Treating Bilingual Children with Primary Language Impairment: Evidence & Opportunities

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Bilinguals - Typical
- Experience with & social need for two languages.
- Quantity, quality & timing of experiences linked to ability.
- Shifting levels of L1-L2 skills.
- Uneven ability or distributed skills within and across languages.
- Links between languages and cognition
- Individual variation even in response to similar circumstances.

Primary Language Impairment (PLI):
- Aka SLI, LD, LLD, LD-NOS, Late Talkers, SNAP etc.
- Persistent, unexplained significant delays in language.
- Inefficiencies in cognitive processing system.
- Degree of heritability-positive family hx of CDIs.
- Heterogeneity within diagnostic category.

Bilingual Children with PLI
- Similar to typical bilingual learners, with some key differences.
- Similar to monolingual children with PLI, with some key differences.
How can we facilitate optimal communication outcomes in bilingual children with primary language impairment (PLI)?

I. Treatment Premises for Bi-PLI

Effective treatment viewed as essential for improving language and, by extension, academic, social, emotional and vocational outcomes.

Plan

I. Treatment Premises for Bi-PLI
II. Evidence: Treatment (Tx) Studies
III. Contextual Model & Common Factors
IV. Options for Multi-Pronged Action Plans

5 Reasons for treatments that support both languages in bilingual learners with PLI

1. Children with PLI can learn two languages.
2. Bilingualism is a cognitive, linguistic, social and vocational resource.
3. Successful treatment is determined by environmental demands; different environments may require different languages.
4. Language is linked to culture; strong cultural connections are linked to social-emotional well-being and academic success.
5. Building on an existing language foundation takes advantage of previous experiences: starting over can exacerbate a skill gap.

(e.g., Kohnert, 2010, 2013; Kohnert & Derr, 2012; Kohnert & Medina, 2009; Polia & Bedore, 2009; Pham, 2011)

When bilingualism is inherent in a child’s life circumstances, clinical actions which support gains in both languages are optimal.
4 Challenges to promoting bilingualism in children with PLI

1) Institutional & individual opposition.
2) L1 plateau or erosion.
3) Mismatch in client & clinician languages.
4) Limited evidence investigating different Txs

(e.g., Ebert et al., 2013; Kohnert, 2010; 2013; Restrepo & Kruth, 2000; Restrepo et al., 2013)

(2) L1 Plateau or Erosion (alongside slow gains in L2)

Kohnert, 2013, Figure 6-1

3) Mismatch in client & clinician languages.

- 285,797,349 US population > 5 yrs
- ~20% of US population (57 million) speaks LOTE
- 35,000,000 Spanish-speakers
- 126,219 ASHA Certified SLPs
- 4.9% of US SLPs (5,962) bilingual; 2.1% (2,613) in Spanish & English

(4) Limited evidence investigating different Txs

(cf ASHA, 2005; Gillam & Gillam, 2006; Sackett, Straus, Richardson, Rosenberg, & Haynes, 2000)

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ArSHA. 4/12/2013
External research evidence on Tx in Bi-PLI
(Ebert, Kohnert, & Disher, 2012; Perozzi, 1986; Perozzi & Sanchez, 1992; Pham, Kohnert, & Mann, 2011; Restrepo et al., 2013; Thordardottir et al., 1997)

II. Evidence:
Treatment Studies (from our lab)

Effective Treatment Results in
- **Learning**
  Improvement on trained tasks, items
- **Generalization**
  Benefits beyond trained items, tasks or settings.

Funded by US National Institute of Deafness and other Communication Disorders (R21DC010868) and National Institute of Child Health and Human Development (F31HD055113).

Using computer interface, bilingual stimuli and an English-only speaking classroom aide consulting with a bilingual SLP.

Giang Pham
Preschooler with PLI: Vietnamese (L1), English (L2)

- 10 min/session, 2 sessions/day, 2 days/wk
- In classroom by English-only teacher
- Used computer interface & pre-recorded audio files in (a) English-only & (b) Bilingual (Viet-Eng).
- DV = % of items correctly identified in each lang.

(Pham, Kohnert, & Mann, 2011, LSHSS)

Research Questions

Study 1:
Does bilingual presentation facilitate or interfere with new word learning in English?

Study 2:
Can an EO interventionist promote new learning in Vietnamese and English?

Study 3:
Can this method be used to promote generalization from recently learned concepts to other picture exemplars?

Study 1:
Facilitates attention to task.

Study 2:
Yes. Receptive vocabulary gains in L1 & L2.

Study 3:
Yes. At least in the case of receptive vocabulary.

(Pham et al., 2011)

General Language Counts

Prior to Tx (age 3:11)
Vietnamese:
- 60 expressive vocab
- 1-2 word sentences

English:
- 10 expressive vocab
- Rote phrases

Following Tx (age 4:5)
Vietnamese:
- 200+ expressive vocab
- 4-6 word sentences

English:
- 100+ expressive vocab
- 2-4 word sentences

(Pham et al., 2011)

Conclusion:

- Feasible, in some cases, for a monolingual clinician to promote gains in the L1 as well as the L2 in preschool children with PLI through creative collaborations with bilingual colleagues and the use of technology.
**Reasoning:**
If cognitive deficits contribute causally to PLI and these skills are modifiable, then treatment of cognitive processing skills should generalize to improved language outcomes.

**SSED Study 2:**
Two Spanish-English Bilinguals: P1 = 8.4 yrs & P2 = 7.5 yrs

**Nonlinguistic Cognitive Processing (NCP) Tx Activities**
(Based on Ebert & Kohnert, 2009; Ebert, Kohnert, Disher, 2012)

**Pre- & Post-Tx Standardized Test Results**

<table>
<thead>
<tr>
<th>Task</th>
<th>P1 Pre</th>
<th>P2 Pre</th>
<th>P1 Post</th>
<th>P2 Post</th>
</tr>
</thead>
<tbody>
<tr>
<td>Word Recalling Sentences</td>
<td>5*</td>
<td>5*</td>
<td><strong>60</strong></td>
<td><strong>60</strong></td>
</tr>
<tr>
<td>Formulated Sentences</td>
<td></td>
<td>46</td>
<td>86</td>
<td>89</td>
</tr>
<tr>
<td>CELF-4, Core</td>
<td></td>
<td>46</td>
<td>86</td>
<td>89</td>
</tr>
<tr>
<td>ROW-PVT</td>
<td></td>
<td>46</td>
<td>86</td>
<td>89</td>
</tr>
<tr>
<td>ROW-PVT</td>
<td></td>
<td>46</td>
<td>86</td>
<td>89</td>
</tr>
</tbody>
</table>

*Change in score is outside one-tailed 95% CI
**Change in score is outside two-tailed 95% CI

Effect sizes calculated by subtracting the mean of the first three data points from the mean of the last three data points and dividing by the pooled standard deviation across all data points for each individual based on Gillam et al., 2001.

Effect sizes calculated using all data points after initiation of treatment, using the variance of the baseline, based on Olive & Smith, 2005.

**Bilingual SSED:**
Repeated Measures Effect Sizes 1, 2

<table>
<thead>
<tr>
<th>Task</th>
<th>P1</th>
<th>P2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Choice Visual Detection</td>
<td>1.67 or 0.01</td>
<td>1.81 or 1.46</td>
</tr>
<tr>
<td>Rapid Automatic Naming</td>
<td>2.30 or 3.4</td>
<td>0.88 or 0.90</td>
</tr>
<tr>
<td>Sentence Repetition</td>
<td>2.03 or 1.8</td>
<td>1.80 or 1.20</td>
</tr>
<tr>
<td>Nonword Repetition, English</td>
<td>2.06 or 1.69</td>
<td>1.27 or 5.5</td>
</tr>
<tr>
<td>Nonword Repetition, Spanish</td>
<td>2.01 or 2.3</td>
<td>1.12 or 3.18</td>
</tr>
</tbody>
</table>

Effect sizes calculated by subtracting the mean of the first three data points from the mean of the last three data points and dividing by the pooled standard deviation across all data points for each individual based on Gillam et al., 2001.
Cognitive Processing

Project Coordinators
- Jill Rentmeester Disher, M.A., CCC-SLP
- Kerry Danahy Ebert, PhD., CCC-SLP
- Bita Payesteh, M.A., CCC-SLP
- Giang Pham, PhD., CCC-SLP

Community Collaborators
- Daniel Jakab, M.A.-SLP
- Nicole Root, M.A., CCC
- Frank Cirrin, Ph.D., CCC
- Staff and speech-language pathologists at the following MPS elementary schools:
  - Andersen
  - Armatage
  - Green Central
  - Jefferson
  - Nellie Stone
  - Ramsey
  - Whittier
  - Windom

Research Assistants
- Maura Kralody
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- Bao Dang
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- Laura Grauerter
- Christina Heinezen
- Megan Anschle
- Phyllis Johnson
- Jennifer Johnston
- Maila Key
- Laura Kawakita
- Angie Luther
- Olivia Matthys
- Amelia Medina
- Andrea Morales
- Emily Rodgers
- Bethany St. Martin
- Meg Inflower Williams

Technical Support
- Edward Carney, PhD

Participants
- N= 59
- Age- 5;6 to 11;2
- Clinical dx c/w PLI
- L1= Spanish; L2=English
- Passed hearing screening
- Scored >80 on TONI
- Scored ≥ 2 standard deviations below mean on Spanish AND English CELF, EOW, ROW tests.

Assessment Battery

<table>
<thead>
<tr>
<th>Cognitive</th>
<th>English</th>
<th>Spanish</th>
</tr>
</thead>
<tbody>
<tr>
<td>CVD</td>
<td>CELF-4 (Core Subtests + RAN)</td>
<td>CELF-4 (Core Subtests + RAN)</td>
</tr>
<tr>
<td></td>
<td>(Semel et al., 2003)</td>
<td>(Wig et al., 2006)</td>
</tr>
<tr>
<td></td>
<td>[CFD, CRS, CFS]</td>
<td>[CFD, CRS, CFS]</td>
</tr>
<tr>
<td>ASM</td>
<td>ROW</td>
<td>ROW</td>
</tr>
<tr>
<td>(Washburn &amp; Kohnert, 2009)</td>
<td>(Browne, 2008a)</td>
<td>(Browne, 2008b)</td>
</tr>
<tr>
<td>SAA**</td>
<td>EOW</td>
<td>EOW</td>
</tr>
<tr>
<td>(Ebert &amp; Kohnert, 2011)</td>
<td>(Browne, 2004a)</td>
<td>(Browne, 2004b)</td>
</tr>
</tbody>
</table>

Post-test only:
- Parent satisfaction survey
- Child satisfaction survey
- Narrative (story tell) (MLU, Bunts, NDW, mazes)
- Narrative Recall (story tell) (Mayen, 1999, SALT)

13 measures yielding > 70 potential DVs
3 Treatment conditions

NCP (n=16)  
- Administered by nationally certified SLP (1:2; 1:3)  
- After school/summer school programs  
- 75 minutes of treatment activities/session (+ break)  
- 4 sessions/week x 5-6 weeks scheduled  
- 3 computer activities + 3 interactive activities (5/session)  
- Videotaped sessions to establish treatment fidelity  
- Planned Analyses: Learning & Generalization; Absolute & Relative Group  

English (n=17)  

Bilingual (n=15)  

NCP Tx Activities

<table>
<thead>
<tr>
<th>Name</th>
<th>Format</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Change</td>
<td>Computer</td>
<td>React to appearance of target (vs. non-target) stimulus as quickly as possible. Target stimulus changes.</td>
</tr>
<tr>
<td>Scanning</td>
<td>Computer</td>
<td>Locate targets (e.g., colors, shapes, letters) in complex arrays.</td>
</tr>
<tr>
<td>Dominos</td>
<td>Computer</td>
<td>Match tile symbols, rotate and align tiles within time limit.</td>
</tr>
<tr>
<td>Blink</td>
<td>Interactive</td>
<td>Play cards that match in number, color, or shape of symbols pictured.</td>
</tr>
<tr>
<td>Bop-n-t</td>
<td>Interactive</td>
<td>Complete command given via musical noise within a short time limit.</td>
</tr>
<tr>
<td>Simon Trickster</td>
<td>Interactive</td>
<td>Replicate tone/light sequences of increasing length.</td>
</tr>
</tbody>
</table>

1Louise Multimedia/Learning Fundamentals; 2Commercially available

English Tx Activities

<table>
<thead>
<tr>
<th>Name</th>
<th>Format</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjectives &amp; Opposites</td>
<td>Computer</td>
<td>Identify new vocabulary items by name and attributes; Identify opposite attributes.</td>
</tr>
<tr>
<td>Prepositions</td>
<td>Computer</td>
<td>Identify pictures that depict prepositional phrases.</td>
</tr>
<tr>
<td>Firefighter Fly</td>
<td>Computer</td>
<td>Follow directions of increasing length and complexity.</td>
</tr>
<tr>
<td>Category Card Games</td>
<td>Interactive</td>
<td>Categorize vocabulary items in multiple game formats.</td>
</tr>
<tr>
<td>Gram’s Cracker</td>
<td>Interactive</td>
<td>Complete grammatical tasks including sentence completion and identification.</td>
</tr>
<tr>
<td>Plunk’s Pond</td>
<td>Interactive</td>
<td>Name items based on description.</td>
</tr>
</tbody>
</table>

1Laureate, 2Earobics, 3Linguisystems

Bilingual Tx Activities

<table>
<thead>
<tr>
<th>Name</th>
<th>Format</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early Classifying Games OR My Home, My Town</td>
<td>Computer</td>
<td>Identify new vocabulary items by name and attributes; Identify opposite attributes.</td>
</tr>
<tr>
<td>Rosetta Stone-Spanish</td>
<td>Computer</td>
<td>Identify pictures that depict prepositional phrases; Follow directions of increasing length and complexity.</td>
</tr>
<tr>
<td>Firefighter Fly (English)</td>
<td>Computer</td>
<td>Follow directions of increasing length and complexity.</td>
</tr>
<tr>
<td>Category Card Games</td>
<td>Interactive</td>
<td>Categorize vocabulary items in multiple game formats.</td>
</tr>
<tr>
<td>Gram’s Cracker</td>
<td>Interactive</td>
<td>Complete grammatical tasks including sentence completion and identification.</td>
</tr>
<tr>
<td>Plunk’s Pond</td>
<td>Interactive</td>
<td>Name items based on description.</td>
</tr>
</tbody>
</table>

1Super Duper, 2Laureate, 3Earobics, 4Linguisystems, 5Adapted into Spanish

Methodological Obstacles:

A few examples . . .

Site/ Personnel Logistics

- Reconciling intense Experimental Tx with educational times.  
- School space  
- Interruptions- Codes (blue, yellow, red); Conferences, ETC  
- SLPs to deliver Tx  

Child attendance

- Illness, vacations, competing demands  
- Snow days, transportation  
- Family stability, neighborhood crime  

Measuring change

- Development  
- Variability in relative L1-L2 levels  
- Heterogeneity of bilinguals & PLI  
- Valid and sensitive measures/DV
e.g., Relative L1-L2 Skills by Measure & Child

|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |

- = better score in Spanish
- = better score in English

Comparable performance in Spanish & English (≤ 10% difference)

**Generalization Results:**

- **Nonlinguistic Cognitive Processing Group (n=16)**
  - Gains on 6/6 English language measures.
  - Gains on 4/6 Spanish language measures.
  - Gains on 3/3 nonlinguistic processing measures.

- **English-Only Language Group (n=17)**
  - Gains on 6/6 English language measures.
  - Gains on 3/3 nonlinguistic processing measures.

- **Bilingual Group (n=15)**
  - Gains on 6/6 English language measures.
  - Gains on 4/6 Spanish language measures.
  - Gains on 2/3 nonlinguistic processing measures.

**Learning Results:**

- **Nonlinguistic Cognitive Processing Group (n=16)**
  - Faster & more accurate in locating target responses in increasingly complex arrays.
  - Increased length of sequences recalled (e.g., from 1-6).

- **English-Only Language Group (n=17)**
  - Increased number of vocabulary words, prepositional phrases, grammatical morphemes identified &/or named in English.
  - Followed increasingly complex directions in English.

- **Bilingual Group (n=15)**
  - Increased number of vocabulary words, prepositional phrases, grammatical morphemes identified &/or named in Spanish (and English).
  - Followed increasingly complex directions in Spanish (and English).

**English (L2): Percent Change Raw Score**

**Spanish (L1): Percent Change Raw Score**

**Cognitive Processing: Percent Change Scores**

(Ebert, Kohnert, Pham, Rentmeester-Disher, Payesteh, 2013)
Results Summary:

- **Absolute Change:**
  - Learning: participants improved on trained tasks/stimuli/activities in each of the 3 conditions.
  - Generalization: improvement within & across languages & domains for each Tx condition on some measures.
  - Cross-domain & cross-language generalization bidirectional.

- **Relative Change:**
  - English (L2) Tx: > English & NCP change
  - Bilingual Tx: > Spanish change
  - Spanish gains were smaller than English gains in all 3 conditions
  - Few between-condition comparisons reached statistical significance

**NOTE:** Analyses still in progress for narratives, 3 mo f/u, PLI severity/L1-L2 proficiency influences, effect of differences in age or sessions attended (13-24) etc.

Clinical Extensions of RCT *(actions we could not take in a controlled experimental design, but would do in “real life” SLP work)*

1. Combine approaches
2. Individual adaptations
3. Link Tx targets to academic lessons
4. Develop home program
5. Enlist partners/tools for “other” language
6. Additional information for parents, teachers
7. SLP mediated discussion groups & “meta-language” use

III. Contextual Model and Common Factors

The Great Psychotherapy Debate (Wampold, 2001) or Why does treatment work?

Percent of improvement in psychotherapy patients as a function of therapeutic factors

- Extratherapeutic Change
- Common Factors
- Expectancy

Gillam et al., 2008, *JSLHR*
Efficacy of FFW-L Intervention in School-Age Children with LI: A RCT

- RCT, N=216; 6-9 y.o.
- Summer camp 5-3.5 hour sessions/week x 6 wks
- Data collection: pre-tx, post-tx, 3 mo post, 6 mo post (CASL, Token, backward masking, word blending)
- Four Therapy conditions plus supervised snack, board games, art, outdoor activities with similar-ability peers.
CASL (Comprehensive Assessment of Spoken Language) Results (Gillam et al, 2008)

<table>
<thead>
<tr>
<th>Condition</th>
<th>Time</th>
<th>SS</th>
</tr>
</thead>
<tbody>
<tr>
<td>CALI</td>
<td>Pretest</td>
<td>78.0</td>
</tr>
<tr>
<td></td>
<td>Posttest</td>
<td>64.8%</td>
</tr>
<tr>
<td></td>
<td>3 months</td>
<td>84.0</td>
</tr>
<tr>
<td></td>
<td>6 months</td>
<td>86.3</td>
</tr>
<tr>
<td>FFW-L</td>
<td>Pretest</td>
<td>78.0</td>
</tr>
<tr>
<td></td>
<td>Posttest</td>
<td>54%</td>
</tr>
<tr>
<td></td>
<td>3 months</td>
<td>83.0</td>
</tr>
<tr>
<td></td>
<td>6 months</td>
<td>85.2</td>
</tr>
<tr>
<td>ILI</td>
<td>Pretest</td>
<td>80.0</td>
</tr>
<tr>
<td></td>
<td>Posttest</td>
<td>85.7</td>
</tr>
<tr>
<td></td>
<td>3 months</td>
<td>87.9</td>
</tr>
<tr>
<td></td>
<td>6 months</td>
<td>89.0</td>
</tr>
<tr>
<td>AE</td>
<td>Pretest</td>
<td>78.4</td>
</tr>
<tr>
<td></td>
<td>Posttest</td>
<td>82.1</td>
</tr>
<tr>
<td></td>
<td>3 months</td>
<td>83.8</td>
</tr>
<tr>
<td></td>
<td>6 months</td>
<td>86.2</td>
</tr>
</tbody>
</table>

Clinician Factor

- In psychotherapy, some clinicians are consistently more effective than others in producing positive outcomes, all else being equal, accounting for ~6 to 9% of variance (Wampold, 2001).
- If this is also the case in SLP, understanding SLP “success factors” could help improve outcomes for all.
- Another factor to think about and exploit in Tx.
- SLP effectiveness not yet directly investigated . . . .

(Elbert & Kohnert, 2010)

Indirect evidence #1: Clinician Factor in SLP Tx

- Rvachew & Nowak (2001) compared phonological tx outcomes & reported results for individual SLPs.
- Reanalysis of reported data showed differences by SLP as well as Tx (Ebert & Kohnert, 2010).

Perspective:

Embrace BOTH common factors and theoretically-motivated specific techniques in treatment plans to optimize positive outcomes.

Indirect Evidence #2: Survey

Top 10 Clinician Factors Selected as Positively Influencing SLP Treatment Outcomes

<table>
<thead>
<tr>
<th>Clinician Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Ability to establish &amp; maintain relationships.</td>
</tr>
<tr>
<td>2. Ability to make treatment meaningful.</td>
</tr>
<tr>
<td>3. Use of frameworks for problem-solving.</td>
</tr>
<tr>
<td>4. Interest &amp; flexibility demonstrated in tx process.</td>
</tr>
<tr>
<td>5. Client's creativity.</td>
</tr>
<tr>
<td>6. Extent of communication</td>
</tr>
<tr>
<td>7. Degree to which clinician follows the principles of evidence-based practice.</td>
</tr>
<tr>
<td>8. How often the clinician reconsiders the client's progress.</td>
</tr>
<tr>
<td>9. Amount of motivation the clinician has for treating the particular client.</td>
</tr>
<tr>
<td>10. Clinician's theoretical framework for understanding the disorder.</td>
</tr>
</tbody>
</table>

Common factors in Bilingual 3 Tx Study

1. Systematic: structured, scripted
2. Small group (2-3): camaraderie & competition
3. Clinicians: Knowledgeable, skilled, caring professionals
4. Client/Family “buy in”

(See Wampold, 2001 for “Common Factors” discussion in Psychotherapy; see Kohnert, 2013 and Elbert & Kohnert, 2010 for applications to SLP)
Essential Components of Effective Intervention Plans

Common Factors
Theoretically-motivated & empirically validated procedures.

Tools & Activities

IV. Options for multi-pronged action plans

Figure 7.1 Bilingual Treatment

Meta-systems & Overlapping structures & functions

Underlying Cognitive Systems & Functions

Structuring Treatment to promote learning & generalization in bilingual PLI

Meta-systems & overlapping structures (e.g., compare & contrast features, translation tasks, organization & discourse; cognates)

L1 Language-specific features
(e.g., at sound, word, syntax, discourse levels, directly or collaborating with partners using software etc)

L2 Language-specific features

Cognitive Processing Mechanisms
(e.g., Attention to auditory & visual details; timed tasks & memory activities e.g., Learning Fundamentals & Earobics software, Bink: Eye Spy; Uno; Simon Trickster, Luminosity)

SLPs: Agents of Change

“Do it” or “cause it” to be done

Indirect as well as direct approaches to facilitating language, in general, & “a language” in particular may be used.
Figure 6.1 Direct and Indirect Actions to Improve Communication Outcomes

<table>
<thead>
<tr>
<th>Professional Actions</th>
<th>Partners</th>
<th>Focused on</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advocate</td>
<td>Client with PLI</td>
<td>English/School language</td>
</tr>
<tr>
<td>Educate, inform</td>
<td>Class, Group</td>
<td>Other Language</td>
</tr>
<tr>
<td>Facilitate change</td>
<td>Peers, siblings</td>
<td>Intersection of L1/L2</td>
</tr>
<tr>
<td>Mediate interactions</td>
<td>Software, internet</td>
<td>Environment</td>
</tr>
<tr>
<td>Plan, organize, select, supervise</td>
<td>Colleagues, teachers,</td>
<td>Academic, Social, Vocational, Personal</td>
</tr>
<tr>
<td>Teach, train, mentor, monitor identify, recommend resources</td>
<td>Parents, care providers, family &amp; community members, assistants</td>
<td>Cognitive underpinnings</td>
</tr>
</tbody>
</table>

Summary
5 General ways to support the other language in cases of client-clinician language mismatch:

1. Communicate the “Why Bi?”
2. Exploit common factors
3. Expand opportunities for other language with indirect methods.
4. Provide direct training in areas of potential generalization.
5. Use theoretical frameworks, service delivery models & empirical evidence to support diverse actions in a multi-pronged plan.

And for language-matched bilingual SLPs:
- Expanded role
  - Consultants and mentors to SLP colleagues,
  - Develop/disseminate materials in other languages
  - implement parent/family education programs
  - Monitor outcomes in the “other language” of programs implemented by monolingual colleagues
  - Provide exquisite direct services in other language.
  - Engage in professional development (Restrepo & Gray, 2012)

How We can facilitate optimal communication outcomes in bilingual children with primary language impairment (PLI). . . even when we do not speak both of the child’s languages.

SLP support may be direct or indirect but must be systematic and explicit.

Note on references
- Citations for primary sources and noted separately throughout presentation.

Thank you!