COMMON PRACTICES OF
SPEECH-LANGUAGE PATHOLOGISTS
IN BILINGUAL ASSESSMENT AND INTERVENTION

by

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ABSTRACT

Research in the literature shows that the percentage of individuals who are multicultural and multilingual is steadily increasing in the United States (Shin & Kominski, 2010). This rise has led to the increase of children who are bilingual on the caseloads of speech-language pathologists (SLPs) in the United States (Caesar & Kohler, 2007; Kritikos, 2003). Research is beginning to delineate evidence-based practice (EBP) in assessment and intervention for bilingual children. However, recent survey studies have shown that most SLPs in the United States are not providing this type of evidence-based service to children who are bilingual (Caesar & Kohler, 2007; Kritikos, 2003).

The current survey study sought to identify variables that influence SLPs’ use of evidence-based methods and their confidence in culture and assessment, as well as the influence of treatment methods on reported therapy gains. The researcher created an online survey and distributed it to SLPs across the United States (n=435). Regression analysis revealed that years of experience inversely predicted use of some methods of EBP, and language skill and number of bilingual SLPs in the facility positively predicted the use of other methods. Experiential demographics influenced confidence in culture and assessment more than didactic factors, and confidence in treatment and assessment positively predicted therapy gains.
DEDICATION

This thesis is dedicated to the memory of my grandmother, who taught me that every
mountain “ain’t no hill for a stepper.”
LIST OF ABBREVIATIONS AND SYMBOLS

\( n \)  Sample size

\( M \)  Sample mean

\( SD \)  Standard deviation from the mean

\( b \)  Unstandardized coefficient, indicating change in \( y \) for one unit change in \( x \)

\( p \)  Probability of obtaining the results by chance

\( df \)  Degrees of freedom

\( F \)  Overall regression equation

\( t \)  Individual regression equation

\( Adjusted \ R^2 \)  Estimate of population variance explained, adjusted based on ratio of
sample size to predictors

\( partial \ r^2 \)  Estimate of population variance explained

\( SE \)  Standard estimate of error

\( \geq \)  Greater than or equal to

\(< \)  Less than

\( = \)  Equal to
ACKNOWLEDGMENTS

I am honored to thank all of those who have helped me on this path to the completion of my master’s thesis and graduation. My biggest thanks go to my advisor, Dr. Rachel Saffo, who has been a wonderful friend and mentor and has walked me through life adventures, academic challenges, and regression statistics (the last probably requiring the most patience). Thank you to Dr. Angela Barber, who served not only as a committee member, but as a listening ear and constant source of support through my research experience. To Dr. Anthony Buhr and Dr. Jason Scofield, your insight and encouragement have helped me so much along the way.

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Finally, a great big hug and thank you to each of my friends, who provided a steady stream of encouragement, prayers, and much-needed study breaks. To Mama, my prayer warrior; Papi, my biggest fan; and PJ, the best brother a girl could want; your love and joy help me be who I am. Thank you.
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Introduction

Bilingualism in the United States

The past decades have ushered in a great increase in bilingual individuals on the caseloads of speech-language pathologists (SLPs) in the United States (Caesar & Kohler, 2007; Kritikos, 2003; Roseberry-McKibbin, Brice, & O’Hanlon, 2005). The American Speech-Language-Hearing Association (ASHA) Demographic Report (2010) identified the number of SLPs per U.S. state who were self-reported bilingual service providers in 2009. These counts included individuals who were ASHA members, nonmember certificate holders, and international affiliates. The report juxtaposed this information with state percentages of citizens who reported speaking a home language other than English in the American Community Survey (2008). These data did not include children under the age of five. Results from the 2010 report showed consistent disparities between the percentage of bilingual individuals and the number of SLPs in each state.

For example, in the state of Alabama, which lists a 4.2% population of bilingual individuals, 37 SLPs are registered as bilingual service providers. Considering Alabama’s population size of more than 4 million, this equates to 1 bilingual service provider per 5,000 bilingual individuals. In the state of Texas, which has a population 33.7% bilingual, 772 SLPs are registered as bilingual service providers. With the population of Texas being more than 25 million, this equates to 1 bilingual service provider per 11,000 bilingual individuals.
This disparity between bilingual service providers and the bilingual population is only expected to rise. According to a 2010 U.S. Census report by Shin and Kominski, the percentage of individuals who reported speaking a language other than English in the home increased from nearly 47 million in the year 2000 to more than 55 million in 2007. The U.S. Census Bureau (2010) reported increases in the U.S. population of 43.0% for persons of Hispanic or Latino origin; 43.3% for persons of Asian origin; and 24.4% for persons of all other ethnicities. Based on these data, researchers should not delay in investigating the efficacy of the services SLPs are providing to bilingual individuals.

**Defining Bilingualism**

Bilingualism describes an individual’s use of two or more languages (ASHA, 2004). This term may apply to a person in any level of language acquisition, from the early stages of learning to the later stages of near-native proficiency. Within individuals who are bilingual, ASHA recognizes two general groups of language learners: sequential bilinguals and simultaneous bilinguals. Simultaneous bilinguals refer to individuals who begin learning two or more languages at the same time. Sequential bilinguals refer to persons who learn a first language (L1) before adding a second language (L2). The typical pattern found in the United States is children develop a consistent L1 from birth in the home and begin to acquire L2 (English) later in their childhood, such as upon entering school. More children in the United States qualify as sequential bilinguals rather than simultaneous (Kohnert, 2010; Bedore & Peña, 2008).

Research currently indicates that children who acquire two languages simultaneously follow approximately the same developmental language pattern as children learning one language (Kohnert, 2010). For example, Petitto, Katerelos, Levy, Gauna, Tetreault, and Ferraro (2001) followed six simultaneous bilingual children for one year and found that the age of
acquisition of first words, first fifty words, and two-word combinations, as well as general progression of semantic growth in each language was equivalent to those language milestones of monolingual children. While this information suggests a similar pattern of language development for these two groups, more studies are needed to confirm this relationship.

In contrast, sequential bilinguals do not appear to follow the same developmental language pattern as children learning one language. While research has not yet defined the precise pattern of language development in sequential bilingualism, studies have indicated the degree of a child’s language proficiency will vary based upon the level of support given to either language, such as the amount of time spent engaged in each language or the number of conversational partners in each language (Kohnert, 2010; Bedore & Peña, 2008). These differences in proficiency lead to variances in typical language acquisition between children who are monolingual and children who are sequential bilingual.

For example, Jacobson and Cairns (2008) documented sequential bilinguals’ increased use of morphological overextensions, such as applying “-ed” to irregular past tense (i.e., “eated” for “ate”). Fabiano-Smith and Barlow (2010) found that children who were bilingual demonstrated differing levels of phonemic complexity in their separate languages. For instance, they found that children used certain stridents, such as /s/, /z/, or “sh,” in their L1 but had not yet acquired them in their L2. Kohnert, Kan, and Conboy (2010) studied the relationship between grammar and vocabulary in bilingual children. In monolingual children, vocabulary size is an early predictor of grammatical skill later in development (e.g., mean length of utterance or comprehension of verb tenses). Kohnert et al. discovered that this relationship was weaker in bilingual children.
The linguistic patterns of each language a child is learning may also affect the differences in sequential bilingual language development (Bedore & Peña, 2008). In their review of the literature, Bedore and Peña found that while children who speak different languages reach the same levels of linguistic complexity, different language elements receive varying levels of emphasis in each language. For instance, Fiestas and Peña (2004) studied the ways in which children retold narratives in Spanish and in English. They noted that the narratives in Spanish included more initiating events, whereas, the narratives in English included more information about story conclusions.

Although the above studies showed differences in the language acquisition of typically developing children who are bilingual, research suggests that language delays in children who are bilingual result in the same patterns of variance as children who are monolingual. For example, Paradis, Crago, Genesee, and Rice (2003) found that simultaneous bilingual children with specific language impairment (SLI) showed difficulty with tense markers, such as past tense “-ed,” to the same extent as their monolingual peers. Sheng, Peña, Bedore and Fiestas (2012) found that children who were sequentially bilingual and diagnosed with SLI showed vocabulary deficits matching the deficits of monolingual children with SLI. Kay-Raining Bird, Cleave, Trudeau, Thordardottir, Sutton, and Thorpe (2005) observed similar language profiles, such as length of utterance and vocabulary size, in monolingual and bilingual children diagnosed with Down syndrome. Kay-Raining Bird and colleagues did not differentiate between sequential and simultaneous bilingualism in their study.

**Evidence-Based Assessment**

With the indicated differences in typical development between children who are monolingual and sequential bilinguals, researchers within the field of speech-language pathology
have questioned how SLPs should accurately assess language development in children who are sequential bilinguals. Studies show that the psychometric properties of bilingual assessments do not always yield accurate diagnoses for the target population. As Laing and Kamhi (2003) explained, demographic bias may occur even when tests include the target population in the normative sample. Although the population may be represented in the normative curve, the test items may not represent the linguistic characteristics of the child’s language experience. Thus the child might score below the mean but within normal age limits (e.g., classified with a language difference rather than a language disorder).

Another example of how bilingual assessments yield inaccurate diagnoses is the practice of directly translating tests from English (Bedore & Peña, 2008). This practice assumes that other languages follow the same pattern of complexity as English, therefore, yields a test progression that is out of sync with the target language’s pattern of typical development. For example, Restrepo and Silverman (2001) administered the Spanish edition of the Preschool Language Scale-3 (SPLS-3, Zimmerman, Steiner, & Pond, 1993) to a group of typically developing bilingual children. Their resulting scores were an average of 1.5 standard deviations below the mean. The researchers explained this by stating that the translation of certain test items, such as correct use of some prepositions, appeared at a lower level of developmental complexity in the English language than in Spanish. Other items, such as explaining object function, were identified at a higher complexity level. Peña and Bedore (2008) stated that the authors of the PLS have since acknowledged this discrepancy in the third Spanish version of the test and have reordered the items according to level of difficulty in Spanish in more recent versions (i.e., SPLS-4, Zimmerman, Steiner, & Pond, 2002; and SPLS-5, Zimmerman, Steiner, & Pond, 2012).

According to Laing and Kamhi (2003), norm-referenced tests may contain content bias,
which occurs when test stimuli assume that all children have been exposed to the same concepts and vocabulary. The authors added these tests may also show linguistic bias, which occurs when a difference presents between the languages spoken by the child, the language spoken by the examiner, and/or the language in which the test is administered.

The consensus among the literature has been to rely more heavily on other assessment forms, such as ethnographic interviews, dynamic assessment, language sampling, and criterion-referenced testing, in addition to standardized assessments. Laing and Kamhi (2003) contended that ethnographic interviews, which aim to understand the cultural background of the individual, should also be used to supplement any standardized assessment procedures.

Dynamic assessment (DA) is a method of determining language-learning ability that can effectively differentiate between bilingual children with typical language skill and bilingual children with impaired language skill. One form of DA uses a pretest-teach-posttest framework, requiring the clinician to assess a child’s skill in a designated language target, intervene for a specified period of time, and then evaluate the child’s ability to acquire the target (Kapantzoglou, Restrepo, & Thompson, 2012).

Bedore, Peña, Gillam, and Ho (2010) suggested using language sampling as a measure of bilingual assessment. This method records a child’s language and measures language productivity (number of total words and number of different words) as well as sentence organization (length of utterance and grammatical accuracy). Language sampling may also be used to observe phonology skills and pragmatic ability (e.g., social appropriateness of language).

Criterion-referenced tests are also useful for assessing bilingual language development. These tests assess functional language by evaluating specific vocabulary units or communicative behaviors; performance is compared to the functional skill level rather than a normative sample.
Examples of criterion-referenced tests are the *Child Behavior Checklist* (Achenbach & Edelbrock, 2000) and the *Language Development Survey* (Rescorla, 1989). Other examples of criterion-referenced measures include SLPs’ modification of standardized test administration according to an individual child’s needs. For example, an SLP might ask a child to explain her answers to a standardized question; the SLP might choose to accept culturally appropriate responses as correct (Carías & Cornish, 2008; Paul, 2007). By doing this, standardized tests may also be used as criterion-referenced testing by removing the norms and using the test items only to assess functional ability (Paul, 2007). It is important to note, however, that some standardized assessments, such as the PLS-5 (Zimmerman, Steiner, & Pond, 2012) and the *Clinical Evaluation of Language Fundamentals- Preschool, Second Edition* (CELF-P2; Semel, Wiig, & Secord, 2004) have this feature added to the standardized norms of the assessment.

Speech-language pathologists should also consider the languages in which assessments are given. As mentioned previously, language patterns of acquisition may differ between L1 and L2 (Bedore & Peña, 2008), and sequential bilinguals may learn their two languages in different contexts, such as L1 at home and L2 at school (Bedore & Peña, 2008; Kohnert, 2010). Thus, in order to gain the most holistic picture of the child’s language, both L1 and L2 should be assessed.

Assessing both languages will also give a true understanding of any existing language problems, as studies show that true language impairment will be present in both languages (Peña & Bedore; 2011; Yavas & Goldstein, 1998). For this reason, ASHA (2004) requires that SLPs possess the knowledge and skills necessary to gain a complete picture of a child’s communicative abilities in both languages. The Individuals with Disabilities Education Act
(IDEA) mandates that SLPs evaluate children in their native language with the assistance of professional interpreters if necessary (Carías & Cornish, 2008). Additionally IDEA maintains that clinicians should include a thorough review of the child’s language history (using ethnographic interviews, for example) and administer all assessment materials in a way that is likely to yield the most accurate measure of a child’s language function.

**Evidence-Based Intervention**

There is currently a paucity of research documenting effective methods of bilingual language intervention. Research primarily addresses which language SLPs should use in therapy to achieve greatest therapy gains. For example, Kohnert and Danahy (2007) found that providing therapy in the child’s L1 yielded the greatest progress on a morpheme-learning task. Kohnert, Yim, Nett, Kan, and Duran (2005) noted that providing therapy in L2 might cause regression of L1, which may negatively impact the child’s social, emotional, and academic development.

Parental involvement is another aspect of bilingual intervention that researchers are considering. Kohnert (2008) advocated for training parents to interact with their child in a way that would assist language development and increase communicative efficiency. No studies have evaluated this method of therapy, leaving parent-mediated bilingual therapy an avenue that needs future investigation.

Previous data indicate the majority of SLPs in the United States are monolingual (ASHA, 2010); therefore, research should determine whether it is possible for monolingual clinicians to provide accurate bilingual assessments and efficient bilingual intervention. Regarding scope of practice in bilingual assessment and treatment, ASHA (2004) does not restrict monolingual clinicians from providing services to children who are bilingual. They provided the following statement.
It is true that “Individuals shall engage in only those aspects of the profession that are within the scope of their competence, considering their level of education, training, and experience” (ASHA Principles of Ethics II, Rule B). So, without the appropriate knowledge and skills, we ethically cannot provide services. Yet, this does not discharge our responsibilities in this area. The ASHA Principles of Ethics further state, “Individuals shall not discriminate in the delivery of professional services” (ASHA Principles of Ethics I, Rule C). Thus, this ethical principle essentially mandates that clinicians continue in lifelong learning to develop those knowledge and skills required to provide culturally and linguistically appropriate services, rather than interpret Principles of Ethics II, Rule B as a reason not to provide the services.

Pham, Kohnert, and Mann (2011) researched the effects of monolingual clinicians treating bilingual children. Using a series of single subject studies, they found that a bilingual child receiving word-learning therapy in both his primary and his secondary language from a monolingual clinician made gains in both languages, confirming that it is possible for a bilingual child to demonstrate therapy gains with a monolingual clinician. To the author’s knowledge, this is the first study to explore the concept of monolingual clinicians treating bilingual children.

**Current Practices**

Despite the availability of evidence-based practice concerning the provision of speech and language services to children who are bilingual, survey studies have shown that the majority SLPs in the United States are not assessing and treating children per the aforementioned evidence-based guidelines. Caesar and Kohler (2007) surveyed common bilingual assessment practices of SLPs in Michigan. Their results demonstrated that only a small percentage of SLPs reported using language sampling and other measures of observation. Seventy-five percent reported using English standardized assessments, even when Spanish versions were available. None reported the use of dynamic assessment. However, when reporting on feelings of self-efficacy, the majority of SLPs indicated they believed their assessment practices were in accordance with ASHA’s recommended guidelines. Using inferential statistics (the Pearson
product-moment coefficient), Caesar and Kohler did not find a correlation between increased numbers of bilingual children on SLPs caseloads and the types of assessment practices SLPs utilized. A survey by Hux, Morris-Frieh, and Sanger (1993) revealed that, although SLPs believed that language sampling was an effective means of assessment, they reported feeling less confident using it to assess bilingual children.

One area that may influence clinician confidence is the practices of professionals working in the same facility. Manz and Sims (1981) explored the impact of vicarious learning on coworkers. They suggested that the modeling of appropriate behaviors was an effective tool for day-to-day learning within facilities, as it influenced personal expectations of efficacy. They found that individuals exposed to modeling of certain behaviors were likely to increase the effort placed into their work. More research is needed on the application of this technique in the field of speech pathology.

Roseberry-McKibbon, Brice, and O’Hanlon (2005) studied the relationship between SLPs’ backgrounds and their self-reported efficacy in practice. They found that SLPs in the western United States typically received more graduate training in bilingual services than SLPs in other regions. Speech-language pathologists in the West and Southwest reported overall less perceived problems, than in other regions (i.e., New England, Mid-Atlantic, Midwest, and South). Reported problems included mismatch between client-clinician languages and inadequate access to appropriate assessment material.

Hammer, Detwiler, Detwiler, Blood, and Qualls (2004) surveyed SLPs on their level of graduate and undergraduate training and their level of confidence in multicultural assessment. The authors found that approximately one-third of responding SLPs had not received training in multicultural assessment; this percentage had increased compared to studies done in the past.
decade. They also discovered that most SLPs, regardless their area of practice, reported a lack of confidence in their ability to perform bilingual assessments. They did determine, however, that SLPs who considered themselves to be bilingual reported feeling more confident in bilingual treatment and assessment.

Contrastingly, Kritikos (2003) found that SLPs who were bilingual did not report feeling any more competent in bilingual treatment or assessment than SLPs who were monolingual. In her study, she polled both monolingual and bilingual SLPs’ about their feelings of competency in assessing children who are bilingual. Kritikos noted that SLPs who considered themselves both bilingual and bicultural tended to have more children who were bilingual on their caseload. She also found that SLPs who considered themselves bilingual and bicultural were more likely to provide comments to clarify or support their answers regarding bilingual assessments, whereas, SLPs who considered themselves monolingual or bilingual without cultural experience were less likely to give any qualifying comments.

Kritkos’ research (2003) indicated that simply being bilingual does not equate knowledge of cultural competency. Her findings suggested that increased confidence in SLPs may lead to increased use of evidence-based treatment and assessment methods. Kamhi (2010) however, hypothesized that high levels of confidence may not be beneficial to a clinician. He stated that a degree of uncertainty is necessary in order for a clinician to continue researching and attending to methods different from his or her own.

A topic that needs more research, then, is factors that most heavily influence feelings of linguistic and cultural confidence and how this affects clinical practice. This study seeks to know the answers to questions such as which demographic factors, such as availability of materials or method of language acquisition, most heavily influence SLPs’ feelings of personal efficacy in
bilingual assessment and intervention, and how do feelings of efficacy influence therapy gains.

Another gap in the literature that this study will address is the percentage of simultaneous versus sequential bilinguals on the average SLP’s caseload. Ultimately, the goal of this study is to determine factors that can empower SLPs to provide evidence-based service.

Research Objectives

This study seeks to answer the following questions:

1. What are the most common methods and practices used by SLPs to assess and treat children who are bilingual in the United States and how are these factors affected by certain demographic variables (e.g., years practicing, access to materials, bilingual caseload, language skill, and number of bilingual SLPs in facility)?

2. What is the prevalence of sequential bilingualism versus simultaneous bilingualism in the United States?

3. What factors (e.g., graduate school coursework and experience, living and working in a bilingual community) most strongly influence SLPs’ feelings of cultural and linguistic competency in assessing and treating children who are bilingual?

4. What is the relation between the SLPs’ common methods of assessment and treatment (i.e., use of EBP) and their reported therapy gains of bilingual children?
Methods

Survey Development

The researcher developed a survey that polled SLP and caseload demographic information; self-reported language skill (i.e., bilingualism or monolingualism); cultural competency; feelings of efficacy in bilingual assessment and intervention; and common practices of bilingual assessment and intervention. A complete summary of survey questions as they relate to research questions may be found in Table 6.

The 40-item survey was formulated through Qualtrics, an online survey service used for university research since 2005 (Qualtrics Labs, Inc., 2009). Qualtrics offered multiple question formats, including yes/no, multiple choice, fill-in-the-blank, and Likert scales. It also utilized forms of test logic to formulate the survey based on participant responses (i.e., skip logic analyzed previous responses to move participants past questions that did not apply to them; display logic revealed extra question branches to further explore a participant’s answers).

Recruitment

The original methodology protocol stated that the researcher would recruit survey participants through the ASHA member database. Due to a change in ASHA policy, this became an unviable option. As an alternate route of distribution, the researchers contacted governing members of state speech and hearing associations and ASHA Special Interest Groups (SIGs) to recruit participants. A total of 28 state associations and 6 SIGs agreed to distribute the survey to its members (see Appendix C).
The researcher attempted up to three rounds of contacts in order to elicit participation from state associations. Only one round of contact was necessary for SIG participation because of SIG representatives’ immediate responses. Once an association gave consent to participate, the researcher emailed the state or SIG representative a short paragraph and link to the survey (see Appendix B). The representative distributed the paragraph and link via mass email, community forum, or electronic newsletter. The survey remained open for 14 weeks. State representatives were asked to distribute reminder emails in the same format as the initial contact. It should be noted that some states declined to send reminder emails.

**Target Population**

The target population was calculated out of the total number of SLPs (n=126,735) registered as practicing clinicians by the American Speech-Language and Hearing Association (ASHA). The targeted facilities were schools (49.7%), college or university clinics (3.8%), private practices (5.7%), hospitals (13.5%), and nonresidential health care facilities (18.4%). Thus, the total number of targeted SLPs was 115,455. Exclusion criteria included SLPs with adult-only caseloads, non-ASHA certified SLPs, audiologists, students, clinical fellows, and SLPs who were retired from practice.

**Survey Participants**

A total of 517 responses were received. Of the 517 SLPs who responded, 9 declined consent, 42 were not currently ASHA-certified, and 31 did not work with children birth to 18. Thus the total number of eligible SLPs who responded to the survey was 435, or .03% of the target population.

Upon accessing the survey, participants were required to read and acknowledge an IRB-approved statement of consent. The survey collected demographic information from each
participant including age, gender, ethnicity, level of education, total years practicing, and area of practice. The survey also collected information regarding each participant’s caseload including average size, socioeconomic status, and number of bilingual children per caseload. Tables 1 and 2 summarize this demographic information. The survey also requested the languages in which bilingual SLPs were fluent, as well as the language(s) represented on each caseload. Tables 3 and 4 summarize this information. Appendix E shows the distribution of survey participants on a map.

Table 1
Summary of Participant Demographics

<table>
<thead>
<tr>
<th>SLP Demographics</th>
<th># SLPs</th>
<th>% SLPs</th>
<th>Years Practicing</th>
<th># SLPs</th>
<th>% SLPs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Linguistic Ability</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monolingual</td>
<td>368</td>
<td>88%</td>
<td>0 to 10</td>
<td>168</td>
<td>40%</td>
</tr>
<tr>
<td>Bilingual</td>
<td>49</td>
<td>12%</td>
<td>11 to 20</td>
<td>94</td>
<td>23%</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>412</td>
<td>98%</td>
<td>21 to 30</td>
<td>86</td>
<td>21%</td>
</tr>
<tr>
<td>Male</td>
<td>8</td>
<td>2%</td>
<td>41 to 45</td>
<td>9</td>
<td>2%</td>
</tr>
<tr>
<td><strong>Age</strong></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24-29</td>
<td>65</td>
<td>16%</td>
<td>El</td>
<td>92</td>
<td>22%</td>
</tr>
<tr>
<td>30-39</td>
<td>108</td>
<td>26%</td>
<td>Private School</td>
<td>15</td>
<td>4%</td>
</tr>
<tr>
<td>40-49</td>
<td>80</td>
<td>19%</td>
<td>Preschool</td>
<td>135</td>
<td>32%</td>
</tr>
<tr>
<td>50-59</td>
<td>124</td>
<td>30%</td>
<td>Private Clinic</td>
<td>65</td>
<td>16%</td>
</tr>
<tr>
<td>60-66</td>
<td>38</td>
<td>9%</td>
<td>Hospital</td>
<td>30</td>
<td>7%</td>
</tr>
<tr>
<td><strong>Place of Practice</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>61</td>
<td>15%</td>
<td>University</td>
<td>40</td>
<td>10%</td>
</tr>
<tr>
<td><strong>Ethnicity</strong></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>381</td>
<td>91%</td>
<td>Other</td>
<td>61</td>
<td>15%</td>
</tr>
<tr>
<td>African American</td>
<td>12</td>
<td>3%</td>
<td>Public School:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hispanic</td>
<td>16</td>
<td>4%</td>
<td>Kindergarten</td>
<td>135</td>
<td>32%</td>
</tr>
<tr>
<td>Asian</td>
<td>2</td>
<td>0%</td>
<td>Elementary</td>
<td>210</td>
<td>50%</td>
</tr>
<tr>
<td>Native/Islander</td>
<td>2</td>
<td>0%</td>
<td>Middle School</td>
<td>98</td>
<td>23%</td>
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<tr>
<td>Middle Eastern</td>
<td>1</td>
<td>0%</td>
<td>High School</td>
<td>72</td>
<td>17%</td>
</tr>
<tr>
<td>South Asian</td>
<td>1</td>
<td>0%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>5</td>
<td>1%</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td><strong>Education</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Master's</td>
<td>394</td>
<td>94%</td>
<td></td>
<td></td>
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<tr>
<td>Doctorate</td>
<td>24</td>
<td>6%</td>
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</tbody>
</table>
Table 2  
**Summary of Participant Caseloads**  

<table>
<thead>
<tr>
<th>SES</th>
<th>Frequency</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>344</td>
<td>86%</td>
</tr>
<tr>
<td>Med</td>
<td>319</td>
<td>80%</td>
</tr>
<tr>
<td>High</td>
<td>37</td>
<td>37%</td>
</tr>
<tr>
<td>Other</td>
<td>7</td>
<td>2%</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>M</th>
<th>SD</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>37</td>
<td>21</td>
<td>0-200</td>
</tr>
</tbody>
</table>

**Bilingual Children per Caseload**  
6 12 0-100

Table 3  
**Summary of SLP Languages**  

<table>
<thead>
<tr>
<th>Language</th>
<th>Frequency</th>
<th>Language</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spanish</td>
<td>36</td>
<td>Bosnian</td>
<td>1</td>
</tr>
<tr>
<td>Portuguese</td>
<td>6</td>
<td>Croatian</td>
<td>1</td>
</tr>
<tr>
<td>Italian</td>
<td>2</td>
<td>Lithuanian</td>
<td>1</td>
</tr>
<tr>
<td>ASL</td>
<td>1</td>
<td>Catalan</td>
<td>1</td>
</tr>
<tr>
<td>Arabic</td>
<td>1</td>
<td>Russian</td>
<td>1</td>
</tr>
<tr>
<td>Hindi</td>
<td>1</td>
<td>French</td>
<td>1</td>
</tr>
<tr>
<td>Gujarati</td>
<td>1</td>
<td>Korean</td>
<td>1</td>
</tr>
<tr>
<td>Tagalog</td>
<td>1</td>
<td>German</td>
<td>1</td>
</tr>
<tr>
<td>Serbian</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Language</td>
<td>Frequency</td>
<td>Language</td>
<td>Frequency</td>
</tr>
<tr>
<td>---------------------</td>
<td>-----------</td>
<td>------------</td>
<td>-----------</td>
</tr>
<tr>
<td>Spanish</td>
<td>227</td>
<td>Malayan</td>
<td>2</td>
</tr>
<tr>
<td>Arabic</td>
<td>22</td>
<td>Gujarati</td>
<td>2</td>
</tr>
<tr>
<td>Russian</td>
<td>19</td>
<td>Somali</td>
<td>2</td>
</tr>
<tr>
<td>Vietnamese</td>
<td>19</td>
<td>Dutch</td>
<td>1</td>
</tr>
<tr>
<td>Polish</td>
<td>17</td>
<td>Kurdish</td>
<td>1</td>
</tr>
<tr>
<td>Chinese</td>
<td>16</td>
<td>Quechí</td>
<td>1</td>
</tr>
<tr>
<td>Urdu</td>
<td>16</td>
<td>German</td>
<td>1</td>
</tr>
<tr>
<td>Tagalog</td>
<td>15</td>
<td>Laotian</td>
<td>1</td>
</tr>
<tr>
<td>French</td>
<td>11</td>
<td>Hungarian</td>
<td>1</td>
</tr>
<tr>
<td>ASL/ASE</td>
<td>10</td>
<td>Uzbeki</td>
<td>1</td>
</tr>
<tr>
<td>Korean</td>
<td>10</td>
<td>Nigerian</td>
<td>1</td>
</tr>
<tr>
<td>Creole</td>
<td>9</td>
<td>Kenyan</td>
<td>1</td>
</tr>
<tr>
<td>Punjabi</td>
<td>6</td>
<td>Burmese</td>
<td>1</td>
</tr>
<tr>
<td>Italian</td>
<td>6</td>
<td>Bengali</td>
<td>1</td>
</tr>
<tr>
<td>Hindi</td>
<td>5</td>
<td>Macedonian</td>
<td>1</td>
</tr>
<tr>
<td>Portuguese</td>
<td>5</td>
<td>Montenegran</td>
<td>1</td>
</tr>
<tr>
<td>Japanese</td>
<td>5</td>
<td>Croatian</td>
<td>1</td>
</tr>
<tr>
<td>Amharic</td>
<td>5</td>
<td>Swedish</td>
<td>1</td>
</tr>
<tr>
<td>Turkish</td>
<td>4</td>
<td>Afrikaans</td>
<td>1</td>
</tr>
<tr>
<td>Ukranian</td>
<td>4</td>
<td>Bangla</td>
<td>1</td>
</tr>
<tr>
<td>Native American Languages</td>
<td>4</td>
<td>Phonpeian</td>
<td>1</td>
</tr>
<tr>
<td>Greek</td>
<td>4</td>
<td>Ilocano</td>
<td>1</td>
</tr>
<tr>
<td>Lithuanian</td>
<td>4</td>
<td>Camobon</td>
<td>1</td>
</tr>
<tr>
<td>Bulgarian</td>
<td>3</td>
<td>Soninke</td>
<td>1</td>
</tr>
<tr>
<td>Swahili</td>
<td>3</td>
<td>Tigrinya</td>
<td>1</td>
</tr>
<tr>
<td>Bosnian</td>
<td>3</td>
<td>Kirundi</td>
<td>1</td>
</tr>
<tr>
<td>Serbian</td>
<td>3</td>
<td>Micronesian</td>
<td>1</td>
</tr>
<tr>
<td>Samoan</td>
<td>3</td>
<td>Hmong</td>
<td>1</td>
</tr>
<tr>
<td>Farsi</td>
<td>2</td>
<td>Ewe</td>
<td>1</td>
</tr>
<tr>
<td>Karen</td>
<td>2</td>
<td>Tarascan</td>
<td>1</td>
</tr>
<tr>
<td>Hebrew</td>
<td>2</td>
<td>Cambodian</td>
<td>1</td>
</tr>
<tr>
<td>Romanian</td>
<td>2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Classification of Participants

Based on their demographic responses, participants were divided into four classifications: monolingual clinicians without bilingual children on their caseload \((n = 127)\), monolingual clinicians with bilingual children on their caseload \((n = 216)\), bilingual clinicians without bilingual children on their caseload \((n = 2)\), and bilingual clinicians with bilingual children on their caseload \((n = 43)\). The classification of the SLPs determined which questions they received. SLPs who were monolingual who did not serve bilingual children only responded to Demographic Questions 1 through 22. SLPs who were bilingual who did not serve bilingual children responded to Demographic Questions 1 through 22. They also answered a display logic branch of Question 12, which recorded the method of acquisition of the SLP’s second language(s). SLPs who were monolingual with bilingual children on their caseload completed the full survey, excluding the logic branch of Question 12. SLPs who were bilingual and served bilingual children completed the full survey. Table 5 summarizes the population groups based on which questions they received.

Table 5
Tree of Survey Participants

<table>
<thead>
<tr>
<th>Monolingual SLPs Without Bilingual Children on Caseload</th>
<th>Bilingual SLPs Without Bilingual Children on Caseload</th>
<th>Monolingual SLPs With Bilingual Children on Caseload</th>
<th>Bilingual SLPs With Bilingual Children on Caseload</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demographic Questions (1-22) excluding Question 12 Logic Tree</td>
<td>Demographic Questions (1-22) including Question 12 Logic Tree</td>
<td>Complete Survey excluding Question 12 Logic Tree</td>
<td>Complete Survey</td>
</tr>
</tbody>
</table>

Definitions of Variables of Interest

Note: All variables were defined in the survey (see Appendix D).

- Ways in which the SLP acquired L2: setting, age of acquisition, and conversational partners
- Self-efficacy: self-reported confidence in one’s ability to administer bilingual assessments and conduct bilingual intervention
- Cultural competence: self-reported feelings of understanding and relating to the culture(s) associated with the language(s) on one’s caseload
- Linguistic competence: self-reported ability to read, understand, and communicate in an L2
- Access to materials: self-reported ability to obtain materials specifically created for bilingual assessment and intervention

Data Analysis

Qualtrics (2009) recorded participant responses, which were accessible to the researcher through a password-protected account. The researcher analyzed the data using Qualtrics’ response statistics and SPSS software (SPSS, 2011). The researcher assigned each question response a number code, which enabled Qualtrics to automatically code all data into SPSS format. Once gathered, the data was directly imported from Qualtrics into SPSS software. Qualtrics also allowed the researcher to filter data by response type (e.g., zip code, gender, or SES). Table 6 presents the research questions, corresponding survey questions, and types of data analyses.
<table>
<thead>
<tr>
<th>Research Questions</th>
<th>Corresponding Survey Questions</th>
<th>Data Analysis</th>
</tr>
</thead>
</table>
| 1. What are the most common methods and practices used by SLPs to assess and treat children who are bilingual in the United States and how are these factors affected by certain demographic variables? | 8. How many years have you been a certified, practicing SLP?  
11. Of the SLPs with whom you interact, how many are skilled in bilingual assessment and intervention?  
12. Are you considered by ASHA to be a bilingual SLP?  
26. Currently how many bilingual children do you have on your caseload?  
31. What mode of interpreter do you typically use when assessing/providing intervention for a child who is bilingual?  
34. Do you feel that you have adequate access to materials?  
35. Please indicate how often you use the following measures to supplement standardized testing. | • Descriptive Statistics  
• Regression |
| 2. What is the prevalence of sequential bilingualism versus simultaneous bilingualism in the United States? | 28. To the best of your knowledge, please estimate how many children on your caseload are simultaneous bilinguals and how many are sequential bilinguals? | • Descriptive Statistics  
• Regression |
| 3. What factors most strongly influence SLPs’ feelings of cultural and linguistic competency in assessing and treating children who are bilingual? | 8. What is your ethnicity?  
11. Of the SLPs with whom you interact, how many are skilled in bilingual assessment and intervention?  
12. Are you considered by ASHA to be a bilingual SLP?  
24. What do you believe influenced your level of confidence?  
34. Do you feel that you have adequate access to materials? | • Descriptive Statistics  
• Regression |
| 4. What is the relation between the SLP’s common methods of assessment and treatment and the perceived therapy gains of bilingual children? | 23. On a scale of 1 to 5, how would you rate your confidence in your own ability to assess and treat bilingual children/relate to the culture associated with their home language?  
29. For children who are bilingual, in which languages do you typically provide assessment and treatment?  
33. When assessing/treating children who are bilingual, do you use materials specifically created for bilingual treatment/assessment?  
35. Please indicate how often you use the following measures to supplement standardized testing.  
38. Thinking of your bilingual caseload as a whole, how would you rate the yearly therapy gains of the bilingual children on your caseload? | • Descriptive Statistics  
• Regression |
Research Questions

This study seeks to answer the following questions:

1. What are the most common methods and practices used by SLPs to assess and treat children who are bilingual in the United States and how are these factors affected by certain demographic variables (e.g., years practicing, access to materials, bilingual caseload, language skill, and number of bilingual SLPs in facility)?

2. What is the prevalence of sequential bilingualism versus simultaneous bilingualism in the United States?

3. What factors (e.g., graduate school coursework and experience, living and working in a bilingual community) most strongly influence SLPs’ feelings of cultural and linguistic competency in assessing and treating children who are bilingual?

4. What is the relation between SLPs’ common methods of assessment and treatment (i.e., use of EBP) and their reported therapy gains of bilingual children?

Anticipated Results

**Question 1: What are the most common methods and practices used by SLPs to assess and treat children who are bilingual in the United States and how these factors affected by certain demographic variables (e.g., years practicing, access to materials, bilingual caseload, language skill, and number of bilingual SLPs in facility)?**

Caesar and Kohler (2007) and Kritikos (2003) indicated SLPs are relying on treatment and intervention methods that are not evidenced-based. The researcher anticipated that certain demographic variables would affect an SLP’s report of using evidence-based assessment and intervention practices (e.g., number of years practicing and access to materials).

**Question 2: What is the prevalence of sequential bilingualism versus simultaneous bilingualism in the United States?**

Based upon Kohnert’s (2010) findings that children in the United States establish L1 in the home and acquire L2 later in development, the researcher speculated that the number of
sequential bilinguals would be greater than the number of simultaneous bilinguals across the United States.

**Question 3: What factors most strongly influence SLPs’ feelings of cultural and linguistic competency in assessing and treating children who are bilingual?**

Because Kritikos (2003) showed that bilingualism does not equate confidence, this study divided confidence into linguistic confidence and cultural confidence to determine what influences the two separately. The researcher hypothesized that ways in which SLPs learn and use their L2 (e.g., immersion, living in a bilingual community and working in a bilingual community), as well as their ethnicity and language skill, would significantly relate to their self-reported levels of cultural confidence. The researcher also hypothesized that certain demographic variables would predict confidence in assessment and treatment (e.g., graduate school experience and coursework, having a bilingual caseload, working with bilingual SLPs, and having access to materials created for bilingual treatment and assessment).

**Question 4: What is the relation between the SLP’s common methods of assessment and treatment and the perceived therapy gains of bilingual children?**

Evidence-based practice, such as assessing in both languages, yields more accurate results, in bilingual assessment and treatment (Bedore & Peña, 2008; Laing & Kamhi, 2003). The researcher predicted that a positive relation would exist between SLPs’ reported use of evidence-based practice and their reported positive therapy gains.
Results

The researcher used descriptive statistics and regressions analyses (Maxwell & Delaney, 2004) to test the following hypotheses. Regression equations assume normality of the data, which may be affected by skewness (asymmetry) and kurtosis (sharpness of curve’s peak). The following variables contained moderate levels of kurtosis and mild levels of skewness: number of bilingual SLPs in the facility, language skill, number of bilingual children on caseload, number of sequential bilinguals on caseload, and number of simultaneous bilinguals on caseload. Maxwell and Delaney (2004) state that regression is robust even to moderate levels of kurtosis and skewness and that regression is robust to violations of normality. Therefore, the skewness and kurtosis of the data should not invalidate the validity of the survey’s results (Maxwell & Delaney, 2004). Any responses greater than 200 standard deviations were excluded from the analyses.

Question 1: What are the most common methods and practices used by SLPs to assess and treat children who are bilingual in the United States and how are these factors influenced by certain demographic variables (e.g., years practicing, access to materials, bilingual caseload, language skill, and number of bilingual SLPs in facility)?

The dependent variable used for research question one was Survey Question (SQ) 35, which asked SLPs to rate how often (Never, Rarely, Sometimes, Most of the Time, and Always) they used certain methods (Language Samples, Ethnographic Interviews, Criterion Reference Tests, Adaptation of Standardized Tests, and Dynamic Assessment) to supplement their assessment of bilingual children. Figure 1 reveals the descriptive statistics for the dependent variables used in Research Question 1.
For use of language sampling 4% of SLPs reported never using this method, 4% rarely, 20% sometimes, 31% most of the time, and 41% always (n = 246). For use of ethnographic interviews, 20% of SLPs reported never using this method, 14% rarely, 21% sometimes, 19% most of the time, and 26% always (n = 243). For use of criterion-referenced tests, 6% of SLPs reported never using this method, 9% rarely, 41% sometimes, 26% most of the time, and 19% always (n = 243). For adaptation of standardized tests, 10% of SLPs reported never using this method, 14% rarely, 37% sometimes, 25% most of the time, and 15% always (n=244). For use of dynamic assessment, 9% of SLPs reported never using this method, 7% rarely, 30% sometimes, 31% most of the time, and 24% always (n = 242).

Figure 1
Use of Supplementary Materials

The following demographic variables were used to predict the outcomes of each supplemental method: years of experience (SQ 8), self-reported language skill, (SQ 12), number of bilingual SLPs per facility (SQ 11), number of bilingual children on caseload (SQ26), and adequacy of access to materials for bilingual assessment and treatment (SQ34).

Table 7 reveals the descriptive statistics for predictor variables used in research question one. SLPs reported their mean years of experience as 16.61 (SD = 11.74, n = 416). The
The proportion of SLPs reporting bilingualism was 12%, with 88% of SLPs reporting monolingualism \( (n = 417) \). The mean of bilingual SLPs per facility was 1.46 \( (SD = 3.99, n=417) \), and the total number of SLPs per facility (both bilingual and monolingual) was 8.56 \( (SD = 15.31, n = 407) \). The mean of bilingual children per caseload was reported to be 9.91 \( (SD = 13.29, n = 387) \). The proportion of SLPs reporting adequate access to materials was 41% \( (n = 249) \).

Table 7

<table>
<thead>
<tr>
<th>Research Question 1 Predictor Demographics</th>
<th>( M )</th>
<th>( SD )</th>
<th>( % )</th>
<th>( n )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Years of Experience</td>
<td>16.61</td>
<td>11.74</td>
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<td>416</td>
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</table>

**Self-Reported Language Skill**

<table>
<thead>
<tr>
<th></th>
<th>( % )</th>
<th>( n )</th>
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</thead>
<tbody>
<tr>
<td>Bilingual</td>
<td>12%</td>
<td>49</td>
</tr>
<tr>
<td>Monolingual</td>
<td>88%</td>
<td>368</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td>417</td>
</tr>
</tbody>
</table>

**Per Facility**

<table>
<thead>
<tr>
<th></th>
<th>( M )</th>
<th>( SD )</th>
<th>( n )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bilingual SLPs</td>
<td>1.46</td>
<td>3.99</td>
<td>417</td>
</tr>
<tr>
<td>Total SLPs</td>
<td>8.56</td>
<td>15.31</td>
<td>407</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Bilingual Children on Caseload</th>
<th>( M )</th>
<th>( SD )</th>
<th>( n )</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>9.91</td>
<td>13.29</td>
<td>387</td>
</tr>
</tbody>
</table>

**Adequate Access to Materials**

<table>
<thead>
<tr>
<th></th>
<th>( % )</th>
<th>( n )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>41%</td>
<td>103</td>
</tr>
<tr>
<td>No</td>
<td>59%</td>
<td>146</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td>249</td>
</tr>
</tbody>
</table>

**Regression**

The researcher conducted five separate multivariate regressions to analyze the data. The five predictor variables (independent, \( x \)) included in each model were years practicing, access to materials, number of bilingual children per caseload, language skill, and number of bilingual SLPs per facility. The five dependent variables (\( y \)) were use of language sampling, ethnographic interviews, adaptation of standardized tests, criterion-referenced tests, and dynamic assessment. Table 8 shows the outcome of each regression analysis. The researcher chose to report the
unstandardized regression coefficient (b) in order to show the estimated unit change in y (dependent variable) per unit change in x (independent variable) as coded in SPSS. The researcher also chose to report two measures of effect size, partial r² and Adjusted R². The first explains the percentage of change in y for which each predictor (x) variable accounts. The latter indicates the total amount of change in y for which each regression model accounts (i.e., the combination of all predictor variables). The researcher chose to report Adjusted R² because of the difference in samples sizes of monolingual (n = 368) and bilingual (n = 49) clinicians who responded to the survey; Adjusted R² is a more conservative measure than R². Cohen (1988) provided the following interpretation of effect sizes for partial r², small ≥ .02, medium ≥ .13, and large ≥ .26; and for Adjusted R², small ≥ .01, medium ≥ .09, and large ≥ .25.

For use of language sampling, the omnibus equation was significant at p = .003 (Adjusted R² = .053, SE = 1.047, df = 5, 231). When examining variables independently, only language skill was significant (b = -.527, p = .011, t = -2.554, partial r² = .027). For use of ethnographic interviews, the omnibus equation was significant at p = .000 (Adjusted R² = .086, SE = 1.411, df = 5, 230). The following variables were individually significant: language skill (b = -.766, p = .007, t = -2.718, partial r² = .031) and years of experience (b = -.017, p = .031, t = -2.175, partial r² = .020). For use of criterion-referenced tests, the omnibus equation was not significant at p = .555 (Adjusted R² = -.004, SE = 1.078, df = 5, 228). For the adaptation of standardized tests, the omnibus equation was not significant at p = .238 (Adjusted R² = .008, SE = 1.162, df = 5, 229) For use of dynamic assessment, the omnibus equation was significant at p = .020 (Adjusted R² = .036, SE = 1.162, df = 5, 228). One independent variable was significant: the number of bilingual SLPs per facility (b = .048, p = .013, t = 2.500, partial r² = .027).
Table 8

Research Question 1 Regression

<table>
<thead>
<tr>
<th>Y: Language Sampling ($R^2 = 0.073$ Adj. $R^2 = 0.053$, SEE = 1.047 df = 5, 231; $p = 0.003$)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>X1: BL Caseload</strong></td>
</tr>
<tr>
<td>0.003</td>
</tr>
<tr>
<td><strong>X2: Language Skill</strong></td>
</tr>
<tr>
<td><strong>X3: Years Exp.</strong></td>
</tr>
<tr>
<td><strong>X4: Material Access</strong></td>
</tr>
<tr>
<td><strong>X5: # BL SLPs</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Y: Ethnographic Interview ($R^2 = 0.106$, Adj. $R^2 = 0.086$, SEE = 1.411 df = 5, 230; $p = 0.000$)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>X1: BL Caseload</strong></td>
</tr>
<tr>
<td>0.003</td>
</tr>
<tr>
<td><strong>X2: Language Skill</strong></td>
</tr>
<tr>
<td><strong>X3: Years Exp</strong></td>
</tr>
<tr>
<td><strong>X4: Material Access</strong></td>
</tr>
<tr>
<td><strong>X5: # BL SLPs</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Y: Use of CR Tests ($R^2 = 0.17$, Adj. $R^2 = 0.04$, SEE = 1.411 df = 5, 228; $p = 0.000$)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>X1: BL Caseload</strong></td>
</tr>
<tr>
<td>0.003</td>
</tr>
<tr>
<td><strong>X2: Language Skill</strong></td>
</tr>
<tr>
<td><strong>X3: Years Exp</strong></td>
</tr>
<tr>
<td><strong>X4: Material Access</strong></td>
</tr>
<tr>
<td><strong>X5: # BL SLPs</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Y: Adapting Std Tests ($R^2 = 0.29$, Adj. $R^2 = 0.08$, SEE = 1.162 df = 5, 229; $p = 0.023$)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>X1: BL Caseload</strong></td>
</tr>
<tr>
<td>-0.002</td>
</tr>
<tr>
<td><strong>X2: Language Skill</strong></td>
</tr>
<tr>
<td><strong>X3: Years Exp</strong></td>
</tr>
<tr>
<td><strong>X4: Material Access</strong></td>
</tr>
<tr>
<td><strong>X5: # BL SLPs</strong></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Y: Dynamic Assessment ($R^2 = 0.56$, Adj. $R^2 = 0.36$, SEE = 1.162 df = 5, 228; $p = 0.020$)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>X1: BL Caseload</strong></td>
</tr>
<tr>
<td>-0.008</td>
</tr>
<tr>
<td><strong>X2: Language Skill</strong></td>
</tr>
<tr>
<td><strong>X3: Years Exp</strong></td>
</tr>
<tr>
<td><strong>X4: Material Access</strong></td>
</tr>
<tr>
<td><strong>X5: # BL SLPs</strong></td>
</tr>
</tbody>
</table>

*Significant at $p < .05$
**Significant at $p < .01$
***Significant at $p < .001$
Question 2: What is the prevalence of sequential bilingualism versus simultaneous bilingualism in the United States?

The researcher used inferential statistics and regression to examine the reported prevalence of simultaneous versus sequential bilingualism in the United States as reported by survey respondents. The reported mean per caseload of simultaneous language learners was 4.33 (SD = 6.98, n = 255). Reported mean per caseload of sequential language learners was 5.29 (SD = 9.52, n = 255). The overall omnibus test revealed a statistically significant difference between the two groups, $F(1,253) = 15.925, p = .000$.

Question 3: What factors most strongly influence SLPs’ feelings of cultural and linguistic competency in assessing and treating children who are bilingual?

In order to address the two parts of this question, cultural competency and linguistic competency, or competency in assessment and treatment, the researcher created two regression models. The two dependent variables were taken from the two portions of survey question 23 (SQ 23). The first asked SLPs to rate their confidence in their ability to evaluate and treat children who are multilingual, and the second asked them to rate their confidence in relating to the culture(s) associated with the language(s) on their caseload. Both questions included a scale of 1 (very confident) to 5 (very unconfident).

For competency in bilingual assessment and treatment, 17% of SLPs reported feeling very confident, 33% reported feeling somewhat confident, 20% neutral, 17% somewhat unconfident, and 13% very unconfident ($n =385$). For competency in relating to culture(s), 26% of SLPs reported feeling very confident, 48% reported feeling somewhat confident, 17% neutral, 7% somewhat unconfident, and 2% very unconfident ($n =386$). Figure 2 shows the descriptive outcome of SQ 23.
The researcher drew the primary predictor variables from SQ 24, which asked participants to rate the impact of various measures (i.e., immersion programs, graduate coursework, and access to materials) on their confidence as a clinician to interact with persons of various languages and cultures. Participants were provided with a scale of 1 (very influential) to 4 (not influential) or not applicable.

For immersion programs, 10% of SLPs reported them as very influential, 9% somewhat influential, 2% not very influential, 6% not influential at all, and 74% not applicable \((n = 376)\). For living in a bilingual community, 16% reported it as very influential, 10% somewhat influential, 6% not very influential, 4% not influential at all, and 65% not applicable \((n = 374)\). For supervised graduate school experience, 12% reported it as very influential, 10% somewhat influential, 5% not very influential, 4% not influential at all, and 69% not applicable \((n = 376)\). For graduate school multicultural coursework, 16% reported it as very influential, 33% somewhat influential, 9% not very influential, 4% not influential at all, and 37% not applicable \((n = 379)\). For working in a bilingual community, 24% reported it as very influential, 17%
somewhat influential, 8% not very influential, 3% as not influential at all, and 49% not applicable \((n = 380)\). For having a diverse caseload, 40% reported it as very influential, 30% somewhat influential, 6% not very influential, 3% not influential at all, and 23% not applicable \((n = 382)\). Figure 3 shows the descriptive outcome of this question.

Figure 3  
*Factors Influencing Confidence*

![Bar chart showing factors influencing confidence](image)

**Regression**

The first regression predicted confidence in assessment and treatment \((Y1: SQ 23.1)\) utilizing the following predictor variables: SQ 24.4 (graduate school multicultural classes), SQ 24.5 (supervised graduate school experience in multicultural assessment and/or treatment), SQ 24.7 (having a bilingual caseload), Q11 (number of bilingual SLPs in facility; see Table 7), and SQ 34 (adequate access to materials for bilingual assessment and treatment; see Table 7).

Table 9 shows the outcome of the regression analyses. The overall equation was significant at \(p = .000\) with a large effect size, as the combined predictors accounted for 30% of the change in the dependent variable \((Adjusted R^2 = .284, \ SE = .968 \ df = 5, 229)\). The following variables were individually significant: graduate school experience \((b = .163, \ p = .000, \ t = 3.591,\)
partial $r^2 = .053$), size of bilingual caseload ($b = .307, p = .000, t = 5.351$, partial $r^2 = .110$), number of bilingual SLPs in the facility ($b = -0.040, p = .004, t = -2.899$, partial $r^2 = .035$), and access to materials created for bilingual assessment and/or intervention ($b = .435, p = .001, t = 3.327$, partial $r^2 = .046$). Graduate school multicultural coursework was not found to be a significant predictor ($p = 0.925$).

The second regression predicted confidence in culture (Y2: SQ 23.2) utilizing the following predictor variables: SQ24.3 (participation in an immersion program), SQ24.9 (living in a bilingual community), SQ24.10 (working in a bilingual community), SQ5 (ethnicity; see Table 1), and SQ12 (self-reported language skill; see Table 7).

Table 9 shows the outcome of regression analyses. The overall equation was significant at $p = .000$ with a medium effect size, as the combined predictors accounted for 15% of the change in the dependent variable ($Adjusted \ R^2 = .149, SEE = .853, df = 5, 361$). The following variables were individually significant: working in a bilingual community ($b = .093, p = .009, t = 2.634$, partial $r^2 = .019$) and being bilingual ($b = .347, p = .048, t = 1.980$, partial $r^2 = .011$). Immersion programs, living in a bilingual community, and ethnicity were not significant predictors at $p = .227, p = .129$, and $p = .112$, respectively.
Table 9

Research Question 3 Regression

<table>
<thead>
<tr>
<th>Y1: Confidence in Ax/Tx</th>
<th>b</th>
<th>95% CI</th>
<th>SE</th>
<th>t</th>
<th>p</th>
<th>partial r^2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
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</tr>
<tr>
<td>R^2 = .301 Adj. R^2 = .285, SEE = .968 df = 5, 229 p = .000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>X1: Grad School Course</td>
<td>-0.004</td>
<td>-0.094</td>
<td>0.085</td>
<td>0.045</td>
<td>-0.094</td>
<td>0.925</td>
</tr>
<tr>
<td>X2: Grad School Experience</td>
<td>0.163</td>
<td>0.074</td>
<td>0.253</td>
<td>0.046</td>
<td>3.591</td>
<td>0.000***</td>
</tr>
<tr>
<td>X3: BL CL</td>
<td>0.307</td>
<td>0.194</td>
<td>0.421</td>
<td>0.057</td>
<td>5.351</td>
<td>0.000***</td>
</tr>
<tr>
<td>X4: No. BL SLPs</td>
<td>-0.04</td>
<td>-0.067</td>
<td>-0.013</td>
<td>0.014</td>
<td>2.899</td>
<td>0.004**</td>
</tr>
<tr>
<td>X5: Material Access</td>
<td>0.435</td>
<td>0.177</td>
<td>0.692</td>
<td>0.131</td>
<td>3.327</td>
<td>0.001**</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Y2: Confidence in Culture</th>
<th>b</th>
<th>95% CI</th>
<th>SE</th>
<th>t</th>
<th>p</th>
<th>partial r^2</th>
</tr>
</thead>
<tbody>
<tr>
<td>R^2 = .160 Adj. R^2 = .149, SEE = .853 df = 5, 360 p = .000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>X1: Immersion</td>
<td>0.044</td>
<td>-0.028</td>
<td>0.116</td>
<td>0.037</td>
<td>1.21</td>
<td>0.227</td>
</tr>
<tr>
<td>X2: Live in Community</td>
<td>0.063</td>
<td>-0.018</td>
<td>0.143</td>
<td>0.041</td>
<td>1.523</td>
<td>0.129</td>
</tr>
<tr>
<td>X3: Work in Community</td>
<td>0.093</td>
<td>0.023</td>
<td>0.163</td>
<td>0.035</td>
<td>2.621</td>
<td>0.009**</td>
</tr>
<tr>
<td>X4: Ethnicity</td>
<td>-0.075</td>
<td>-0.167</td>
<td>0.018</td>
<td>0.047</td>
<td>-1.593</td>
<td>0.112</td>
</tr>
<tr>
<td>X5: Language Skill</td>
<td>0.347</td>
<td>-0.002</td>
<td>0.692</td>
<td>0.175</td>
<td>1.98</td>
<td>0.048*</td>
</tr>
</tbody>
</table>

*Significant at p<.05  
**Significant at p<.01  
***Significant at p<.001.

Question 4: What is the relation between the SLPs’ common methods of assessment and treatment and the perceived therapy gains of bilingual children?

Research question 4 examined the relation between methods of assessment and reported therapy gains. The dependent variable was SQ 38, which asked SLPs to rate the average therapy gains made by bilingual children on their caseload as achieved less than expected, somewhat less than expected, as expected, somewhat better than expected, or better than expected. Table 10 shows the descriptive outcome of SQ 38. Three percent of SLPs reported that bilingual children on their caseload met goals less than expected, 20% somewhat less than expected, 70% as expected, 6% somewhat better than expected, and 0% better than expected (n = 247).

The predictor variables used to predict outcomes of SQ 38 were: SQ 23.1 (confidence in bilingual treatment and assessment; see Figure 2), SQ 29.1 and 29.2 (languages used in treatment and assessment, respectively; see Figure 4), SQ 33 (use of materials) and SQ 35 (use of evidence-based supplemental materials; see Figure 1). Figure 10 shows the results of SQ 33.
Sixty-two percent of SLPs reported using materials for bilingual assessment and treatment, while 38% of SLPs reported not using materials ($n = 249$).

Table 10

<table>
<thead>
<tr>
<th>Research Question 4 Demographics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Rate of Achievement</strong></td>
</tr>
<tr>
<td>Less than expected</td>
</tr>
<tr>
<td>Somewhat less than expected</td>
</tr>
<tr>
<td>As expected</td>
</tr>
<tr>
<td>Somewhat better than expected</td>
</tr>
<tr>
<td>Better than expected</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Use of Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
</tr>
<tr>
<td>No</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

Figure 4 shows the descriptive statistics of SQ 29. For language(s) used for assessment, 28% of SLPs reported using English, 12% using the child’s home language, and 60% using both languages ($n = 250$). For language(s) used for treatment, 61% of SLPs reported using English, 8% using the child’s home language, and 32% using both languages ($n = 252$).

Figure 4

*Languages Used in Assessment and Treatment*
Table 11 summarizes the regression analysis for research question 4. Regression analysis showed that the overall equation was significant at $p = .001$ (Adjusted $R^2 = .070$, $SE = .585$, $df = 6, 229$). Confidence in assessment and treatment was the only significant variable ($b = -.121$, $p = .002$, $t = -3.207$, partial $r^2 = .042$).

**Table 11**

*Research Question 4 Regression*

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>B</th>
<th>95% CI</th>
<th>SE</th>
<th>t</th>
<th>p</th>
<th>partial $r^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>X1: Use Language Sample</td>
<td>0.061</td>
<td>-0.018</td>
<td>0.140</td>
<td>1.533</td>
<td>0.127</td>
<td>0.010</td>
</tr>
<tr>
<td>X2: Use Dynamic Assess.</td>
<td>0.028</td>
<td>-0.043</td>
<td>0.098</td>
<td>0.36</td>
<td>0.755</td>
<td>0.003</td>
</tr>
<tr>
<td>X3: Language of Ax</td>
<td>-0.085</td>
<td>-0.181</td>
<td>0.011</td>
<td>-1.749</td>
<td>0.082</td>
<td>0.013</td>
</tr>
<tr>
<td>X4: Language of Tx</td>
<td>0.014</td>
<td>-0.076</td>
<td>0.104</td>
<td>-0.317</td>
<td>0.752</td>
<td>0.000</td>
</tr>
<tr>
<td>X5: Material Use</td>
<td>-0.022</td>
<td>-0.194</td>
<td>0.151</td>
<td>-0.247</td>
<td>0.805</td>
<td>0.000</td>
</tr>
<tr>
<td>X6: Confidence in Ax/Tx</td>
<td>-0.121</td>
<td>-0.196</td>
<td>-0.047</td>
<td>-3.207</td>
<td>0.002**</td>
<td>0.042</td>
</tr>
</tbody>
</table>

*Significant at $p < .05$

**Significant at $p < .01$

***Significant at $p < .001$
Discussion

The purpose of this study was to determine factors that influence the use of evidence-based methods, factors that influence confidence, and the overall effect of treatment practices on reported therapy gains. The importance of the study was to bridge the gap between the theory of evidence-based practice and clinical practicality in bilingual treatment and assessment. The researcher discovered that language skill, years of practice, and number of bilingual SLPs in the facility influenced SLPs’ use of evidence-based practice; graduate school supervised experience, bilingual caseload, access to materials, and number of bilingual SLPs in the facility influenced SLPs’ reported linguistic confidence; and working in a bilingual community and being bilingual influenced SLPs’ reported cultural confidence. SLPs’ confidence in assessment and treatment predicted their reported therapy gains.

Sequential and Simultaneous Bilingualism

Another purpose of the study was to contribute to a gap in the literature by identifying the prevalence of sequential and simultaneous bilingualism. This study showed that the mean of sequential bilinguals, or children who learn two languages in succession, on caseloads was significantly higher than the mean of simultaneous bilinguals, or children who learn two languages at the same time. This finding supports the hypothesis in the literature that more children in the United States qualify as sequential bilinguals rather than simultaneous (Kohnert, 2010; Bedore & Peña, 2008). Kohnert explained that in the United States most bilingual children typically develop a consistent primary language in the home and begin to acquire a second
language (English) upon entering preschool or kindergarten. While simultaneous bilinguals may follow the same developmental language pattern as monolinguals (Kohnert, 2010), sequential bilinguals show different patterns of development (Kohnert, 2010; Bedore & Peña, 2008). This study’s finding that sequential bilingualism is more prevalent than simultaneous bilingualism emphasizes that SLPs are more likely to encounter simultaneous bilinguals on their caseloads; therefore, SLPs must be diligent in assessing and treating bilingual children in a comprehensive and evidence-based manner.

**Use of Evidence-Based Practice**

This study sought to determine demographic factors that might influence SLPs’ use of evidence-based methods of treatment and assessment. The researcher hypothesized that years practicing, access to materials, bilingual caseload, language skill, and number of bilingual SLPs in the facility would predict the use of five evidence-based methods: language sampling (Bedore, Peña, Gillam, & Ho, 2010), ethnographic interviews (Laing & Kamhi, 2003), criterion-referenced testing (Shipley & McAfee, 2008), adaptation of standardized test (Carias & Cornish, 2008; Paul, 2007), and dynamic assessment (Kapantzoglou, Restrepo, & Thompson, 2012).

SLPs’ language skill, or bilingualism, positively predicted use of language sampling and ethnographic interviews. Kritikos (2003) hypothesized that higher levels of confidence may influence use of evidence-based methods, and Hammer and colleagues (2004) found a positive correlation between bilingualism and confidence. The findings of the current study suggest that bilingual SLPs show higher levels of confidence and demonstrate increased use of evidence-based methods.

Another significant predictor was years of experience, which inversely predicted use of ethnographic interviewing. This finding indicates that SLPs with more years of experience were
less likely to use this method of assessment. Hammer and colleagues (2004) studied the amount of multicultural coursework SLPs reported receiving. Their research revealed that the amount of SLPs who have received training in bilingual intervention has increased over the past decade. This increase may explain the inverse relationship between use of EBP and years of experience. SLPs who recently graduated from a master’s program and thereby have fewer years of experience working are likely to have received more multicultural coursework. Therefore, the current study and Hammer and colleagues may demonstrate a need for SLPs with more years of experience to receive training on updated methods.

The number of bilingual SLPs in a facility was another significant demographic, predicting the use of dynamic assessment. Many factors may account for this influence. For example, Roseberry-McKibben, Brice, and O’Hanlon (2005) found that SLPs in linguistically diverse regions reported fewer problems in multicultural assessment. These SLPs may have greater access to resources, work in larger facilities, and have more coworkers in their facility. Another theory supported in the literature is vicarious learning, or learning from one’s coworkers, in the workplace (Manz & Sims, 1981). The modeling of certain behaviors may increase the prevalence of that behavior throughout a facility. This finding indicates that having other SLPs to encourage the use of evidence-based practice can be an important aspect of clinician learning.

**Confidence and Treatment**

Another goal of this study was to determine factors that influence linguistic and cultural confidence. Linguistic confidence was predicted in a multivariate regression using the predictor variables of graduate coursework, graduate supervised experience, bilingual caseload, number of bilingual SLPs in facility, and material access. The regression model showed a large effect,
predicting 28.5% of linguistic confidence. Significant positive predictors included supervised
graduate school experience, having a bilingual caseload, number of SLPs in the facility, and
material access. This indicates that hands-on, experiential learning as well as daily interaction
with multicultural, multilingual individuals may have the biggest impact on linguistic
competence. Researchers have supported this theory by finding fewer clinician-reported
problems (i.e., feelings of clinician-to-client mismatching) in more culturally and linguistically
diverse regions where SLPs are more likely to interact with bilingual children on a frequent basis
(Roseberry-McKibben, Brice, & O’Hanlon, 2005). This conclusion indicates that clinicians who
are required to engage in bilingual intervention may ultimately report higher feelings of efficacy.

Working in a bilingual community and being bilingual were the most statistically
significant predictors of cultural confidence. Contrastingly, living in a bilingual community,
ethnicity, and immersion programs did not significantly predict cultural confidence. This finding
reemphasizes the importance of experiential learning and the importance of deliberate interaction
(Roseberry-McKibben, Brice, & O’Hanlon, 2005). An SLP may come from a bilingual
community, but may have only interacted with bilingual individuals in a casual setting. As a
result, they may not feel comfortable interacting in a formal clinical setting. In the same way, an
SLP may belong to a certain ethnicity by name, but may not regularly interact with the
associated culture.

The researcher also noted Kritikos (2010) found that bilingualism did not equate to
cultural confidence, while Hammer, et al. (2004) cited a correlation between bilingualism and
confidence. This study’s conclusion supported the latter, with bilingualism accounting for a
small portion of the positive change in cultural confidence. This difference in correlations
between Kritkos (2010) and Hammer and colleagues (2004) may be a result of sample
demographics. Kritikos’ (2010) study included a systematic sampling from four states, with an equal ratio of bilinguals to monolinguals. Like the current study, Hammer et al. (2004), included a sampling from across the United States with a disproportionate amount of bilinguals to monolinguals. This sample, however, shows a representation of the ratio between bilingual and monolingual SLPs that is more characteristic of the SLPs in the United States (ASHA, 2010). Therefore, though bilingualism may not be correlated to confidence in bilingual intervention on a large scale (Kritikos, 2010), it may be related on a scale that is proportionate to the current population (Hammer et al., 2004).

**Influence of EBP on Therapy**

Finally, this study aimed to determine how confidence relates to clinical efficacy, or reported therapeutic gains made by bilingual children on SLPs’ caseloads. The only individually significant variable was confidence in assessment and treatment, which positively predicted reported therapy gains. Kritikos (2003) supported this finding, by theorizing that increased feelings of efficacy would be beneficial to clinical practice. One should note, however, that while confidence in clinical practice may be beneficial, a degree of healthy skepticism is also necessary (Kamhi, 2010). Clinicians who keep a degree of uncertainty may be more likely to research the literature for theories that oppose their own, thereby increasing their potential to expand their clinical skills.

It is important to note that language of assessment approached significance as a predictor of therapeutic gains, yet language of treatment did not. The implications of language of assessment approaching significance rather than language of treatment are important to consider. Demographic statistics in this study show that the majority of SLPs assess in both languages, but provide treatment primarily in English (See Figure 4). Many SLPs indicated in the comments
section of the survey that this difference is because facilities provide interpreters and resources for appropriate assessment, but do not provide resources for intervention. Results of the current survey indicate that diagnosis performed in the appropriate language may have an important influence on reported therapy gains. While language of therapy should not be neglected, appropriate initial diagnosis seems to provide a sufficiently positive trajectory for efficient intervention (ASHA, 2004).

Limitations

First, although this study was intended to be a national sample, one should note that the responding sample size of 435 SLPs is a very small portion of the estimated 126,735 SLPs who were eligible to take the survey. That some states declined to participate adversely affected the study’s sample size. Second, the data contains a disproportionate representation of monolingual SLPs to bilingual SLPs. Although this proportion is thought to be representative of the current population of SLPs in the United States (ASHA, 2010), the difference in sample sizes might have contributed to increased levels of skewness and kurtosis on certain variables (i.e., number of bilingual SLPs in the facility, language skill, number of bilingual children on caseload, number of sequential bilinguals on caseload, and number of simultaneous bilinguals on caseload). As a result, differences in the normal curve might distort significance levels, standard of error, and effect sizes (Maxwell & Delaney, 2004). Therefore, the reader should cautiously interpret this study’s results. However, regression is generally robust to violations of the normal distribution and to mild-to-moderate levels of skewness and kurtosis (Maxwell & Delaney, 2004). Finally, the reader must remember that all survey results, such as confidence levels and estimated therapy gains, are self-reported and therefore subjective measures that have been objectified in this study. No qualitative data is available to confirm or refute the results.
Future Research

This study’s dataset provides the opportunity to explore many more questions in the future. First, further correlations may be drawn from the remaining survey variables, for example the relation between SLP feelings of efficacy and the rate of referral of bilingual children, or the relation between socioeconomic status and region of practice in use of evidence-based methods.

Second, follow-up studies could be conducted to determine the precise effects of using evidence-based intervention on therapy outcomes in bilingual children. For example, a future behavioral study might separate those who receive therapy in English, those who receive therapy in their home language, and those who receive therapy in both languages. A similar study could be used to measure assessment methods by assessing a bilingual child with standardized assessments only and then assessing the same child with additional supplemental measures such as language sampling and ethnographic interviews. Doing this with a large sample size of sequentially bilingual children may help researchers quantify the difference in outcomes that may result from performing multicultural treatment and assessment in an evidence-based way.

Finally, this survey highlights the need for experience-based learning for clinicians. Survey and experimental studies should be done to determine the most practical and efficient ways to allow clinicians to gain hands-on experience in multicultural coursework. While didactic learning is a core component of academia, experience-based learning also appears to be an asset to teaching multicultural assessment (Roseberry-McKibbin, Brice, & O’Hanlon, 2005).

Recruiting more bilingual clinicians to perform evidence-based assessment and treatment is not a realistic answer to the problem facing the field of speech therapy (ASHA, 2010). Instead, the focus must shift to equipping monolingual clinicians with the proper experience and
resources necessary to bring evidence-based assessment and intervention into clinics across the United States (Roseberry-McKibbon, Brice, & O’Hanlon, 2005).

Summary

The current study sought to determine factors that influence SLPs’ use of evidence-based methods, factors that influence SLPs’ confidence in bilingual intervention and culture, and the overall effect of EBP and confidence on reported therapy gains. A secondary aim of the study was to determine the prevalence of sequential versus simultaneous bilingualism. The ultimate goal of the study was to determine effective ways to bridge evidence-based practice to clinical practicality in bilingual treatment and assessment. The researcher created a 40-question survey and distributed it to SLPs across the United States through state speech and hearing associations and ASHA Special Interest Groups. A total of 517 SLPs responded to the survey, and 435 met the eligibility criteria to participate. Regression analyses revealed that years of experience inversely predicted use of some EBP; language skill and number of bilingual SLPs in the facility positively predicted others. Experiential demographics influenced confidence in culture and assessment more than didactic factors, and confidence in treatment and assessment positively predicted reported therapy gains. These findings emphasize the importance of experiential learning on the use of evidence-based treatment and assessment methods. Based on the findings of this study, future research should further examine the effects of using evidence-based methods in bilingual assessment and intervention, as well as effective ways to bring experience-based training to SLPs across the United States.
References


August 7, 2012

Carla Aguilar
Communicative Disorders
College of Arts and Sciences
Box 870242

Re: IRB # 12-OR-269: "Common Practices of Speech-Language Pathologists in Bilingual Assessment and Intervention"

Dear Ms. Aguilar,

The University of Alabama Institutional Review Board has granted approval for your proposed research.

Your application has been given expedited approval according to 45 CFR part 46. You have also been granted the requested waiver of written documentation of informed consent. Approval has been given under expedited review category 7 as outlined below:

(7) Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

Your application will expire on August 6, 2013. If the study continues beyond that date, you must complete the IRB Renewal Application. If you modify the application, please complete the Modification of an Approved Protocol form. Changes in this study cannot be initiated without IRB approval, except when necessary to eliminate apparent immediate hazards to participants. When the study closes, please complete the Request for Study Closure (Investigator) form.

Please use the IRB-stamped version of the consent document.

Should you need to submit any further correspondence regarding this application, please include the assigned IRB application number.

Good luck with your research.

Sincerely,

[Signature]

Cara Matthews, MSM, CIR
Director & Research Compliance Officer
Office for Research Compliance
The University of Alabama
UNIVERSITY OF ALABAMA INSTITUTIONAL REVIEW BOARD FOR THE
PROTECTION OF HUMAN SUBJECTS
REQUEST FOR APPROVAL OF RESEARCH INVOLVING HUMAN SUBJECTS

I. Identifying information

Principal Investigator

Name: Carla Aguilar
Department: Communicative Disorders
College: A&S
University: UA
Address: Box 870242
Telephone: 205-348-1848
FAX: 205-348-1845
E-mail: cjaguilar@crimson.ua.edu

Second Investigator

Name: Rachel Saffo
Department: Communicative Disorders
College: A&S
University: UA
Address: Box 870242
Telephone: 205-348-1848
FAX: 205-348-1845
E-mail: rsaffo@as.ua.edu

Third Investigator

Title of Research Project: Common Practices of Speech-Language Pathologists in Bilingual Assessment and Intervention

Date Submitted: 6-15-12

Funding Source: Department of Communicative Disorders & Graduate Research & Travel Fund

Type of Proposal: _X_ New

Revision

Renewal

Completed

Exempt

Attach a renewal application

Attach a continuing review of studies form

Please enter the original IRB # at the top of the page

UA faculty or staff member signature:

II. NOTIFICATION OF IRB ACTION (to be completed by IRB):

Type of Review: _____ Full board _✓_ Expedited

IRB Action:

_Rejected

Date:

_Tabled Pending Revisions

Date:
Approved Pending Revisions Date: 

Approved—this proposal complies with University and federal regulations for the protection of human subjects.

Approval is effective until the following date: 8/6/2013

Items approved: 
- Research protocol: dated 
- Informed consent: dated 
- Recruitment materials: dated 
- Other: waiver of written documentation dated 

Approval signature Date 8/7/12
UNIVERSITY OF ALABAMA
HUMAN RESEARCH PROTECTION PROGRAM

Informed Consent Form

Study title: Common Practices of Speech-Language Pathologists in Bilingual Assessment and Intervention

Investigators:
Carla Aguilar
Master's Student
Rachel Saffo, PhD
Assistant Professor, Committee Advisor

Dear SLP:

You are invited to participate in a research survey entitled, "Common Practices of Speech-Language Pathologists in Bilingual Assessment and Intervention." Carla Aguilar and Dr. Rachel Saffo are conducting this study. Carla Aguilar is a graduate student in the Department of Communicative Disorders at the University of Alabama (UA). Dr. Rachel Saffo is an assistant professor of Communicative Disorders at UA.

Is the researcher being paid for this study?
This study is supported by grants from the University of Alabama Graduate School and the Department of Communicative Disorders.

What is this study about? What is the investigator trying to learn?
This study is being conducted to determine the most common practices of speech-language pathologists (SLPs) in assessing and treating children who are bilingual. Even if you do not have bilingual children on your caseload, you are welcome to complete the survey. The study will also examine factors related to feelings of linguistic and cultural confidence in providing bilingual services.

Why is this study important or useful?
The results of this study may help graduate programs and other facilities understand ways to better equip SLPs with resources to provide evidence-based practice to bilingual clients.

Why have I been asked to be in this study?
You have been asked to be in this study because you are registered in the ASHA database as a certified SLP working in a facility in which you might provide services to children who are bilingual.

How many people will be in this study?
All SLPs in the United States who work with children (birth to 18 years) are being asked to participate, even if the SLPs do not have bilingual clients on their caseloads.

UNIVERSITY OF ALABAMA IRB
CONSENT FORM APPROVED: 8/1/2013
EXPIRATION DATE: 8/1/2013
What will I be asked to do in this study?
If you meet the criteria and agree to be in this study, you will be asked to complete an online survey, which will take about 30 minutes of your time.

Will being in this study cost me anything?
The only cost to you from this study is your time.

Will I be compensated for being in this study?
You will not be compensated for being in this study.

What are the risks (dangers or harms) to me if I am in this study?
Little or no risk is foreseen for participation in this study.

What are the benefits (good things) that may happen if I am in this study?
What are the benefits to science or society?
Although there are no direct benefits to you, this study will determine the types of services children who are bilingual are receiving and how SLPS can better serve this population.

How will my privacy be protected?
This survey will ask questions about your practice as an SLP. You may complete the survey at a time and place of your choosing. If you prefer not to respond to these questions, you may discontinue the survey at any time.

How will my confidentiality be protected?
Once your responses are recorded, no identifying information will be retained in our database. All survey data will be kept in password-protected accounts and documents. Only the investigators will have access to these documents.

What are my rights as a participant in this study?
Taking part in this study is voluntary. If you start the study, you can stop at any time without penalty. Your decision to participate or not participate in this study will have no effect on your relations with the American Speech Language Hearing Association.

Who do I call if I have questions or problems?
If you have any questions, please contact Carla Aguilar at 205-348-1848 or cjaguilar@crimson.ua.edu or her supervising professor, Dr. Rachel Saffo at 205-348-1848 or rsaffo@as.ua.edu.

If you have any questions, concerns, or complaints about your rights as a person in a research study, call Ms. Tanta Myles, the Research Compliance Officer of the University of Alabama, at 205-348-8461 or toll-free at 1-877-820-3066. You may also ask questions, make suggestions, or file complaints and concerns through the IRB Outreach website at http://osp.ua.edu/site/PRCO_Welcome.html or email the Research Compliance office at participantoutreach@bama.ua.edu. After you participate, you are encouraged to complete the survey for research participants that is online at the
outreach website or you may ask the investigator for a copy of it and mail it to the University Office for Research Compliance, Box 870127, 358 Rose Administration Building, Tuscaloosa, AL 35487-0127.

By clicking on the link to the survey, I acknowledge that I have read this consent form. I have had a chance to ask questions. I agree to take part in it.

Please print a copy of this consent form to keep if you would like one for your records.
Appendix B

Letter to SIGs and State Associations

Dear [Name of Representative],

My name is Carla Aguilar, and I am a graduate student in the Department of Communicative Disorders at the University of Alabama. Dr. Rachel Saffo and I are currently working on a research study that will evaluate the common practices of SLPs as they assess and treat children who are bilingual. Our goal for this project is to obtain the largest possible sample of SLPs in the United States. We would greatly appreciate your help; we would like to know if you would be willing to [email] [post] our survey to all SLPs in your [Special Interest Group] [State Association]. The survey has been approved by the IRB of the University of Alabama. Please reply with your response as well as any questions or concerns. If you would be willing to participate, I will respond with a small paragraph and link to the survey, which may be [forwarded to your members] [posted to your community forum].

Sincerely,

Carla Aguilar
Graduate Clinician
The University of Alabama

Rachel Saffo
Assistant Professor
The University of Alabama

Letter to Participants

Dear Speech-Language Pathologist,

You are invited to participate in a survey study from the University of Alabama. This study will evaluate the common practices of SLPs as they assess and treat children who are bilingual. Even if you do not have children who are bilingual on your caseload, you are still invited to take the survey.

[Link to survey]

To participate, please click the link above. Your answers will be recorded anonymously, and the survey should take no more than thirty minutes of your time. Thank you so much for your help in this project!

Sincerely,

Carla Aguilar
Graduate Clinician
The University of Alabama

Rachel Saffo
Assistant Professor
The University of Alabama
Appendix C

<table>
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<tr>
<th>Participating State Associations</th>
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<td>Alabama</td>
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<td>SIG 1: Language, Learning and Education</td>
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<td>SIG 2: Neurophysiology and Neurogenic Speech and Language Disorders</td>
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<td>SIG 7: Aural Rehabilitation and Its Instrumentation</td>
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<td>SIG 12: Augmentative and Alternative Communication</td>
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<td>SIG 16: School-Based Issues</td>
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<td>SIG 18: Telepractice</td>
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Appendix D

Research Survey

Informed Consent

1) Agree
2) Disagree

Skip Logic: If disagree, skip to end of survey.

1. Are you an ASHA-certified speech-language pathologist (SLP)?
   1) Yes
   2) No

Skip Logic: If no, skip to end of survey.

2. Do you work with children, birth to 18 years?
   1) Yes
   2) No

Skip Logic: If no, skip to end of survey.

3. What is your age?
   [text box]

4. What is your gender?
   1) Male
   2) Female

5. What is your ethnicity?
   1) White/ Caucasian
   2) Black or African American
   3) Hispanic or Latino
   4) Asian
   5) Native Hawaiian/ Pacific Islander
   6) Middle Eastern
   7) South Asian
   8) Other: [text box]

6. What is the zip code of the area in which you work?
   [text box]

7. Select your highest level of completed education.
   1) Bachelor’s Degree
   2) Master’s Degree
   3) Doctorate Degree

8. How many years have you been a certified, practicing SLP?
   [text box]
9. Where do you practice? (Check all that apply)
   1) Early Intervention
   2) Private School
   3) Preschool
   4) Public School
      i. Kindergarten
      ii. Elementary
      iii. Middle School
      iv. High School
   5) Private Clinic
   6) Hospital/ Acute Care
   7) University Clinic
   8) Other: [text box]

10. How many SLPs are employed at your facility that you interact with on a daily basis?
    [text]

11. Of those SLPs with whom you interact, how many are skilled in bilingual assessment and intervention?
    [text box]

12. Are you considered by ASHA to be a bilingual SLP (i.e., you are able to read, understand, and communicate in a language other than English with native or near-native proficiency)?
    1) Yes
    2) No
    Carry Forward Display Logic: If yes, display Q13-Q16. If no, skip to Q17.

13. Please list the language(s) in which you are fluent.
    [text box]

14. How did you acquire your second language(s)?
    1) My family or family member(s) spoke the language
    2) I lived in a community of native speakers from birth.
    3) I lived in a community of native speakers long enough to acquire the language.
    4) I worked in a community of native speakers.
    5) I took courses in high school/ college.
    6) I was involved in an immersion program.
    7) I took a computer-based course (e.g. Rosetta Stone).
    8) Other: [text box]

15. How old were you when you acquired your second language? If you acquired two languages simultaneously, mark “0”.
    [text box]
16. Who were your primary conversation partners when you were acquiring your second language?
   1) Parents/ siblings
   2) Other immediate family (i.e., grandparents, aunts, uncles, cousins)
   3) Friends/Peers
   4) Coworkers
   5) Professors
   6) I had no primary conversational partners.
   7) Other:

17. Currently how many children do you have on your caseload?
   [text box]

18. What is the socioeconomic status of the families you service? (Check all that apply)
   1) Primarily low income families
   2) Primarily median income families
   3) Primarily high income families
   4) Other:

19. How do your clients pay for the services you provide?
   1) Through the city or county school systems
   2) Medicaid
   3) Other third-party billing company
   4) Out of pocket
   5) Other [text box]

20. In a typical year, how many bilingual children do you screen for speech, language, or hearing services?
   [text box]

21. Out of the total number of bilingual children whom you screen per year, how many children do you recommend for services?
   [text box]

22. In your professional opinion, if a child comes from a home in which more than one language is spoken or in which the home language is one other than English, what is their likelihood of needing to receive speech-language therapy? (1 = Not likely, 5 = Very likely)

   1 2 3 4 5

23. 1. On a scale of 1 to 5 (5 = Not confident, 1 = Very confident), how would you rate your confidence in your own ability to assess and treat bilingual children?

   1 2 3 4 5

24. 2. On a scale of 1 to 5 (5 = Not confident, 1 = Very Confident), how competent do you feel understanding and relating to the culture(s) associated with the language(s) on your caseload?

   1 2 3 4 5
25. What do you believe influenced your level of confidence? Rank the following options depending on the level of benefit you received from them. If you did not receive experience from a specified source, please mark N.A.

(1=Very Influential, 4= Not Influential At All, 5= Not Applicable)
1) Computer programs such as Rosetta stone
2) Taking language courses in high school/ college.
3) Immersion Programs
4) Graduate school courses on assessing and treating multicultural individuals
5) CEUs/ Seminars on assessing and treating multicultural individuals
6) Having supervised clinical experience treating and assessing multicultural children in grad school
7) Having multicultural children on your caseload
8) Being provided with resources (books and tests) to aid in multicultural assessment and therapy
9) Living in a bilingual environment
10) Working in a bilingual environment
11) Other [text box]

26. Do you currently have children who are bilingual on your caseload?
1) Yes
2) No

**Skip Logic: If no, skip to end of survey.**

27. Currently how many bilingual children do you have on your caseload?
[text box]

28. What language(s) are represented on your caseload? Please enter one per line.
[text box]

29. The term *simultaneous bilingual* indicates a child learns two languages at the same time, typically from birth or before age 2. For example, a child lives in a home in which two language are spoken.
The term *sequential bilingual* indicates a child learns one language (L1) before he learns a second language (L2). Typically a child does not begin learning L2 until he goes to school. For example, a child learns L1 at home from birth then begins to learn L2 upon entering school.

Question: To the best of your knowledge, please estimate how many children on your caseload are simultaneous bilinguals and how many are sequential bilinguals?
1) Simultaneous: [text box]
2) Sequential: [text box]

30. 1. In what language(s) do you typically assess children who are bilingual?
1) Child’s primary/ home language
2) Child’s secondary language (English)
3. Both the child’s primary/home language and secondary language (English)
4. Other: [text box]

2. In what language(s) do you typically provide treatment to children who are bilingual?
   1) Child’s primary/home language
   2) Child’s secondary language (English)
   3) Both the child’s primary/home language and secondary language (English)
   4) Other: [text box]

31. 1. What language(s) do you typically recommend for children outside of therapy for children diagnosed with a language delay?
   1) Child’s primary/home language
   2) Child’s secondary language (English)
   3) Both the child’s primary/home language and secondary language (English)
   4) Other: [text box]

2. What language(s) do you typically recommend for children outside of therapy for children not diagnosed with a language delay?
   1) Child’s primary/home language
   2) Child’s secondary language (English)
   3) Both the child’s primary/home language and secondary language (English)
   4) Other: [text box]

32. What mode of interpreter do you typically use when assessing/providing intervention for a child who is bilingual?
   1) Professional Interpreter or Translating Service
   2) Adult family members of the child
   3) Other children/child’s siblings.
   4) I do not need an interpreter, because I speak the child’s primary language.
   5) I do not use an interpreter.
   6) Other: [text box]

33. Thinking of evidenced-based practice in the assessment and treatment of children who are bilingual, rate your own knowledge and awareness of the most efficacious treatments (1 = Not aware, 5 = Very aware).

   1 2 3 4 5

34. When assessing/treating children who are bilingual, do you use materials specifically created for bilingual treatment/assessment (e.g. standardized tests normed on bilingual populations, ELL literacy materials, etc.)?
   1) Yes
   2) No

35. Do you feel that you have adequate access to the materials you need to assess and treat children who are bilingual?
   1) Yes
2) No

36. Please indicate how often you use the following measures to supplement standardized testing. (1= Never use, 5= Always use)
   1) Language Samples
   2) Ethnographic Interviews
   3) Criterion-Referenced tests
   4) Adapting standardized procedures to suit the client
   5) Dynamic Assessment
   6) Others: [text box]
   7) None

37. What are the primary therapy goals for the bilingual children currently on your caseload? (Check all that apply.)
   1) Language
   2) Articulation
   3) Literacy
   4) Social Skills
   5) Cognition
   6) Voice
   7) Fluency
   8) Aural Rehabilitation

38. How often do you document the therapy gains made by the children on your caseload?
   1) I document progress once per therapy session.
   2) I document progress on a weekly basis.
   3) I document only status upon enrollment and discharge.
   4) I do not document at regular intervals.
   5) I do not document progress.

39. Thinking of your bilingual caseload as a whole, how would you rate the yearly therapy gains of the bilingual children on your caseload?
   1) Achieve goals less than expected
   2) Achieve goals somewhat less than expected
   3) Achieve goals as expected
   4) Achieve goals somewhat better than expected
   5) Achieve goals better than expected

40. Please enter any additional comments about any of your survey responses.
   [text box]

41. Please indicate how you received this survey.
   1) State Speech and Hearing Association
   2) ASHA Special Interest Group
   3) Other: [text box]