

Critical Review:
Outcomes in bilingual language intervention for children with specific language impairment

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This critical review examines whether or not a bilingual language intervention yields better outcomes compared to a monolingual approach in bilingual children with specific language impairments. A search of the literature yielded eight relevant research articles that made use of different designs providing varying levels of evidence including randomized clinical trials, single subject design and a survey. The types of language intervention under evaluation involved dialogic book reading, vocabulary in both receptive and expressive modalities, morphosyntactic abilities, auditory comprehension, word definition and narration. In general, the studies supported the comparable efficacy of both bilingual and monolingual approaches to language intervention. One earlier study demonstrated an advantage to second language acquisition following bilingual language therapy. This finding lends support to the linguistic interdependence hypothesis. Clinical implications are discussed.

Introduction

Multilingual speakers account for approximately 70% of the global population (Jordaan, 2008). The number of bilingual communicators worldwide is growing, especially with continuously increasing rates of globalization and immigration. In general, there are two types of bilinguals; namely simultaneous bilinguals receiving consistent exposure in each language before three years of age and sequential bilinguals where regular and consistent exposure to a second language begins after age three years (Paradis *et al.*, 2011).

According to current literature, children can effectively differentiate and separate all of the languages to which they are exposed (Genesee, Nicoladis, & Paradis, 1995). Proficiency in the first language(s) remains unaffected by the additional input of another language alone. That is, exposure to a second language does not place any additional burden on the development of the languages being used by the child. Thus, a child has the capacity for acquiring two languages simultaneously without any negative consequences on their respective developments.

Similar results have been found in children with specific language impairment in the process of acquiring more than one language at a given time (Paradis, Crago, Genesee, & Rice, 2003). Specific language impairment (SLI) is considered a delay in expressive and/or receptive language, despite sensory, motor, social, cognitive, and neurological development within the normal range (Leonard, 1998). At earlier stages, children with SLI are described as late talkers. Generally, children with SLI present with smaller vocabularies and delays in the acquisition of grammar, and syntax compared to typically developing age peers.

Bilingual children with SLI have similar impairment profiles in the language spoken by their age-matched monolingual counterparts with SLI (Paradis, Crago, Genesee, & Rice, 2003). Language difficulties are exhibited in all of the languages spoken by the child.

It is often the case that a bilingual child receives greater exposure to the majority language(s) of the community over the course of his life, especially as he enters school. Home language development in such a bilingual setting is unique in that it is susceptible to incomplete acquisition, attrition or even complete loss across time (Kan & Kohnert, 2005; Schaerlaekens, Zink, & Verheyden, 1995; Wong-Fillmore, 1991). Decreasing linguistic opportunities allowing for the use of a home language and a limited number of conversation partners are among the many factors contributing to the attrition of a home language. (Genesee *et al.*, 2004; McLaughlin, 1984). Additionally, a child's attitude and motivation for continuing to develop the home language may change over the course of a child's life, especially as she enters school where she may face negative evaluation of her language(s) and/or linguistic abilities by other members of the community. This can impact the child in other areas of development since the home language plays a large role in shaping a child's cultural identity as well as influences her social, emotional, cognitive and communication skills (Wong-Fillmore, 1991). Thus, any opportunity for using the home language, including a bilingual approach to language intervention, can potentially support language development in bilingual children.

The inherent diversity among multilingual populations can present numerous challenges for Speech Language Pathologists (SLPs) aiming to provide effective language services to bilingual children with SLI. The

already challenging assessment and intervention processes requiring extensive knowledge of language development are further complicated by the instance of bilingualism. For example, there is a limited if not potential absence of literature regarding language development in specific bilingual populations. Research on this topic is especially problematic since language abilities can be greatly impacted by the amount of exposure the child receives to each language.

Currently recommended practices across many different international organizations and regulating bodies of speech-language therapists worldwide indicate the provision of bilingual speech and language intervention when possible. Irrespective of best practice guidelines, clinicians face many obstacles in conducting a bilingual approach to language treatment. For example, the use of an interpreter to convey appropriate information during therapy can prove expensive, difficult to plan logistically and near impossible to control (Thordardottir, 2015). The global lack of bilingual SLPs further contributes to the lack of published evidence on bilingual language treatments (Jordaan, 2008). Given the above-stated limitations, it is valuable to carefully consider the available evidence behind the potential impact of a bilingual approach on outcomes following language therapy.

Objectives

The primary objective of this review is to critically evaluate existing literature addressing the question, is a language intervention incorporating two languages more effective than a monolingual approach to a similar intervention in bilingual children with specific language impairment?

Methods

Search Strategy

The online databases used to generate the list of articles included Western Libraries and PubMed with the terms “bilingual” OR “multilingual” AND “language intervention” OR “language treatment”. Additional articles relevant to the review were found within the previously searched articles.

Selection Criteria

Studies were selected if they addressed the efficacy of any type of language intervention. At minimum, studies required a monolingual and bilingual approach to treatment(s) addressing a similar language goal assigned to either one or several participants. Bilingual participants were required. Additionally, either a language delay or a specific language impairment was necessarily specified in the participant(s).

Data Collection

Results yielded eight studies consistent with the study specifications addressing the primary objective of this review. Selected studies made use of several different designs, providing a range of evidence levels. These included: four randomized clinical trials, two single subject designs and a survey design.

Results

Currently, a range of research designs of varying levels of evidence are used in studies on the efficacy of bilingual language intervention.

The strongest level of evidence comes from a randomized control trial design, in which the random allocation to treatment conditions allows for effective comparison of treatment outcomes. Occasionally, a control group allows for superiorly valid results.

Restrepo *et al.* (2013) used a randomized clinical trial design to compare an English-only evidence-based vocabulary intervention with a bilingual (Spanish-English) condition in both the receptive and expressive modalities. The authors conducted appropriate assessment measures for identifying a language disorder in bilingual children. Participants were comparable in language abilities and the two treatment groups were similar at baseline. Items in pre- and post-treatment measures were randomized and appropriately assessed. Appropriate statistical analyses were conducted.

Results demonstrated that there was no difference between the monolingual and bilingual conditions in the acquisition of English receptive, expressive and conceptual vocabularies. Additionally, the bilingual group had higher Spanish receptive, expressive and conceptual vocabularies compared to all other groups following intervention. Maintenance of results was reported.

The validity of this study is deemed compelling in supporting the comparable efficacy of a monolingual or bilingual intervention in second language vocabulary acquisition.

Thordardottir *et al.* (2015) conducted a randomized clinical trial comparing the efficacy of a bilingual approach (using French and a minority home language spoken by the child) to both a monolingual (French only) and delayed treatment group (control). At minimum, the 29 participants had six months of exposure to French. Some attrition was reported. Groups differed at baseline with significantly higher scores in expressive vocabulary within the control

group. Appropriate assessment measures were ensured for determining specific language impairment in bilingual children as well as for gathering pre- and post-treatment data by a blinded research assistant. Language therapy included focused stimulation targeting both vocabulary and syntax goals. Specifically, therapy involved parent collaboration wherein the clinician modelled effective strategies for the parent during each session. Interpreters were used in conveying relevant information to clients. Treatment fidelity was reported. Specific goals differed across conditions and parents did not participate in the monolingual condition which was conducted by the therapist alone. Acceptable within-group and between-group measures were used in comparing outcomes.

The groups in both treatment conditions demonstrated significant improvements in second language vocabulary acquisition compared to the control group. Treatment groups did not differ significantly in their outcomes. Some maintenance of results at two months was reported. There was no generalization to overall language abilities.

This study provides suggestive evidence in supporting the comparable efficacy of both a monolingual and bilingual approach to second language vocabulary intervention using a focused stimulation model involving parents.

Ebert *et al.* (2014) used a randomized clinical trial design in order to compare performance in acquiring untrained vocabulary and morphosyntax, both within the same language and across languages, between a monolingual and bilingual group. A representative sample was collected consisting of 59 Spanish-English participants between the ages of 5;6-11;2 years attending the same school. Participant criteria were well-defined and relied on previous school Speech-Language Pathologist (SLP) reports for confirming a specific language impairment (previously determined using appropriate measures). Most children were similar in language background and received systematic exposure to Spanish at home and English at school, with the exception of four students who received additional Spanish support from bilingual teachers at school. Appropriate gold standard measures were used in collecting pre- and post-treatment data in both languages examining: receptive vocabulary, expressive vocabulary and overall language abilities. Participants differed in baseline measures, with older children and higher expressive vocabulary scores in the bilingual group. Also, attrition and the elimination of data due to inconsistent scoring resulted in a relatively small number of participants in the control group. Language treatment was provided that made use of both computer

and interactive games. Treatment fidelity was maintained by providing the SLPs with training manuals and verified by coding video recordings to ensure that the amount of exposure to Spanish was between 83-97% in each session (English use was restricted for clarifications and making cross-linguistic connections). Interventions in the two conditions were not identical. Specifically, the Spanish condition consisted of entirely different computer games as well as some differing vocabulary items within the Spanish interactive games. Gold standard measures were used in comparing pre- and post-treatment data. Appropriate statistical analyses were conducted.

Results demonstrated that participants in both monolingual and bilingual conditions showed a significant improvement in overall English language abilities compared to the control group. Depending on the assigned condition, participants made additional gains in their expressive vocabularies and overall language abilities in the languages that were being used directly in therapy. There were no differences in any resulting gains between the two treatment conditions.

This study provides suggestive evidence in support of both a bilingual and monolingual approach to language intervention, which produce comparable improvements in language abilities.

Perozzi and Sanchez (1992) investigated whether a bilingual (Spanish-English) language intervention resulted in faster acquisition of English receptive pronouns and prepositions compared to a monolingual (English only) condition. The bilingual condition was administered in Spanish initially and followed by the same items being administered in English. Participants comprised of 38 Spanish-dominant bilingual first graders enrolled in Spanish-English bilingual programs at school with an otherwise unspecified amount of bilingual exposure. Language abilities were poorly assessed. Participants were randomly allocated to both conditions of the well-described vocabulary intervention. This study lacked a control group. Vocabulary gains were measured appropriately. A mean comparison was used to compare the mean number of trials required to reach criterion in both groups.

Results demonstrated that bilingually treated participants learned English receptive concepts at twice the rate as the monolingual group and at a relatively faster rate when including Spanish words. Maintenance and generalization of results were not reported.

This study provides equivocal evidence for an advantage in second language vocabulary acquisition

following a bilingual language intervention compared to a monolingual approach.

The next level of evidence comes from a single subject design in which the single participant simultaneously serves as her own control within the same study.

Among other questions, Pham *et al.* (2011) used a series of single subject alternating treatments design over six months on a bilingual Vietnamese-English participant of the age 4;2 years in order to compare the efficacy of a bilingual receptive vocabulary treatment to an English-only approach. The participant was well-described and specified as a sequential bilingual receiving all Vietnamese input at home with regular exposure to English beginning at age 3 years out in the community. An appropriate evaluation was conducted in determining SLI. Intervention was consistently provided by a monolingual instructor in both conditions using a pre-prepared PowerPoint containing embedded audio recordings in the appropriate language(s). Acceptable procedural fidelity and reliability were reported. Time measures for learning new vocabulary were effectively compared using appropriate statistical analyses.

Results demonstrated that there was no difference in the rate of acquisition of novel vocabulary items following both the monolingual and bilingual conditions. Specifically, the participant reached 100% accuracy in both English and Vietnamese vocabulary by the eighth session of each condition.

This study provides compelling evidence that the rate of vocabulary acquisition in both languages is comparable following both a monolingual and bilingual approach to language intervention.

Thordardottir (1997) conducted a single subject design on an Icelandic-English bilingual participant of the age 4;11 years for comparing the effectiveness of a monolingual and bilingual approach to a vocabulary intervention. Appropriate measures were used for confirming a language delay. The intervention was well-described and appropriate for improving expressive vocabulary. Randomization of conditions was reported. There was no blinding; instead the same therapist provided intervention and collected progress measures. No statistical tests were conducted; instead the number of word productions in each session was plotted on a graph over time.

Results demonstrated that both the monolingual and bilingual conditions were comparable. A small advantage in home vocabulary following a bilingual intervention was reported. None of the findings were

statistically significant. Maintenance and generalization of results were not reported.

This study provides equivocal evidence for the effectiveness of both a monolingual and bilingual vocabulary intervention in the acquisition of both Icelandic and English vocabulary.

Weaker levels of evidence come from a survey design, in which participants reply to a questionnaire providing both qualitative and quantitative information.

Jordaan (2008) conducted a survey research design to send a questionnaire to Speech-Language therapists around the world for several purposes, including to examine the efficacy of monolingual and bilingual interventions provided to bilingual children. The occurrence of effective outcomes following intervention (either monolingual or bilingual) were noted but not specified. No statistical analyses were conducted. Manipulation of raw data was limited to its conversion into percentages for ease of comparison.

Many clinicians from several countries reported improvements following both monolingual and bilingual interventions; these results were neither directly compared nor specified as being either statistically significant or not.

Therefore, this study provides very limited information regarding the effectiveness of a bilingual and/or monolingual language intervention on language abilities. The evidence of this study is deemed equivocal.

Discussion

At present, research on the effectiveness of bilingual language intervention is limited. With the exception of one study lending favor to a bilingual approach, the critically analyzed studies in this review suggest a comparable effectiveness of a monolingual versus a bilingual approach to language intervention. Additionally, most of the results presented in this review provide equivocal levels of evidence lending support to their respective stances.

The most compelling evidence comes from a study using a randomized clinical trial design conducted by Restrepo *et al.* (2013) and a study using a single subject design conducted by Pham *et al.* (2011), both of which support the comparable effectiveness of a monolingual versus a bilingual approach to language therapy.

There were several limitations to the critically reviewed studies providing a suggestive level of evidence in

support of equal outcomes following both a monolingual and bilingual language therapy. For example, in Thordardottir *et al.* (2015), intervention carried out by parents outside of the clinic placed many therapeutic aspects out of the clinician's control, despite best efforts to ensure treatment fidelity, thus influencing results. Also, this study lacked parent collaboration in the monolingual condition, thus preventing the direct comparison of treatments. Similarly, Ebert *et al.* (2014) used different computer games and different vocabulary items across conditions, which limits the direct comparison of treatments. Additionally, the latter study only permitted English in order to clarify the instructions for tasks completed almost entirely in Spanish, thereby questioning the bilingual nature of this condition. Finally, morphosyntax items are difficult to compare across languages since morphosyntactic rules differ in both English and Spanish.

There were many limitations to the greater number of studies that provided equivocal evidence of mixed findings. In particular, Jordaan (2008) tallied effective monolingual and bilingual language interventions without their identification or direct comparison. Additionally, statistical tests were not conducted; raw data was converted into percentages, sometimes erroneously. Thordardottir (1997) did not provide significant results in supporting a slight advantage to the acquisition of home vocabulary following a bilingual treatment. This result could have been influenced by prior exposure to home vocabulary, thus commencing the acquisition process prior to the study.

Perozzi and Sanchez (1992) was the only study within this review in which participants in the bilingual condition showed significantly greater gains in acquiring second language vocabulary. Several potential variables that could affect the acquisition of a second language were listed as potential confounding variables, including attitude, motivation and anxiety. This study provides equivocal evidence.

Regardless of the findings encompassed in the studies within this review, it remains apparent that one advantage to a bilingual approach in language intervention is the inclusion of the home language. In participating in bilingual therapy, a client receives exposure to a language that is often susceptible to attrition or even complete loss (Kan & Kohnert, 2005; Schaerlaekens, Zink, & Verheyden, 1995; Wong-Fillmore, 1991).

The conclusion that can be drawn from this critical review is that there is generally no difference in the effectiveness of a monolingual versus a bilingual approach to language intervention. However, this

interpretation should be made with caution since the results presented by Perozzi and Sanchez (1992) suggest otherwise. This particular study has not been replicated as of yet. More research is required before disclaiming the transfer of linguistic skills across languages. Therefore, the interdependence hypothesis that suggests a facilitative effect of bilingualism on the respective development of a person's languages remains in question, particularly as it applies to language intervention. The decision for choosing bilingual therapy should therefore be based on the availability of a bilingual approach and the client's needs and/or preferences.

Clinical Implications

More recent evidence is considerable in showing us that comparable results are achieved using both a bilingual and monolingual approach to language intervention in children with specific language impairment (SLI). The only study that is inconsistent with this finding was conducted by Perozzi and Sanchez (1992). The results of this study suggested that a bilingual approach facilitated the acquisition of a second language, thereby lending support to the linguistic interdependence hypothesis (Cummins, 1991) that stipulates the transfer of linguistic skills across languages. However, this study contains several limitations presented earlier in this review, which demonstrates that the level of evidence supporting a facilitative effect in bilingual language intervention is equivocal.

Additionally, this review demonstrates some of the shortcomings inherent in conducting research on bilingualism that would otherwise allow for compelling levels of evidence. Most notably, multilingual speakers are a heterogeneous population with differing language backgrounds including the specific languages spoken, the amount of exposure to each language, the number of languages spoken, and age of language acquisition.

Clinicians can inform their practice by relying on the published research regarding the effectiveness of a particular language intervention, so long as it is evidence-based, regardless of whether it is administered bilingually or not. Neither approach (bilingual or monolingual) compromises the child's potential for a successful outcomes following therapy. It should be noted that the preferences of a fully informed parent are important considerations when making decisions regarding language intervention. In the case that a bilingual approach is available, a parent may choose this approach as it supports further development of the home language through added exposure, which is important for ensuring communication at home. Unfortunately, a bilingual option for language therapy generally requires

the clinician to go to great lengths in order to bring it to fruition, and is thereby often deemed impractical.

Regardless of the availability of bilingual language therapies, clinicians should never purposefully recommend ignoring the home language in their recommendations with respect to language intervention. None of the results in this review revealed that a monolingual approach compares more favorably to bilingual therapy. This finding suggests that a bilingual input of languages does not have an effect on the development of any given language.

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