

**Critical Review:  
Does progress in therapy depend on the language of instruction?**

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This critical review examines the outcomes of therapy depending on the language of instruction with bilingual children who demonstrate articulation, language, and phonological disorders. Although the research to date is not conclusive, the literature overall *suggests* that intervention for language disorders of language-minority children should be provided in the language(s) spoken in the home while the child is still in the process of learning ESL at school. On the contrary, literature for articulation disorders *suggests* that intervention in English only would generalize to the other languages since the impairment is considered to be solely an impairment of phonetic planning (Holm & Dodd, 2001). Relative to phonological disorders, the literature *suggests* that if therapy targets the deficit underlying speech disorder, it will help correct the errors in all languages. On the whole, bilingual children's native language should still be supported as much as possible during the therapy process as well as both at home and at school.

***Introduction***

The increase in cultural and linguistic diversity among the North-American population does not come as a surprise to Speech-Language Pathologists (S-LPs) who work with children. Between the years 2001-2006 there has been a 13.6% increase in the foreign-born population. Of all Canadian children who are between the ages of 0-9 years, 432 655 (12.5%) of them do not have a mother tongue in neither English nor French. The percentage increases to 26% in greater urban areas such as Toronto and Vancouver. These ESL children speak 120 different first languages (Statistics Canada, 2008). Many of these children receive constant input in two or more languages at some point between birth and adolescent and are therefore known as developing bilinguals. The changing demographics combined with the limited empirical research on which to base clinical practice decisions and interventions for developing bilinguals present challenges to S-LPs (Kohnert, Yim, Nett, Kan & Duran, 2005).

It is imperative for clinicians to be educated about bilingualism as well as which methods are best suited for therapy since they will encounter bilinguals and will have to make decisions. A recent survey found that the majority of S-LP's did not consider themselves as being competent in providing speech and language therapy to bilingual speakers which could be problematic (Junker & Stockman, 2002). However, the limited available data to help S-LPs evaluate their decisions makes it difficult for them to determine whether a bilingual child's challenges are a result of being an ESL learner or whether they have a language disorder.

Further research in this area is therefore needed. This would allow professionals to make more informed decisions when making therapy choices. It will also assure parents and caregivers that the most effective

choice of intervention will be selected for their bilingual child.

Children can learn two languages in different manners, either simultaneously or sequentially. A *simultaneous* bilingual learns two languages during their first year of life, in which they develop two first languages. However *sequential* bilinguals (second language learners) start to acquire a second language after 3 years of age when they have acquired the fundamental structures of the first language (Genesee, Paradis, & Crago, 2004). Both types of learners are found in the following literature, however not all studies indicate the type of bilingual that is used in their study. The *Interdependence Hypothesis* is also a crucial part of this area of research. This theory as developed by Cummins (1978) is based on the principle that information and knowledge from a child's first language (L1) can be very helpful and transferred during the acquisition of the second language (L2) (Perozzi & Sanchez, 1992).

***Objectives***

The primary objective of this paper is to critically evaluate the existing literature that examines the outcomes in therapy depending on the language of instruction with bilingual children who demonstrate articulation, language and phonological disorders. The secondary objective is to determine an appropriate recommendation for clinicians in the practice of Speech-Language Pathology.

***Methods***

**Search Strategy**

The research articles were found using a computerized database search, including ProQuest and CINAHL. The following key terms and search strategies were used:

(bilingualism\*) AND (intervention\*) AND (speech therapy\*) AND (language\*) AND (bilingual\*)

The search was limited to articles written in English with no specific date requirement. Other relevant articles were located using articles identified by the search.

#### Selection Criteria

The studies that were selected for this critical review paper researched and analyzed the outcomes of different treatment designs comparing intervention in the child's L1 (first language/native language), followed by intervention in their L2 (second language) or intervention in their L2-only (usually English). No limits were set on the demographics of research participants or outcome measures.

#### Data Collection

Results of the literature search generated the following types of articles matching with the previously mentioned selection criteria: Two case studies, one systematic review, and one randomized clinical trial study with a repeated measures design (between groups).

### **Results**

#### **Language:**

Perozzi & Sanchez (1992) used a Randomized Clinical Trial and Repeated Measures Design (between groups) to investigate and compare the rate of receptive acquisition of English prepositions and pronouns in 38 language delayed bilingual children whose L1 was Spanish. All children were first grade *sequential* bilinguals. The students were randomly divided into two groups. The first group received instruction in Spanish (L1) before the instruction in English (L2). The second group received instruction in English only. Results indicated that the first group acquired the English prepositions and pronouns twice as fast as those in the second group. This study therefore supports the interdependence hypothesis and the importance of conducting language therapy in a child's L1.

In Group A, the total number of trials to criterion was 244. Whereas Group B's total number of trials to criterion was 511. A one-tailed *t* test was *significant* [ $t(36) = 2.27, p < .5$ ]. Therefore, group A actually learned the prepositions and pronouns in both languages in *fewer* trials (348) than did Group B in English (511). The results prove to be clinically significant since Group A learned prepositions and pronouns at a significantly faster rate than those subjects who learned them in English without learning them first in Spanish (Group B).

Gutierrez-Clellen (1999) used a systematic review which reviewed and summarized evidence from a variety of studies from 1982 to 1996. They support the theory that transference of skills from a child's first language to their second language (English which has limited proficiency) will occur when therapy is conducted in the L1. There are several arguments for a bilingual approach. First of all, children can benefit from input that they understand. Further, it can allow for development in both the L1 *and* the L2. It is also important to note that children who learn L2 through L1 may develop self-confidence and motivation to learn the second language. Lastly, it supports the preservation of the home language because many languages are a means in which people are able to express their culture, values and beliefs.

The first two studies were by Bruck (1982, 1984) which compared the language skills of English speaking children with language impairment (LI) learning French as a second language in an additive bilingual program. A relatively large sample was used and a comparison was made between the student's linguistic progresses from kindergarten to first grade. This study was cross-validated with two control groups with normal language (ie. normal language English-speaking in French immersion, normal language English-speaking in English classes). No significant statistical differences were found in the language achievement of the two language approaches. Results found that a child with a LI can benefit from therapy in the L1 and the L2 since no differences were found. Therefore, the child's home language is accepted and encouraged.

The second study, conducted by Perozzi (1985) compared the vocabulary learning of 6 children who have language delays and were from Spanish and English speaking backgrounds using a within-subject design across two learning conditions. Group A consisted of children who were taught the receptive vocabulary in L1 and later on in L2. In contrast, Group B was taught in the reverse order. Results showed that children achieved L1 criterion in less trials when the L1 was taught first (Condition A). As well, children learned both L1 *and* L2 faster than when words were learned initially in L1.

The third study by Thordardottir, Ellis Weismer, & Smith (1996) examined vocabulary learning in bilingual (English-Icelandic) and English-only treatment conditions with a language impaired Icelandic child. They targeted English vocabulary stimuli that was found in both the school and words used in the home. The bilingual treatment condition consisted of targeted words that were presented in both languages by using a translation approach within semi-structured activities

during play. However, during the English-only condition, the Icelandic utterances were not acknowledged and target words were only offered in English. The results showed that the bilingual condition had an advantage on the child's performance on home words and same achievement across intervention conditions for school words.

### **Articulation and Phonology:**

Holm, Ozanne, & Dodd (1997) used a case controlled study to determine the outcome of both articulation therapy and phonological therapy. This single case study examined a 5 year, 2 month old *sequential* bilingual boy with Cantonese as his L1. An initial assessment of the participant's Cantonese was conducted by a Cantonese-speaking S-LP. His English was then assessed by an English-speaking S-LP. Spontaneous speech samples were collected in both languages as well as standardized tests of single-word production in Cantonese and English.

*Articulation therapy* focused on his interdental lisp as it was evident in both languages and contributed to unintelligibility. Individual therapy was provided twice weekly, for 20 minutes at his childcare over a 7 week period. A traditional articulation therapy approach was implemented that focused on eliciting /s/. /Sh/ was the generalization target that was not a target of therapy, however it did improve along with /s/ in English. Assessment measures were taken pre-, immediate-post, and four weeks post-treatment. It was determined that generalization *did* occur where he produced /s/, /ts/, and /ts<sup>b</sup>/ correctly approximately 70% of the time in Cantonese. Since the participant had an impairment of phonetic planning, it is expected that targeting a production pattern will impact the entire system (generalizing from English to Cantonese) (Holm & Dodd, 2001).

In the same study, Holm et al. (1997) examined the outcome of *Phonological therapy*. The student received therapy once a week for 45 minutes, over a period of eight weeks. These sessions focused on the processes of cluster reduction and gliding which were present in both languages ([w] for /l/ in English, and [n] for /l/ in Cantonese). Phonological contrasts were used with minimal pairs as well as triplets in English only. Highlighting differences in meaning between words can occur through a change in speech sounds.

Results of phonological therapy indicated that although correct articulation of /s/ and /sh/ was maintained, the participant was only able to correctly mark clusters and glides in English. Generalization from English to Cantonese did *not* occur.

These results suggest that there are differences between articulation and phonological errors. It also points out the separateness between bilingual children's two phonological systems. For example, many languages share some similar phonetic units, however each language has its own phonological system that differs from others (i.e., CV single syllable words are common in Cantonese, while a CVC word structure is often seen in English).

Holm & Dodd (1999) continued their research in the area of phonological disorders and intervention. In this case controlled study, a 4 year, 6 month old *sequential* bilingual who produced *inconsistent* speech errors in both of his languages was referred. Therapy was once again conducted in English-only, however the approach differed from the previous study. "Core vocabulary therapy" was used to target consistency of production and determine if generalization to the child's L1 of Punjabi would occur.

All testing was conducted by an English-speaking SLP. Based on informal testing, the participant's oro-motor skills were deemed appropriate for his age. Formal testing found that his receptive language skills were also age-appropriate. Several assessment measures were administered to make certain that a wide range of phonemes and phonetic contexts could be assessed in both languages.

The student received two 30 minute sessions over an eight week period in English-only. The student, his mother as well as his teacher chose 50 words that were meaningful for him. The main goal of this approach was to achieve consistency in the production of his 10 words each week, thus not achieving "error-free" production (some developmental errors were accepted). A group of untreated words were also selected each week to match the target words so that generalization could be observed.

The participant made meaningful progress in both consistency *and* accuracy in English which generalized to Punjabi. These findings suggest that one's ability to build a phonological plan for word production is not a task that is language-specific (Holm et al., 2001). After therapy, the *type* of disorder had been modified from "inconsistent deviant" to "delayed".

Although the results of this study contrast with their previous study which targeted *consistent* phonological errors in a bilingual child, it was beneficial that the same authors decided to continue their quest for answers in the area of intervention for phonological disorders. It is especially important since studies of this

sort are uncommon and thus require further research (Holm et al., 1999).

The main conclusion drawn from both case studies conducted by Holm and Dodd (1997 & 1999) is that bilingual children with a speech disorder have difficulties in both of their languages. The same *type* of disorder is also present in both languages, even though their specific errors may be dissimilar. Therefore, the deficits underlying each speech disorder are not language-specific. Instead, they have an impact on all the child's languages (Holm et al., 2001).

### **Strengths & Limitations of the Studies**

Overall, the level of evidence in the study by Perozzi et al. (1992) study is convincing as it was a well-designed controlled study with randomization. The group size is large considering the type of study. It is however, not representative of *all* L2 learners with a language delay because all participants have the same L1 and are from the same locale. A *t*-test determined that although there were differences in boys and girls, it did not impact the outcome measures. Presence of a language delay was determined using the Woodcock Language Proficiency Battery-Spanish Version (WLPB-Spanish) (Woodcock, 1981a). Language dominance had also been established for each child. Therefore, the assessment batteries were appropriate for this population. The diagnosticians and S-LP's who administered the tests were also culturally appropriate.

A baseline was also established prior to instruction. All 38 subjects were at least 1 SD below the mean. A probe was administered first in English and then in Spanish. Those that were identified correctly were retested which minimized the chance for error.

A limitation in the systematic review by Guitierrez-Clellen (1999) is that it did not indicate how the baseline was established and with what test(s). Different tests could vary in their validity. Scores of the student's results would have also strengthened the information provided about this study. Although this information may have been provided in the original studies being reviewed, this information is considered a crucial part of the systematic review.

A limitation to the study by Thordardottir et al. (1996) is that it is a single-case study and therefore cannot be generalized to all children. It only focused on one language and one locale. However, it was beneficial to target English vocabulary stimuli that was included both at home and at school. This helped minimize any differences in language use while in different settings.

Overall, the study by Holm et al. (1997) was well controlled. A baseline was established, and a consistent amount of therapy time was implemented each week. They also allowed a four-week withdrawal from therapy to determine if carryover had been achieved. Most importantly, they selected a sound that was in error in *both* languages for *articulation* therapy as well as processes that were consistent and stable in each language for *phonological* therapy. This would allow the researchers to determine if true generalization occurred.

A few limitations are that it only has one participant. It also only looks at one language and therefore cannot necessarily be generalized to many other bilingual children's situations. The participant's performance was compared in each language with norms for monolingual speaking children of the same age which may have reduced the reliability of the data.

Many of the same strengths and weaknesses from the articulation therapy portion of this study applies to the phonological therapy. A limitation to this part of the study is that more generalization may have occurred if different types of treatment were used.

Some limitations to the study by Holm et al. (1999) study include the fact that it is a single case study, which appears to be a common trend among research in this area. Findings would be more reliable if future research included more participants as it would be interesting to investigate and determine the differences among each of them. Online transcription of the student's severely disordered speech was conducted at the beginning of the study. This would have been difficult even at the single-word level and may reduce the reliability because of a clinician's inability to focus on all aspects of his speech.

One of the strengths to this study falls within the area of assessment since all assessment batteries were culturally appropriate. An English, as well as a Punjabi version ensured that several phoneme varieties as well as phonetic contexts could be assessed in both languages. This allowed the researchers to measure consistency of production and phonological change during the therapy program.

Alternating the therapy environment between the home and school allowed for connection with both his parents and teacher. It also allowed a chance for transference of skills.

A limitation to this study is that it may not be appropriate for all children with phonological disorders as this approach is designed for those with *inconsistent*

phonology. This proves that research for children with consistent deviant phonological errors still requires further research.

After reviewing all the studies, the level of evidence for the Perozzi et al., (1992) article is the only one that is convincing in nature. All other studies presented would be considered persuasive mainly because they do not present with as much reliability. They also do not allow for complete transference of results to other populations.

### ***Clinical Implications***

The results and conclusions of the studies have many important clinical implications for S-LP's. First, bilingual children's speech and language must be assessed in both languages in order to determine their error profile and its possible nature. Secondly, language disorders of language-minority children should be provided in the language(s) spoken in the home. Thirdly, clinicians must recognize that a child with a phonological disorder may have both phonetic (articulation) *and* phonemic (phonological) difficulties that are happening in the same system (Holm et al., 1997). This will in turn determine which type of intervention is most effective. Lastly, it is evident that further research in this area is required, however S-LP's can begin to feel more confident about their therapy choices based on the findings thus far. These informed decisions will assure parents that the most appropriate form of intervention has been selected to meet their child's needs.

If the S-LP is not competent in both of the child's languages, other bilingual professionals can be recruited who are familiar with the child's language and culture. This could provide the clinician with more complete information to guide clinical decisions. Clinicians generally do understand that intervention with bilinguals is not attempting to supplant the L1 or the L2, but to give bilingual children the skills they need to achieve their potential

### ***Future Research***

There are several areas that need to be taken into consideration during future research. Most importantly, the clinician needs to examine the demographic and language variables that could have impacted the results of the studies such as:

- Where the participants are from (e.g., urban vs. rural areas; different countries), socio-economic status, etc..
- The L1 and how it varies from English/L2

It is imperative for future studies to address the following study design and procedural issues:

- Larger sample sizes
- More randomized control studies
- Greater variation in participants (e.g., L1, SES, Locale, etc.)

In addition, limited normative data is available for children learning different combinations of languages. When assessing and treating speech and language disorders of bilingual children, it is imperative for S-LPs to be aware of the different assessment measures and therapy materials that can be used for each particular language. Since there are few standardized tests available for these populations, informal group referencing is sometimes recommended. It is also essential that clinicians use translated standardized measures because the norms will often do not apply to any translated adaptation (Genesee et al., 2004).

Although further research is needed on the processes of developing bilinguals abilities and the role of input with atypical learners, the majority of the studies reviewed come to a similar conclusion (Guitierrez-Clellen, 1999). It has been concluded that bilingual children's native language should be supported as much as possible during the therapy process as well as both at home and at school.

The area of bilingual intervention has become a more popular and important topic of debate in the field of speech pathology. It is therefore imperative for everyone to change their assumptions about students' abilities and needs. This in turn demonstrates the need to bring about change in the structure of bilingual special education. The way educators, parents, and students view themselves and their roles in this learning process must also change. Educators (SLP's, CDA's, EA's, etc) cannot continue to be the only experts regarding what children need and how to provide the best type of intervention and instruction. Everyone must work collaboratively to problem solve. Although it is recognized that changes which are this profound do not occur immediately, nor do they occur easily, it can be done. Bilingual intervention has progressed over the years, however many believe that now is an opportune time to make changes.

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