

Interaction in Bilingual Language Acquisition



Brian A. Goldstein
Temple University

Bilingual Therapies Symposium
Cabo San Lucas, México
July, 2008



Is the myth dead yet?

- Despite the acquisition of two languages, bilingual children do **not** appear to be “remarkably delayed nor remarkably advanced” relative to that of monolingual children (Nicoladis & Genesee, 1997, p. 264).

Models of Language Representation

Unitary Model (e.g., Volterra & Taeschner, 1978)

Lang A/Lang B

Models of Language Representation

Unitary Model (e.g., Volterra & Taeschner, 1978)

Lang A/Lang B

Lang A Lang B

Models of Language Representation

Unitary Model (e.g., Volterra & Taeschner, 1978)

Lang A/Lang B

Lang A Lang B

Lang A Lang B

Models of Language Representation

Interactional Dual Systems Model
(Paradis, 2001)

Lang A ↔ Lang B

“Interaction”

- “the systemic influence of the grammar of one language on the grammar of the other language during acquisition, causing differences in a bilingual's patterns and rates of development in comparison with a monolingual's” (Paradis & Genesee, 1996, p. 3).

Implications of IDSM to Acquisition

(Paradis & Genesee, 1996)

- Acceleration
 - Earlier/Faster rate of acquisition in bilinguals as compared to monolinguals (Fabiano, 2006)
- Delay (prefer *Deceleration*)
 - Later/Slower rate of acquisition in bilinguals as compared to monolinguals (Vihman, 1982; Gildersleeve, Davis, & Stubbe, 1996)
- Transfer (prefer *Cross-Linguistic Effects*)
 - Language-specific features found in productions of the other language (Paradis, 2001)

Syntax (Merino, 1992)

	Monolinguals	Bilinguals	
rank order	Active (she <i>eats</i> lunch)	Active	<i>Commensurate</i>

Syntax (Merino, 1992)

	Monolinguals	Bilinguals	
rank order	Active (she <i>eats</i> lunch)	Active	<i>Commensurate</i>
	Gender (gato <i>rojo</i> , <i>cat red</i>)	Gender	<i>Commensurate</i>

Syntax (Merino, 1992)

	Monolinguals	Bilinguals	
rank order	Active (she <i>eats</i> lunch)	Active	<i>Commensurate</i>
	Gender (gato <i>rojo</i> , <i>cat red</i>)	Gender	<i>Commensurate</i>
	Plural	Present Progressive (she <i>is eating</i> lunch)	<i>Acceleration</i>

Syntax (Merino, 1992)

	Monolinguals	Bilinguals	
rank order	Active (she <i>eats</i> lunch)	Active	<i>Commensurate</i>
	Gender (gato <i>rojo</i> , <i>cat red</i>)	Gender	<i>Commensurate</i>
	Plural	Present Progressive (she <i>is eating</i> lunch)	<i>Acceleration</i>
	Regular preterit (ella <i>comió</i> pan; she ate bread)	Plural	<i>Deceleration</i>

Syntax (Merino, 1992)

rank order	Monolinguals	Bilinguals	
	Active (she <i>eats</i> lunch)	Active	Commensurate
	Gender (gato rojo, cat red)	Gender	Commensurate
	Plural	Present Progressive (she <i>is eating</i> lunch)	Acceleration
	Regular preterit (ella <i>comió</i> pan; she ate bread)	Plural	Deceleration
	Irreg. preterit (they <i>went</i> [go] home)	Regular preterit	Deceleration

Lexicon (Pearson et al., 1993)

Age	Monolingual		Bilingual	
	Avg.	Range	Avg.	Range
16-17 mos.	44	9-79	40	9-71

Lexicon (Pearson et al., 1993)

Age	Monolingual		Bilingual	
	Avg.	Range	Avg.	Range
16-17 mos.	44	9-79	40	9-71
20-21 mos.	109	38-180	168	50-286

Lexicon (Pearson et al., 1993)

Age	Monolingual		Bilingual	
	Avg.	Range	Avg.	Range
16-17 mos.	44	9-79	40	9-71
20-21 mos.	109	38-180	168	50-286
24-25 mos.	286	116-456	190	54-326

In a language sample, a child produces:



horse

caballo

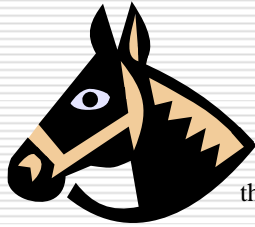
How many words are in the child's lexical system? 1 or 2?



horse

caballo

How many words are in the child's lexical system? 1 or 2?



horse (1)

caballo (2)

the concept of "horse" (1)

Lexicon

- Non-interaction perspective
 - Total vocabulary
 - L1 total vocabulary ≠ L2 total vocabulary (Peña & Stubbe Kester, 2004)
 - Bilinguals ≠ Monolinguals
- Interaction perspective
 - Conceptual vocabulary: L1 = L2
 - Bilinguals = Monolinguals
- Other evidence of interaction (Peña, Bedore, & Zlatic, 2002)
 - percentage of unique items ≈ 68%
 - percentage of non-unique items (i.e., translation equivalents) ≈ 32%

Semantics (Peña, Bedore, & Rappazzo, 2003)

Level of Difficulty	Spanish	English
Easy	-expressive functions (<i>tell me what you do with a hammer</i>) -receptive functions (<i>show me what you do with a hammer</i>)	-expressive functions -receptive similarities and differences
Medium	-receptive similarities & differences (<i>which 2 objects are the same?</i>)	-receptive functions
Hard	-expressive linguistic concepts (<i>Why is X bigger than Y?</i>) -expressive associations	--expressive linguistic concepts -expressive associations

Semantics (Peña, Bedore, & Rappazzo, 2003)

Level of Difficulty	Spanish	English
Easy	-expressive functions -receptive functions	-expressive functions [commensurate] -receptive similarities and differences [acceleration]
Medium	-receptive similarities & differences	-receptive functions [deceleration]
Hard	-expressive linguistic concepts -expressive associations	-expressive linguistic concepts [commensurate] -expressive associations [commensurate]

Cross-Linguistic Effects

- Spanish-influenced English
 - *red house* → *house red*
 - /kɪet/ (*crate*) → [kret]
- English-influenced Spanish
 - *to park* (verb) → *parquear*
 - /flor/ (*flower*) → [floɾ]
 - /komo se jama/ → [ko^umo^u se' jama]

Trajectory of Bilingual Language Development

- Group data indicate that bilingual language development is similar, although not identical, to monolingual language development for **simultaneous** bilinguals (Genesee, Paradis, & Crago, 2004)

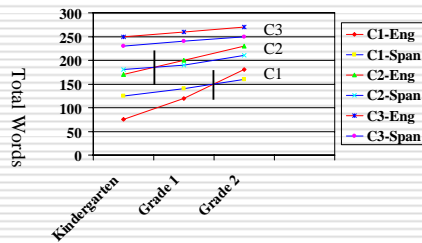
Trajectory of Bilingual Language Development

- Group data indicate that bilingual language development is similar, although not identical, to monolingual language development for **sequential** bilinguals...over time.
- After 21 months of exposure to English, 40% of sequential bilinguals exhibited morphological skills with the normal range of monolinguals, 65% for receptive vocabulary, and 90% for story grammar (Paradis, 2007).

Trajectory of Bilingual Language Development

- Spanish-English sequential bilinguals scored below monolingual English children for receptive and expressive vocabulary through elementary school, but the difference narrowed by 5th grade (Eilers, Pearson, & Cobo-Lewis, 2006).
- beware individual variation

Language Trajectory (Iglesias, 2003)



Bilingual Children with Disorders

- Bilingual children with language impairments showed commensurate language skills to monolinguals with language impairments (Paradis, 2005).
- Bilingual children with SLI exhibited same types and frequency of morphosyntactic errors as monolinguals with SLI (Paradis, Crago, Genesee, & Rice, 2003).
- Bilingual children with Down Syndrome (DS) showed commensurate language skills to monolingual children with DS (Kay-Raining Bird, Cleave, Trudeau, Thordardottir, Sutton, & Thorpe, 2005).

Application to Assessment

Question to Ask:

- What are the child's skills in Spanish (i.e., non-English language) and English?
- How do structures common to both languages develop?
- How do structures unique to each language develop?
- What is the trajectory of those skills over time?

Examine Language Skills Common to Both Languages and Unique in Each Language

Phonemes with Shared/Unshared Features

Shared Features (English and Spanish)	Unshared Features
/m, n, b, p, t, d, k, g, f, tʃ (ch), s, ð (th- vd.), l, w, j/	<u>English</u> /h, v, dʒ (j), ŋ (ng), ʃ (sh), ʒ (zh), z, θ (th-vl.), ɹ
	<u>Spanish</u> /x, γ (g-spirant), r, r (flap), β (b-spirant)/

Shared vs. Unshared Phonemes

(Goldstein, Fabiano, & Iglesias, 2003)

	Accuracy-Eng.	Accuracy-Span
Shared		
typically developing	93.5%	93.7%
phon. disordered	83.3%	84.6%
Unshared		
<u>English</u>		
typically developing	81.7%	n.a.
phon. disordered	59.8%	n.a.
<u>Spanish</u>		
typically developing	n.a.	76.6%
phon. disordered	n.a.	48.6%

based on Stockman's Minimal Competence Core (1996)

Examples of Common/Unique Properties

- **Lexicon**
 - Total vocabulary in each language
 - Conceptual vocabulary
 - Percent concepts (i.e., translation equivalents)/unique items
- **Morphosyntax**
 - Common: MLU-w; plural; irregular verbs
 - Unique: Spanish (reflexives; conditional; gender); English (subject pronoun inclusion; "fixed" word order)

Assessment Issues

- Assess periodically but probe regularly because:
 - Bilingual language skills change regularly over time and affect each language and each domain within each language differently.
 - We want to measure and monitor the type and degree of interaction between the two languages.
 - We're describing acceleration, deceleration, and cross-linguistic effects.

Application to Intervention

- Expect interaction between the two languages
- Evidence

Evidence of Interaction/ Generalization during Intervention

□ Literacy

- ELLs taught to read in L1 had higher reading & academic achievement in L2 (e.g., Cobo-Lewis, et al., 2002).
- English phonological awareness skills were predicted by
 - (1) English oral proficiency
 - (2) *Spanish* oral proficiency
 - (3) *Spanish* phonological awareness skills (Lopez & Greenfield, 2004)

Intervention Interaction (cont.)

□ Literacy

- Spanish word reading skills in kindergarten were found to be predictive of English word reading skills in 1st grade (Páez & Rinaldi, 2006).

□ Language

- Intervention on vocabulary deficit in L1 (Spanish) transferred to improved skills in L2 (English) (Perozzi & Sanchez, 1992).

1. Choose Intervention Targets

- Based on child's language skills, error patterns, and errors in each of the two languages

Interaction & Treatment Targets

(Kohnert & Derr, 2004; Kohnert et al., 2005; Yavaş & Goldstein, 1998)

- Select errors/error patterns with evidence of interaction
 - Highly occurring in/common to both languages
 - Unstressed syllable deletion
 - Plural -s
 - Present progressive
- Select errors/error patterns with little/no evidence of interaction
 - Highly occurring in one language
 - Final consonant deletion
 - Past tense
 - Occurring in only one language
 - Flap/trill
 - Reflexives

Interaction of Form and Function

□ Old forms, new functions

- Give an old form, a new function
 - Child can produce /s/ in the word-initial position of CVCV words
 - /sopa/ (*sopa/soup*) → [sopa]
 - Then target /s/ in intervocalic position
 - [kasa] (*casa/house*)
 - /s/ is now "mastered"

□ Old functions, new forms

- Give an old function, a new form
 - Child can consistently produce CVCV words
 - Target /tʃ/ in word-initial position of CVCV words

2. Choose the Goal Attack Strategy

(Fey, 1986)

Vertical Strategy

- Teach one goal at a time until criterion is reached.
- **Bilingual Correlate:**
 - *Interaction:* choose a target that is common across the two languages
 - monitor generalization from one language to the other.
 - Example: remediate plurals in English and monitor it in Spanish.
 - *Non-Interaction:* choose a target that is specific to one language (e.g., reflexives in Spanish; adj+noun in English).

Horizontal Strategy

- Address more than one goal in each session.
- **Bilingual Correlate:**
 - *Stronger(?) Interaction :* target the same goal in Language A and Language B
 - Example: work on plurals in Spanish (10 minutes); break; work on plurals in English
 - *Weaker(?) Interaction:* target one goal in Language A and a different goal in Language B.
 - Example: target *-ing* in English and *past tense* in Spanish.

Cyclical Strategy

- Address a number of goals in a cyclical fashion, but only one goal is incorporated at a time within a session.
- **Bilingual Correlate:**
 - *Stronger/Weaker Interaction:* same as vertical but...
 - rotate not only targets but also languages
 - Example:
 - Month 1: plural -s in Language A
 - present progressive in Language B
 - Month 2: present progressive in Language A
 - plural -s in Language B

Regardless of 1. and 2.,

- Monitor interaction/generalization within and across the two languages
- "Hope is not a strategy."

Billy Beane, G.M., Oakland Athletics

3. Monitor Interaction

(after Williams, 2003)

- Monitor skills within each language and across both languages by determining:
 - Efficiency
 - Effects
 - Effectiveness

Efficiency

- Determine how long it took for the client to achieve the goals.
 - number of treatment sessions
 - Determine how much effort was needed to facilitate changes.
 - Examine child's response level
 - imitation vs. spontaneous production
 - Determine the hierarchy needed to produce change
 - incremental steps vs. a few gradual steps
-

Effects

- Determine if the change was significant.
 - Graph:
 - Target and non-target data in each language
 - Take pre-/post-treatment measures
 - Use broader measures
 - family/non-family ratings
-

Effectiveness

- Determine if therapy was responsible for the change.
 - baseline data → treatment data → withdrawal data (i.e., test-teach-retest)
 - generalization probes
 - follow-up data (weeks to months after working on the target)
-

Take Home Messages

- Determine how the two languages interact.
 - Monitor within language generalization.
 - Monitor cross-language generalization.
 - Interact.
-

How Can *You* Interact?

- Utilize best practices
 - Research
 - Client/family goals
 - Clinical judgment
- } Evidence based practice
} Practice based evidence (Dollaghan, 2007)
-

How Can *You* Interact?

- Utilize best practices
 - Research
 - Client/family goals
 - Clinical judgment
 - Be involved
 - ASHA
 - State SLHA
 - Journal groups
 - iAdelante! Blog
 - <http://blog.bilingualtherapies.com/>
- } Evidence based practice
} Practice based evidence (Dollaghan, 2007)
-

How Can *You* Interact?

- Utilize best practices
 - Research
 - Client/family goals
 - Clinical judgment
- Be involved
 - ASHA
 - State SLHA
 - Journal groups
- Change
 - Yourself
 - The "system"
 - Supervisors
 - Classroom teachers
 - Special education directors
 - Principals

Evidence based practice
Practice based evidence (Dollaghan, 2007)

Thank You
Gracias

References

- Bialystok, E. (2001). *Bilingualism in development: Language, literacy and cognition*. Cambridge, England: Cambridge University Press.
- Cobo-Lewis, A., B. Pearson, R. Eilers, & V. Umbel. (2002). Effects of bilingualism and bilingual education on oral and written Spanish skills: A multifactor study of standardized test outcomes (pp. 64-97). In D.K. Oller and R.E. Eilers (Eds.), *Language and Literacy in Bilingual Children*, Multilingual Matters Ltd.
- Dollaghan, C. (2007). *The handbook for evidence-based practice in communication disorders*. Baltimore, MD: Brookes Publishing.
- Eilers, R., Pearson, B., & Cobo-Lewis, A. (2006). The social circumstances of bilingualism: The Miami experience. In P. McCardle & E. Hoff (Eds.), *Child bilingualism* (pp. 68-90). Clevedon, UK: Multilingual Matters.
- Fabiano, L. (2006). *Phonological representation in Spanish-English bilingual children*. Unpublished doctoral dissertation. Philadelphia, PA, Temple University.
- Fey, M. (1986). *Language intervention with young children*. San Diego: College Hill Press.
- Gildersleeve-Neumann, C., & Davis, B. (1998, November). *Learning English in a bilingual preschool environment: Change over time*. Paper presented at the annual convention of the American Speech-Language-Hearing Association, San Antonio, TX.
- Gildersleeve, C., Davis, B., & Stubbe, E. (1996, November). *When monolingual rules don't apply: Speech development in a bilingual environment*. Paper presented at the annual convention of the American Speech-Language-Hearing Association, Seattle, WA.

References

- Genesee, F. (1989). Early bilingual development: one language or two? *Journal of Child Language*, 16, 161-279.
- Genesee, F., Paradis, J., & Crago, M. (2004). *Dual language development and disorders*. Baltimore: Paul H Brookes Publishing.
- Goldstein, B., Fabiano, L., & Iglesias, A. (2003, April). *The representation of phonology in sequential Spanish-English bilingual children*. Poster session presented at the 4th annual International Symposium on Bilingualism, Tempe, AZ.
- Iglesias, A. (2003, June). Language skills in bilingual children. Paper presented at SRCLD, Madison, WI.
- Kay-Raining Bird E., Cleave P., Trudeau, N., Thordardottir, E., Sutton, A., & Thorpe, A. (2005). The language abilities of bilingual children with Down Syndrome. *American Journal of Speech-Language Pathology*, 14, 187-199.
- Kohnert, K., & Derr, A. (2004). Language intervention with bilingual children. In B. Goldstein (Ed.), *Bilingual language development and disorders in Spanish-English speakers* (pp. 311-342). Baltimore: Brookes Publishing.
- Kohnert, K., Yim, D., Nett, K., Fong Kan, P., & Duran, L. (2005). Intervention With Linguistically Diverse Preschool Children: A Focus on Developing Home Language(s). *Language, Speech, & Hearing Services in Schools*, 32, 153-164.
- Lopez, L. M., & Greenfield, D. B. (2004). The cross-language transfer of phonological skills of Hispanic Head Start children. *Bilingual Research Journal*, 28, 1-18.

References

- Merino, B. (1992). Acquisition of syntactic and phonological features in Spanish. In H. Langdon, with L. R. Cheng (Eds.), *Hispanic children and adults with communication disorders*. Gaithersburg, MD: Aspen Publishers.
- Nicoladis, E., & Genesee, F. (1997). Language development in preschool bilingual children. *Journal of Speech-Language Pathology and Audiology*, 21, 258-270.
- Páez, M.A., & Rinaldi, C. (2006). Predicting word reading skills for Spanish-Speaking students in first grade. *Topics in Language Disorders*, 26, 338-350.
- Paradis, J. (2007). Second language acquisition in childhood. In E. Hoff & M. Shatz (Eds.), *Blackwell handbook of language development* (pp. pp. 387-405). Oxford, UK: Blackwell.
- Paradis, J. (2005). Grammatical morphology in children learning English as a second language: Implications of similarities with Specific Language Impairment. *Language, Speech and Hearing Services in the Schools*, 36, 172-187.
- Paradis, J. (2001). Do bilingual two-year-olds have separate phonological systems? *International Journal of Bilingualism*, 5(1), 19-38.
- Paradis, J., Crago, M., Genesee, F., & Rice, M. (2003). French-English bilingual children with SLI: How do they compare with their monolingual peers? *Journal of Speech, Language, and Hearing Research*, 46, 113-127.
- Paradis, J., & Genesee, F. (1996). Syntactic acquisition in bilingual children: Autonomous or interdependent? *Studies in Second Language Acquisition*, 18, 1-25.
- Pearson, B. Z., Fernández, S. C., & Oller, D. K. (1993). Lexical development in bilingual infants and toddlers: Comparison to monolingual norms. *Language Learning*, 43, 93-120.

References

- Peña, E., Bedore, L. M., & Rappazzo, C. (2003). Comparison of Spanish, English, and bilingual children's performance across semantic tasks. *Language, Speech, and Hearing Services in Schools*, 34(1), 5-16.
- Peña, E. D., Bedore, L. M., & Zlatić-Giunta, R. (2002). Development of categorization in young bilingual children. *Journal of Speech, Language, and Hearing Research* 45, 938-947.
- Peña, E. D., & Stubbe Kester, E. (2004). Semantic development in Spanish-English bilinguals: Theory, assessment, and intervention. In B. A. Goldstein (Ed.), *Bilingual language development and disorders in Spanish-English speakers* (pp. 105-130). Baltimore: Brookes.
- Perozzi, J. A., & Sanchez, M. L. C. (1992). The effect of instruction in L1 on receptive acquisition of L2 for bilingual children with language delay. *Language, Speech, and Hearing Services in Schools*, 23, 348-352.
- Stockman, J. (1996). Phonological development and disorders in African American children. In A. Kambh, K. Polock, & J. Harris (eds.), *Communication development and disorders in African American children* (pp. 117-154). Baltimore: Brookes.
- Wilman, M. 1982. Formulas in first and second language acquisition. In *Exceptional language and linguistics*, eds. L. Obler and L. Menn, pp. 261-284. New York: Academic Press.
- Volterra, V., & Taeschner, T. (1978). The acquisition and development of language by a bilingual child. *Journal of Child Language*, 5, 311-326.
- Williams, A.L. (2003). Target selection and treatment outcomes. *Perspectives on Language Learning and Education*, 10, 1, 12-16.
- Yavas, M., & Goldstein, B. (1998). Phonological assessment and treatment of bilingual speakers. *American Journal of Speech-Language Pathology*, 7, 49-60.