater omissions with increased complexity in Dutch compared to monolingual Dutch speakers without LI (Spoelman & Bol, 2012). There were no significant differences between monolingual and bilingual children with LI. Together, these studies demonstrate that monolinguals and bilinguals with LI show similar patterns of impairment when compared in their stronger language.

For children who are in the process of learning a second language, findings are not as clear. In a large study of risk for LI in Spanish–English bilingual preschoolers, Gutiérrez-Clellen et al. (2008) found that typically developing children who were ELLs and whose best language was Spanish made errors on finite verb use (consistent with the performance of children with LI) but not on nominative subject use (consistent with the performance of typically developing children). Similarly, Peña, Gillam, Bedore, and Bohman (2011) found that English-dominant bilinguals and monolinguals scored similarly in English. Spanish-dominant bilinguals and monolinguals scored similarly in Spanish on screening measures of morphosyntax and semantics. Bilingual children, however, who were defined as those using and hearing both languages between 40% and 60% on average, demonstrated lower scores compared to both Spanish and English monolinguals. At the individual level, they demonstrated more mixed patterns of performance in each language, so that their scores were below the average range in one but not both of their languages (see also Bedore et al., 2012). Thus, children in the process of learning a second language may present with patterns that are similar to children with LI and to those with typical development when tested in only one language. Similar to the patterns found for English-dominant bilinguals, Spanish-speaking children with LI from bilingual backgrounds present many of the same kinds of errors that are reported for monolingual Spanish-speaking children. Early work with monolingual or functionally monolingual children showed that Spanish learners have the most difficulties with articles and direct-object clitics (Ambert, 1986; Bedore & Leonard, 2001; Bosch & Serra, 1997; Simon-Cereijido & Gutiérrez-Clellen, 2007).

Difficulties involving overregularization of past tense and adjective agreement were also noted. Restrepo and Gutiérrez-Clellen (2001) reported that Spanish-speaking 5- to 7-year-old children with LI who were exposed to English had significant difficulties with definite articles. The most common errors were omissions and gender errors. Jacobson and Schwartz (2002) evaluated clitic production and verb-tense marking in incipient bilingual preschoolers with LI who used Spanish but had passive knowledge of English. These children produced verb-tense markers accurately but produced

clitics with 65% accuracy as compared to the 84% accuracy of their typically developing peers. Recent research with Spanish-speaking children with LI indicates that the combination of correct use of articles, verbs, and clitics has fair discrimination accuracy, and that incorporating semantic-syntactic complexity measures, such as MLU, omissions of direct objects, and use of indirect objects, can increase diagnostic accuracy in assessments.

Semantics and Language Impairment in Bilinguals

Children with LI also make errors in the semantic domain. Bilingual children with LI demonstrate delays in early vocabulary in both their languages (Thordardottir, Ellis Weismer, & Evans, 2002; Thordardottir, Ellis Weismer, & Smith, 1997). In addition, they have difficulty organizing and gaining access to the lexical system.

The types of errors seen in monolingual English-speaking children with LI are also observed in other languages as well as in bilinguals. In Ambert's (1986) study of monolingual Spanish speakers with LI, participants' word-use errors suggested poor representation of word meaning and possible word-finding difficulties. Some examples included word substitutions (e.g., música/"music" for película/"movie") and circumlocution (no hace frío y hace calor/"it's not cold and it's hot" for verano/"summer"). Sheng, McGregor, and Marian (2006) explored lexical-semantic organization in Mandarin–English bilingual and English monolingual children. Performance on a repeated associations task in which children responded with a related word, such as "chair" when given a prompt such as "table," indicated that both bilinguals and monolinguals had similar patterns of associations within language. For bilinguals, performance across languages was similar. This work has been extended to Spanish–English bilinguals (Sheng, Bedore, Peña, & Fiestas, 2013) and to Spanish–English bilinguals with LI (Sheng, Bedore, Peña, & Taliancich-Klinger, 2013; Sheng, Peña, Bedore, & Fiestas, 2012). Findings from this work suggest that children with LI have sparse lexical-semantic networks. Specifically, compared to their typically developing peers, they had significant difficulty generating words associated with a given target.

Semantics is one area in which children can mix their two languages. Yet, whereas some children use code-mixing or code-switching, not all bilinguals do. Work by Greene, Peña, and Bedore (2013) demonstrated that on a test of semantics, about 50% of the children code-mixed in Spanish or English, and a small subset code-mixed in both. Mixing was related to language dominance consistent with reports by Gutiérrez-Clellen, Simon-Cereijido, and Leone (2009). Children at risk for LI, however, were more likely to make errors even when they employed code-mixing. These findings are consistent with the notion that children with LI have sparse lexical-semantic networks (McGregor, 2009).

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