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Comfort and Knowledge-based Differences between Multilingual and Monolingual Speech-

Language Pathologists When Serving the Culturally and Linguistically Diverse

by

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Thesis Abstract—Idaho State University (2020)

The purpose of this study was to explore factors associated with speech-language pathologists' knowledge-base and confidence levels when working with clients who are culturally and linguistically diverse (CLD). A survey in 2012 was distributed by email to 15,049 speech-language pathologists across the United States with 1,319 anonymous responses received. The questions related to exposure to and knowledge of multilingualism in clinical practice. The Pearson's Chi-Square associations between predictor (demographics, training, and work experience) and criterion (knowledge-base and confidence) variables were statistically significant. Respondents who had worked with clients who speak languages other than English, who had received training with multilingual speech-language pathologists, and/or who had received training to become multilingual speech-language pathologists demonstrated the strongest associations with increased confidence and increased knowledge-base.

Key Words: multilingualism, cultural and linguistic diversity, speech-language pathology, survey

Comfort and Knowledge-Based Differences between Multilingual and Monolingual Speech-Language Pathologists When Serving the Culturally and Linguistically Diverse

Speech-language pathologists (SLPs) within the United States have struggled to provide appropriate services for individuals who are culturally and linguistically diverse (CLD) as evidenced by a lack of reported confidence (Kritikos, 2003). Effectively serving clients who are CLD is becoming increasingly urgent, as the United States Census Bureau (2015) projected that in a short time CLD populations will constitute over half of United States residents. *Culturally and linguistically diverse* is a concise way to describe all individuals who have either been influenced by one or more cultures (including race/ethnicity, sexual orientation, religion, gender identity, etc.) and/or who have been influenced by one or more languages (Maul, 2015). While this project is mainly focused on linguistic diversity, culture is expressed through language; therefore, CLD is appropriately representative.

Best Practices in SLP Services for Clients Who are CLD

Currently, SLPs have support from the research for justifying added time and expenses for the provision of services for clients who are CLD (Centeno, 2015; Centeno & Eng, 2005; Clough et al., 2013; Drolet et al., 2014; Grandpierre et al., 2018; Hasnain et al., 2011; Lindsay et al., 2012; Maul, 2015; Verdon et al., 2015a, 2015b; Zuckerman et al., 2014). Cultural competence is a commonly used term related to serving diverse clients. Betancourt and colleagues define culturally competent practice as that which, “acknowledges and incorporates—at all levels—the importance of culture, assessment of cross-cultural relations, vigilance towards the dynamics that result from cultural differences, expansion of cultural knowledge, and adaptation of services to meet culturally unique needs” (2003, p. 294).

Hasnain and colleagues (2011) explain that the provision of culturally competent services improves client treatment outcomes, the patient's knowledge related to their diagnosis, and the client's psychosocial outcomes (e.g., well-being, self-efficacy, and quality of life). While the current American Speech-language and Hearing Association (ASHA) standards require that SLP graduate students are taught factors related to culturally competent care, there continues to be a lack of appropriate services for these populations ("2020 Certification Standards in Speech-language Pathology," n.d.; Verdon et al., 2015a, 2015b; Zuckerman et al., 2014). According to a survey conducted by Kritikos (2003), over 90% of all SLP respondents (2,337 surveys were mailed out, with 811 completed surveys returned) reported that they are not culturally competent or are only somewhat competent. Of the returned surveys, 446 were multilingual and 365 were monolingual. Consensus among SLPs' lack of overall effectiveness in assessing and treating clients who are CLD might reflect a disconnect between comprehensive training and the provision of effective services (treatment and assessment) for this population. Teaching effective service provision for clients who are CLD is difficult for many current SLP faculty members, given that many of them did not receive adequate training and do not have current access to adequate curriculum guides (Matteliano & Stone, 2014).

While sufficient education on service provision for clients who are CLD is slow to infiltrate our SLP training institutions, we currently have frameworks available to support these endeavors. The International Expert Panel on Multilingual Children's Speech recommends six principles regarding best practices for working with children who are CLD with speech sound disorders. They suggest that children receive services in their family/community language, be assessed and provided treatment using culturally sensitive materials, receive services from culturally competent SLPs who are involved (locally and with communities outside of the United

States), and be supported by infrastructure (e.g., governments, policy makers, and employers should invest money and time into supporting culturally competent practices; McLeod et al., 2013). These themes are redundant in research in the form of surveys, interviews, case studies, and meta-analyses; repeatedly demonstrating the importance of implementing standards for the assessment and treatment of clients who are CLD (Brophy, 2014; Brassart et al., 2017; Centeno, 2015; Clough et al., 2013; Drolet et al., 2014; Grandpierre et al., 2018; Hasnain et al., 2011; Imperatore Blanche et al., 2015; Kummerer & Lopez-Reyna, 2006; Lindsay et al., 2012; Maul, 2015; Verdon et al., 2015a, 2015b; Zuckerman et al., 2014). Verdon and colleagues (2015a, 2015b) suggest methods for incorporating these principles into SLPs' services, such as researching linguistic characteristics of all languages that clients are exposed to in order to differentiate between language transfer and disorder, consulting with families to determine which languages they want to target in treatment, purchasing and utilizing assessments and treatment tools that are representative of specific clients, advocating for a more culturally inclusive workplace by challenging policies (such as requesting extended time and appropriate tools for multilingual clients), and becoming involved in community-based networks in order to understand clients' unique cultures. While cultural competency and humility can evolve in the individual, a systemic shift across the field of speech-language pathology (recognition of the importance of appropriate services for clients who are CLD and the necessary allocation of resources at the institutional level) is also necessary for widespread changes in adequate care to occur (Centeno, 2015; Clough et al., 2013; Drolet et al., 2014; Grandpierre et al., 2018; Lindsay et al., 2012; Verdon et al., 2015a; Zuckerman et al., 2014).

In the context of semi-structured interviews, nine school SLPs reported general ideas regarding what culturally competent practice includes (Maul, 2015). Their contributions were

transcribed and then analyzed through an open coding process. Speech-language pathologists described culturally competent practices as including: learning even a small amount of the family's native language, attending cultural events and making home visits outside of the professional setting, and accepting that culture is a facilitator of services (rather than a detriment to; Maul, 2015). Furthermore, rehabilitation practitioners (SLPs, physical and occupational therapists, and audiologists) and clients/caregivers have reported ideas regarding barriers and facilitators to appropriate care (Grandpierre et al., 2018). One primary barrier to provision of services was reported to be limited resources. With respect to providing services for clients who are CLD, Grandpierre and colleagues (2018) defined limited resources as a reliance on Western-based practices, a lack of interpreters, and a lack of sufficient training and/or education. Conversely, facilitators were described to include practitioners who have cultural awareness and support a culturally accepting atmosphere at work, provide explanations of the health care system, and use culturally appropriate methods and materials (Grandpierre et al., 2018). While there is emerging research available on enhancing service provision for clients who are CLD, there remains a sense of inadequacy among SLPs (Kritikos, 2003).

While several have proposed ideas for future study, there is currently scant information available regarding ways to increase SLPs' sense of comfort and efficacy related to service provision for clients who are CLD. Kritikos (2003) recommended that researchers identify factors that contribute to this sense of competency in SLP service provision to clients who are CLD, as this will inform educators on important areas to cover in preparatory coursework. Maul (2015) recommended that researchers explore the relationship (or lack thereof) between hands-on intercultural experiences and cultural sensitivity, the effect of teaching cultural differences in the provision of SLP services, and the benefit of being able to speak some of a client's (or a

client's family's) language if other than English. More exploration is necessary prior to forming conclusions related to facilitators to the provision of culturally competent services for clients who are CLD (Grandpierre et al., 2018).

Purpose

The **long-term goal** of this line of research is to improve outcomes for clients who are CLD by better understanding the key factors associated with SLPs' comfort and knowledge for serving this population. The **objective** of the proposed project is to explore the differences in comfort level and knowledge base between multilingual versus monolingual SLPs working with clients who are CLD in addition to various other factors (e.g., educational history, clinical experience, years of practice, etc.). It is **hypothesized** that multilingual SLPs will demonstrate a greater sense of comfort and knowledge base (compared with monolingual SLPs) when providing services for clients who are CLD. This is supported by Kritikos' (2003) findings where multilingual SLPs (441 of the respondents) reported significantly higher personal efficacy than monolingual SLPs (365 of the respondents) when providing services for clients who are CLD. Further, through a scoping review (a systematic review of the literature beginning with 3679 articles resulting in 31 that met criteria), conducted by Grandpierre and colleagues (2018), clients and caregivers (48 total participants) reported that language barriers decreased rapport with practitioners. If fewer barriers existed between clients/families and SLPs, SLPs would be more likely to experience a greater sense of comfort when working with clients who are CLD (Grandpierre et al., 2018). The **rationale** for this research was to inform the field on various educational and training experiences that may or may not enhance culturally competent services. Such evidence may inform educators and SLPs regarding the provision of effective services for clients who are CLD.

We will assess our hypothesis by evaluating two Specific Aims within the framework of a nationally distributed online survey. From a sample of 15,049, anonymous responses were obtained from 1,319 SLPs. Through analysis of this data, we will explore the association between various characteristics (educational and work experiences, attitudes related to serving clients who are CLD, and geographical location) and an SLP's:

- **Aim 1.** Sense of confidence when providing services for clients who are CLD (sense of confidence will be measured by responses to the survey question, “how confident are you when working with individuals who speak languages other than English in your clinical practice?”), as well as
- **Aim 2.** Knowledge concerning the provision of culturally competent services for clients who are CLD (knowledge will be measured by responses to level of familiarity with multilingualism-related concepts).

Methods

The proposed project utilized archived data from an unpublished undergraduate research project (Dolan, 2012), approved by the University and Medical Center Institutional Review Board, and conducted at East Carolina University under the guidance of Ramsdell-Hudock. The focus of Dolan's project (2012) was to explore multilingualism in clinical practice, to better define how language barriers impact SLP services. A survey was developed, and questions queried everything from clinician demographic information to clinical knowledge related to serving populations who are CLD.

Participants

When this study was conducted, there were approximately 123,000 SLPs nationally, according to records reported by ASHA. In order to generalize the survey results to the clinical

population as a whole, a sample size was determined that would guarantee a margin of error no greater than 4% for 95% confidence intervals for proportions (Daniel & Cross, 2013). A sample size of 600 was determined to be needed. Based on the predication that only 20% of participants would return surveys, Dolan (2012) aimed to email a sample distribution of 12,000 SLPs. A total of 15,049 surveys were emailed to a randomly selected sample of SLPs who either were listed in the ASHA membership directory, worked in an affiliated college/university department (e.g., SLP, Communication Sciences and Disorders, etc.), or had a publicly listed practice email address. In addition to an initial email requesting participation and providing the survey link, two follow-up reminder emails were sent out, again requesting participation and providing the survey link. Further, to incentivize responses, a drawing for an iPad was offered as reward. Funding for the project was obtained from an Undergraduate Research and Creative Activity Award to Dolan and Ramsdell-Hudock (project director) from East Carolina University. Anonymous responses were obtained from 1,319 respondents.

Data Collection

The survey was conducted through the use of Qualtrics Survey Software. The questions followed the format of a previously distributed questionnaire exploring SLPs' training and sense of competency related to serving clients who are CLD (Kritikos, 2003). In addition, Dolan and Ramsdell-Hudock sought out feedback on the survey's format and questions from East Carolina University faculty members and practicing SLPs, prior to distributing the survey. Responses were recorded via binary responses (yes/no), Likert scaling, and free writing. A complete copy of the survey can be found in the appendix.

Data Analysis

Descriptive statistics (frequencies, percentages, mean, and range) were calculated to describe demographics and response rates. Survey response comparisons between multilingual and monolingual SLPs are represented in tables for the following categories: demographics (Table 1), familiarity with concepts (Table 2), clinical experience (Tables 3 and 4), and attitudes related to serving clients who are CLD (Table 5). In addition, responses related to the language learning environment of multilingual SLPs were given special consideration in Table 6.

Inferential statistics were calculated using IBM SPSS Statistics for Windows, Version 26.

Pearson's Chi-Square was used to explore the relationship (or level of independence) between criterion and predictor variables. Criterion variables included SLPs' educational and work experiences, attitudes related to serving clients who are CLD, and geographical location.

Predictor variables included SLPs' confidence related to working with clients who spoke a language other than English and SLPs' familiarity with concepts related to working with multilingual clients. Cramer's V was employed to describe the strength of association between criterion and predictor variables. Cramer's V is useful for depicting the effect size in crosstabulations of greater than 2 x 2. Therefore, the strength of the phi coefficient (ϕ_c) is dependent on the number of degrees of freedom (df). The greater the degrees of freedom, the smaller the phi coefficient must be to depict a strong effect size.

Results

Of the 15,049 surveys emailed, 1,393 (9.3% response rate) were returned and 1,244 (89.3% of the total response rate) were useable. Surveys were excluded for a variety of reasons: respondents were not ASHA members, did not have post-graduate degrees, were not certified

SLPs or Audiologists, did not reside in the United States, did not currently practice, and/or did not respond to survey questions.

Descriptive Data

Questions were asked related to SLPs' demographics, familiarity with concepts, clinical experience, attitudes related to serving clients who are CLD, and linguistic background. This allowed for comparisons between the 561 multilingual and the 683 monolingual SLP respondents, as well as with ASHA census data (2019 Member Counts, n.d.).

Demographics

Multilingual and monolingual SLPs had similar proportions of those with master's degrees, PhDs, and other doctoral degrees, only differing at most by 3.53% between variables (Table 1). There was a higher percentage of monolingual SLPs with master's degrees who responded, but there were higher percentages of multilingual SLPs with PhD and other doctoral degrees who responded. The geographical locations of multilingual and monolingual SLPs were also fairly similar, with the sample only differing at most by 3.19% between percentage of respondents from the two groups. There were a greater proportion of multilingual SLPs who responded from the Midwest, South Atlantic, West South Central, and Mountain regions. There were a greater percentage of monolingual SLP respondents from the Northeast, East South Central, and Pacific regions. Surprisingly, very similar proportions of monolingual and multilingual respondents received training either with, or to become interpreters and multilingual SLPs. The most at which monolingual and multilingual SLPs differed in these training categories was 3.07%.

Table 1
Demographics

	Multilingual SLPs		Monolingual SLPs	
	%	<i>n</i>	%	<i>n</i>
Level of education				
Masters	82.71	464	86.24	589
PhD	14.62	82	12.15	83
Other doctoral	2.67	15	1.61	11
Geographical regions				
Northeast				
New England	8.02	45	8.93	61
Mid-Atlantic	10.87	61	14.06	96
Midwest				
East North Central	11.23	63	8.05	55
West North Central	11.23	63	9.37	64
South				
South Atlantic	16.58	93	15.23	104
East South Central	4.81	27	6.44	44
West South Central	9.27	52	9.08	62
West				
Mountain	14.26	80	13.18	90
Pacific	13.73	77	15.67	107
Training with interpreters				
Face to face	27.45	154	25.62	175
Not face to face	47.06	264	48.76	333
No response	25.49	143	25.62	175
Training to become an interpreter				
Face to face	4.99	28	3.51	24
Not face to face	58.47	328	60.47	413
No response	36.54	205	36.02	246
Training with multilingual SLPs				
Face to face	20.68	116	21.38	146
Not face to face	50.09	281	50.37	344
No response	29.23	164	28.26	193
Training to become a multilingual SLP				
Face to face	10.87	61	9.22	63
Not face to face	55.79	313	58.86	402
No response	33.33	187	31.92	218

Note. The geographical regions are delineated as follows: New England includes Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont; Mid-Atlantic includes New Jersey, New York, and Pennsylvania; East North Central includes Illinois, Indiana, Michigan, Ohio, and Wisconsin; West North Central includes Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, and South Dakota; South Atlantic includes Delaware, Florida, Georgia, Maryland, North Carolina, South Carolina, Virginia, District of Columbia, and West Virginia; East South Central includes Alabama, Kentucky, Mississippi, and Tennessee; West South Central includes Arkansas, Louisiana, Oklahoma, and Texas; Mountain includes Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, and Wyoming; Pacific includes Alaska, California, Hawaii, Oregon, and Washington (United States Bureau of the Census, 1995).

Familiarity with Concepts

Respondents were asked to provide Likert-style responses to the question, “Are you familiar with the concept of...” Examples of some of the concepts that we surveyed included elective bilingualism, foreign accent, dialect, silent period, and English language learner. Response options to these questions included not at all familiar (1), slightly familiar (2), somewhat familiar (3), moderately familiar (4), and extremely familiar (5). The mean of responses from multilingual and monolingual SLPs are recorded in Table 2. Multilingual SLPs were on average 1.16 points more familiar with topics related to serving clients who are CLD. Multilingual SLPs averaged above a four, or moderately familiar to extremely familiar, for the concepts of code-switching ($M = 4.15$), dialect ($M = 4.28$), English language learner (ELL, $M = 4.22$), and English as a second language (ESL, $M = 4.64$). Monolingual SLPs averaged between a 3 and a 4, or somewhat familiar to moderately familiar, for the concepts of elective bilingualism ($M = 3.49$), ELL ($M = 3.51$), ESL ($M = 3.67$), and foreign accent ($M = 3.00$). There was a difference of greater than two points on the Likert scale between multilingual and monolingual responses for the concept of code-switching ($M = 4.15$ and 1.77 respectively).

Table 2
Familiarity with concepts

	Multilingual SLPs	Monolingual SLPs
	<i>M</i>	<i>M</i>
Additive bilingualism	2.82	1.52
Code-switching	4.15	1.77
Compound bilingualism	2.46	1.39
Coordinate bilingualism	2.29	1.33
Culture shock	3.97	2.91
Dialect	4.28	3.49
Elective bilingualism	3.02	1.85
English language learner	4.22	3.51
English as a second language	4.64	3.67
Ethnographic interviewing	2.93	1.84
Foreign accent	3.90	3.00
Fossilization	2.30	1.27
Sequential acquisition	3.45	1.97
Silent period	3.37	2.13

Simultaneous acquisition	3.80	2.51
Subordinate bilingualism	2.37	1.42
Subtractive bilingualism	2.70	1.40
Transfer	2.96	1.69
Average familiarity with concepts	3.31	2.15

Clinical Experience

The SLPs responded to questions related to their years of practice, the number of hours they worked per week, their work settings, and whether they encounter languages other than English in their practice (Table 3). For years of practice, multilingual SLPs had between 6 and 15 years of experience with about a 9% greater frequency than monolingual SLPs. Monolingual SLPs had 16 or more years of experience with about a 10% greater frequency than multilingual SLPs. About the same proportion of multilingual and monolingual SLPs had 5 or less years of experience (14.44% and 13.47% respectively). For hours of work per week, multilingual and monolingual SLPs had about the same proportions in each response category. For work setting, multilingual and monolingual respondents were within one percentage point for most settings. Monolingual SLPs were more likely to be in college and/or university settings (+2.04%), private practice (+2.64%), or school settings (+3.77%). Multilingual SLPs were more likely to be in multiple settings (+7.64%). For encountering other languages in practice, multilingual SLPs were more likely to respond with yes (+9.55%). However, even with the decreased likelihood of encountering other languages in their practice, 74.23% of monolingual respondents responded with yes. About the same percentage of multilingual and monolingual SLPs did not respond to this question (11.23% and 11.71% respectively).

Table 3
Clinical experience

	Multilingual SLPs		Monolingual SLPs	
	%	<i>n</i>	%	<i>n</i>
	Years of practice			
≤ 5years	14.44	81	13.47	92

6-15 years	39.93	224	30.75	210
≥ 16 years	45.63	256	55.78	381
Hours of work per week				
< 10 hours	11.23	63	8.35	57
11-20 hours	8.38	47	8.35	57
21-30 hours	10.52	59	12.30	84
31-40 hours	38.15	214	39.97	273
> 40 hours	31.73	178	31.04	212
Work setting				
College/university	13.19	74	15.23	104
Hospital	6.77	38	6.00	41
Non-residential health care	1.96	11	1.32	9
Private Practice	13.90	78	16.54	113
Residential health care	1.78	10	1.76	12
School	19.07	107	22.84	156
Other	2.85	16	3.07	21
Multiple	40.29	226	32.65	223
No response	0.18	1	0.59	4
Encounter other languages				
Yes	83.78	470	74.23	507
No	4.99	28	14.06	96
No response	11.23	63	11.71	80

Respondents were queried regarding with which disorders they worked (Table 4).

Surprisingly, multilingual and monolingual respondents were within one percentage point of each other for all disorder types except for augmentative and alternative communication (AAC; monolingual respondents had a higher frequency by +1.16%). Therefore, the distribution of disorders that multilingual and monolingual respondents work with is fairly equivalent.

Table 4

With what disorders do you work?

	Multilingual SLPs		Monolingual SLPs	
	%	<i>n</i>	%	<i>n</i>
Aphasia	4.29	172	3.77	184
Articulation disorders	10.96	440	10.99	536
ADHD	6.40	257	6.48	316
Aural rehabilitation	1.97	79	1.62	79
ASD	9.15	367	9.84	480
Cognitive disorders	7.53	302	7.81	381
Dysphagia	5.06	203	4.22	206
Fluency disorders	6.45	259	6.15	300
Learning disabilities	6.88	276	6.93	338
Intellectual disabilities	7.13	286	7.67	374
Motor speech disorders	8.60	345	8.61	420

Oral myofunctional disorders	2.59	104	2.46	120
AAC	6.01	241	7.17	350
Reading and writing	4.96	199	4.96	242
Specific language impairment	8.00	321	7.75	378
Voice disorders	3.89	156	3.44	168
Other	0.15	6	0.14	7

Note. Respondents had the option to make multiple selections.

Attitudes

Respondents were questioned regarding their attitudes related to various aspects of serving clients who are CLD as well as the importance of learning other languages (Table 5). When asked, “Do you feel that fluency in a second language would be important in your work,” multilingual SLPs were much more likely to respond with moderately to extremely (+22.09%). Monolingual SLPs were more likely to either not respond or respond neutrally (+6.17%) or to respond that learning a second language would be not at all to slightly important (+15.92%) in their clinical practice. Surprisingly, when asked, “Would it be useful for undergraduate/graduate students to study a second language,” multilingual and monolingual SLPs responded yes with about the same frequency (94.53% and 89.85% respectively). When asked, “Would you be interested in going back to study another language,” 64.71% of multilingual SLPs and 54.47% of monolingual SLPs said yes. When asked, “How confident are you when working with individuals who speak languages other than English in your clinical practice,” there was disparity across responses, such that multilingual SLPs were much more likely to respond with moderately to extremely confident (+32.96%). Monolingual SLPs were much more likely to respond with not at all to somewhat confident (+26.72%). When asked, “Do you think clients who speak languages other than English are underserved in speech-language pathology,” multilingual and monolingual had fairly similar percentages of responses. However, multilingual SLPs responded

yes with greater frequency, and monolingual SLPs responded with no with greater frequency with a difference of 6.49 percentage points for each response choice.

Table 5
Attitudes

	Multilingual SLPs		Monolingual SLPs	
	%	<i>n</i>	%	<i>n</i>
Do you feel that fluency in a second language would be important in your work?				
No response or neutral	17.11	96	23.28	159
Not at all to slightly	12.48	70	28.40	194
Moderately to extremely	70.41	395	48.32	330
Would it be useful for undergrad/graduate students to study a second language?				
Yes	94.53	449	89.85	487
No	5.47	26	10.15	55
Would you be interested in going back to study another language?				
Yes	64.71	363	54.47	372
No	35.29	198	45.53	311
How confident are you when working with individuals who speak languages other than English in your clinical practice?				
No response or neutral	15.86	89	22.11	151
No to somewhat	27.45	154	54.17	370
Moderately to extremely	56.68	318	23.72	162
Do you think clients who speak languages other than English are underserved in SLP?				
Yes	62.57	351	56.08	383
No	37.43	210	43.92	300

Note. Some marked other or no response to whether it would be useful or not for undergraduate/graduate students to study a second language. Those responses were not included in the count.

Multilingual Respondents

Multilingual respondents were asked some additional questions regarding the context in which they learned other languages (Table 6). Out of the respondents, only 7.49% of multilingual SLPs learned English as a second language. Additionally, the majority of multilingual SLPs learned a second language in a school setting (50.62%). Further, 30.84% of multilingual respondents learned a second language in both the home and school settings. The

least common language learning environments were just home or other (13.19% and 4.99% respectively).

Table 6
Language learning experiences

	Multilingual SLPs	
	%	<i>n</i>
	English is L1	
Yes	92.51	519
No	7.49	42
	Language learning environment	
Home	13.19	74
School	50.62	284
Home and school	30.84	173
Other	4.99	28
No response	0.36	2

Chi-square Analyses

Chi-square tests of independence were completed using IBM SPSS Statistics for Windows, Version 26 to explore the relationship between SLPs' characteristics (attitudes, work experience/training, language history, etc.) and their confidence levels when working with clients who are CLD, as well as their reported familiarity with concepts related to serving diverse clients. A standard alpha of .05 was used to determine statistical significance between the criterion and predictor variables. Chi-square analyses have the unique prerequisite that each cell must contain an expected count of at least 5 in 20% of the cells. Therefore, some of the response categories were collapsed in order to validate the use of chi-squares. Levels of confidence were collapsed from eight categories to three (such that neutral, and no response became *neutral/no response*; not at all confident, low confidence, and somewhat confident became *no to somewhat confident*; and moderately confident, very confident, and extremely confident became *moderately to extremely confident*), years of practice were collapsed from nine categories to three (such that ≤ 5 years remained ≤ 5 years; 6 to 10 years, and 11 to 15 years became *6 to 15*

years; and 16-20 years, 21-25 years, 26 to 30 years, 31 to 35 years, 36 to 40 years, and ≥ 41 years became ≥ 16 years), the manner in which respondents received training with or to become interpreters/multilingual SLPs were collapsed from five categories to three (such that face to face: not abroad, and face to face: abroad became *face to face*; online, and neither face to face nor online became *not face to face*; and no response remained *no response*), levels of familiarity with concepts were collapsed from six categories to three (such that no response remained *no response*; not at all, slightly, and somewhat became *no to somewhat*; and moderately, and extremely became *moderately to extremely*), and “In what state do you work” was collapsed from 52 choices (including Washington DC and other) to nine geographical regions (New England, Mid-Atlantic, East North Central, West North Central, South Atlantic, East South Central, West South Central, Mountain, and Pacific). In addition to exploring the significance of the relationship between variables, the effect size was calculated using Cramer’s V – a common test to determine strength of relationship used in crosstabulations greater than 2 x 2. Using Cramer’s V, the number of degrees of freedom determines the phi coefficient (ϕ_c) necessary for each range of effect sizes. The higher the number of degrees of freedom, the smaller the phi coefficient needs to be in order to determine a large effect size. These ranges, according to the degrees of freedom, are described in the notes sections of the tables that follow.

Specific Aim 1: Variables Associated with Confidence Serving Clients Who are CLD

Through Aim 1, we sought to explore the association between various characteristics (educational and work experiences, attitudes related to serving clients who are CLD, and geographical location) and an SLP’s sense of confidence when providing services for clients who are CLD. Respondents were asked to rate their level of confidence when serving clients who speak languages other than English. The relationship between the different predictor variables of

interest (e.g., level of education, years of practice, etc.) and the respondents' confidence levels while serving clients who are CLD are listed in Table 7. While all chi-square relationships were statistically significant, those respondents that encountered clients who speak languages other than English in their clinical practice had the strongest relationship with having confidence while serving clients who are CLD ($X^2 = 698.09$, $df = 4$, $p = 0.00$, $\phi_c = 0.53$).

Table 7
Confidence chi-squares

Chi-square variables	X^2	df	p	ϕ_c	Effect size
Speaks/understands another language	145.187	2	0.00	0.34	Medium
Level of education	11.09	4	0.03	0.07	Small
Geographic Region	54.74	16	0.00	0.15	Large
Received training with interpreters	299.84	4	0.00	0.35	Large
Received training to become interpreters	181.8	4	0.00	0.27	Large
Received training with multilingual SLPs	321.34	4	0.00	0.36	Large
Received training to become multilingual SLPs	335.82	4	0.00	0.37	Large
Years of practice	11.02	4	0.03	0.07	Small
Hours worked per week	11.85	8	0.01	0.07	Small
Work Setting	30.75	16	0.01	0.11	Medium
SLPs who encounter other languages in their practice	698.09	4	0.00	0.53	Large
Would choose to learn another language	149.04	2	0.00	0.35	Large
Consider clients who are CLD to be underserved	154.02	2	0.00	0.35	Large

Note. Two degrees of freedom (df) determines the range of effect sizes for Cramer's V to be small = 0.07, medium = 0.21, and large = 0.35; four df equates to small = 0.05, medium = 0.15, and large = 0.25; eight df is equivalent to small = 0.04, medium = 0.11, and large = 0.18; and 16 df equates to small = 0.025, medium = 0.075, and large = 0.125.

Specific Aim 2: Variables Associated with Familiarity with Concepts Related to Serving

Clients Who are CLD

Through Aim 2, we sought to explore the association between various characteristics (educational and work experiences, attitudes related to serving clients who are CLD, and geographical location) and an SLP's knowledge concerning the provision of culturally competent services for clients who are CLD; specifically, SLPs' familiarity with concepts concerning serving clients who are CLD was explored. SLPs were asked, "Are you familiar with the concept of..." Concepts that were surveyed included additive bilingualism, code-switching, compound

bilingualism, coordinate bilingualism, culture shock, dialect, elective bilingualism, ELL, ESL, ethnographic interviewing, foreign accent, fossilization, sequential acquisition, silent period, simultaneous acquisition, subordinate bilingualism, subtractive bilingualism, and transfer. Likert-response options to these questions included “no response”, “not at all familiar”, “slightly familiar”, “somewhat familiar”, “moderately familiar”, and “extremely familiar”. These response choices were collapsed into three options for analysis purposes: “no response”, “not at all to somewhat familiar”, and “moderately to extremely familiar”. For an example, results from 3 of the 18 concepts concerning serving clients who are CLD are displayed in tables 8 (code-switching), 9 (sequential acquisition), and 10 (language transfer). Variables associated most strongly with respondents’ familiarity with concepts were those that also had the strongest relationships with respondents’ confidence related to serving clients who speak languages other than English.

Table 8 depicts the chi-square analyses between respondents’ characteristics and their familiarity with code-switching. While all relationships were statistically significant, respondents that reported encountering clients who speak languages other than English in their clinical practice demonstrated the strongest relationship with familiarity of code-switching ($X^2 = 925.45$, $df = 4$, $p = 0.00$, $\phi_c = 0.61$).

Table 8
Familiarity with code-switching chi-squares

Chi-square variables	X^2	df	p	ϕ_c	Effect size
Speaks/understands another language	138.97	2	0.00	0.33	Medium
Level of education	37.80	4	0.00	0.12	Small
Geographic Region	35.70	16	0.00	0.12	Medium
Received training with interpreters	497.30	4	0.00	0.45	Large
Received training to become interpreters	348.34	4	0.00	0.37	Large
Received training with multilingual SLPs	533.32	4	0.00	0.47	Large
Received training to become multilingual SLPs	473.43	4	0.00	0.44	Large
Years of practice	24.45	4	0.00	0.10	Small
Hours worked per week	17.97	8	0.02	0.09	Small

Work Setting	55.90	16	0.00	0.15	Large
SLPs who encounter other languages in their practice	925.45	4	0.00	0.61	Large
Would choose to learn another language	198.84	2	0.00	0.40	Large
Consider clients who are CLD to be underserved	225.12	2	0.00	0.43	Large

Note. Two degrees of freedom (df) determines the range of effect sizes for Cramer's V to be small = 0.07, medium = 0.21, and large = 0.35; four df equates to small = 0.05, medium = 0.15, and large = 0.25; eight df is equivalent to small = 0.04, medium = 0.11, and large = 0.18; and 16 df equates to small = 0.025, medium = 0.075, and large = 0.125.

Table 9 describes the relationship between respondents' characteristics and their familiarity with sequential acquisition. While all but one relationship (with hours worked per week; $X^2 = 13.66$, $df = 8$, $p = 0.09$, $\phi_c = 0.07$) were statistically significant, respondents who served clients who speak languages other than English demonstrated the strongest relationship to familiarity with sequential acquisition ($X^2 = 621.41$, $df = 4$, $p = 0.00$, $\phi_c = 0.50$).

Table 9
Familiarity with sequential acquisition chi-squares

Chi-square variables	X^2	df	p	ϕ_c	Effect size
Speaks/understands another language	192.79	2	0.00	0.39	Large
Level of education	30.31	4	0.00	0.11	Small
Geographic Region	29.25	16	0.02	0.11	Medium
Received training with interpreters	457.42	4	0.00	0.43	Large
Received training to become interpreters	340.25	4	0.00	0.37	Large
Received training with multilingual SLPs	545.77	4	0.00	0.47	Large
Received training to become multilingual SLPs	550.30	4	0.00	0.47	Large
Years of practice	10.76	4	0.03	0.07	Small
Hours worked per week	13.66	8	0.09	0.07	NSS*
Work Setting	44.99	16	0.00	0.13	Large
SLPs who encounter other languages in their practice	621.41	4	0.00	0.50	Large
Would choose to learn another language	142.02	2	0.00	0.34	Medium
Consider clients who are CLD to be underserved	151.10	2	0.00	0.35	Large

Note. Two degrees of freedom (df) determines the range of effect sizes for Cramer's V to be small = 0.07, medium = 0.21, and large = 0.35; four df equates to small = 0.05, medium = 0.15, and large = 0.25; eight df is equivalent to small = 0.04, medium = 0.11, and large = 0.18; and 16 df equates to small = 0.025, medium = 0.075, and large = 0.125.

* NSS = Not statistically significant

The relationship between respondents' characteristics and their familiarity with language transfer is described in Table 10. Relationships were similar to both code-switching and sequential acquisition. For familiarity with language transfer, respondents who work with

multilingual clients had the strongest relationship ($X^2 = 591.53$, $df = 4$, $p = 0.00$, $\varphi_c = 0.49$). All other relationships were also statistically significantly related to SLP familiarity with language transfer with the exception of hours worked per week ($X^2 = 13.69$, $df = 8$, $p = 0.09$, $\varphi_c = 0.07$).

Table 10
Familiarity with language transfer Chi-Squares

Chi-square variables	X^2	df	p	φ_c	Effect size
Speaks/understands another language	142.44	2	0.00	0.34	Medium
Level of education	37.90	4	0.00	0.12	Small
Geographic Region	30.31	16	0.02	0.11	Medium
Received training with interpreters	408.63	4	0.00	0.41	Large
Received training to become interpreters	331.65	4	0.00	0.37	Large
Received training with multilingual SLPs	518.44	4	0.00	0.46	Large
Received training to become multilingual SLPs	521.99	4	0.00	0.46	Large
Years of practice	13.55	4	0.01	0.07	Small
Hours worked per week	13.69	8	0.09	0.07	NSS*
Work Setting	44.74	16	0.00	0.13	Large
SLPs who encounter other languages in their practice	591.53	4	0.00	0.49	Large
Would choose to learn another language	149.31	2	0.00	0.35	Large
Consider clients who are CLD to be underserved	157.06	2	0.00	0.36	Large

Note. Two degrees of freedom (df) determines the range of effect sizes for Cramer's V to be small = 0.07, medium = 0.21, and large = 0.35; four df equates to small = 0.05, medium = 0.15, and large = 0.25; eight df is equivalent to small = 0.04, medium = 0.11, and large = 0.18; and 16 df equates to small = 0.025, medium = 0.075, and large = 0.125.

* NSS = Not statistically significant

Effect Size

The effect sizes of all statistically significant chi-squares were averaged for each predictor variable and their association with the SLPs' familiarity with concepts. The effect size averages are presented in Table 11. Small, medium, and large effect sizes were observed between most criterion and predictor variables. Effect sizes, such as Cramer's V (φ_c), can be useful to describe how much of the variance in a chi-square is accounted for by each variable. The observation of small, medium, and large effect sizes in our data suggests clinical importance. Three predictor variables had small average effect sizes: years of practice ($df = 4$, φ_c

= 0.08), level of education ($df = 4$, $\varphi_c = 0.11$), and hours worked per week ($df = 8$, $\varphi_c = 0.09$).

Three predictor variables had medium average effect sizes: speaking/understanding another language ($df = 2$, $\varphi_c = 0.31$), geographic region ($df = 16$, $\varphi_c = 0.12$), and would choose to learn another language ($df = 2$, $\varphi_c = 0.34$). Finally, seven predictor variables with large average effect sizes consisted of the attitude that clients who are CLD are underserved ($df = 2$, $\varphi_c = 0.36$), work setting ($df = 16$, $\varphi_c = 0.14$), having received training to become interpreters ($df = 4$, $\varphi_c = 0.36$), having received training with interpreters ($df = 4$, $\varphi_c = 0.41$), having received training to become multilingual SLPs ($df = 4$, $\varphi_c = 0.43$), having received training with multilingual SLPs ($df = 4$, $\varphi_c = 0.44$), and having been exposed to clients who speak a language other than English in their clinical practice ($df = 4$, $\varphi_c = 0.52$).

Table 11

Effect Sizes (φ_c) between Criterion Variables and Concept Predictor Variables

Multilingualism Concepts	Small Effect Size		
	Years of Practice ($df = 4$)	Level of Education ($df = 4$)	Hours Worked/Week ($df = 8$)
Additive bilingualism	0.06	*** 0.13	* 0.08
Code-switching	*** 0.10	*** 0.12	* 0.09
Compound bilingualism	0.05	*** 0.09	0.07
Coordinate bilingualism	0.05	*** 0.11	0.07
Culture shock	*** 0.09	*** 0.11	* 0.08
Dialect	** 0.08	*** 0.10	** 0.10
Elective bilingualism	0.06	*** 0.10	0.07
English language learner	*** 0.09	*** 0.09	0.07
English as a second language	* 0.07	* 0.07	0.08
Ethnographic interviewing	0.06	*** 0.17	** 0.09
Foreign accent	0.06	*** 0.09	0.07
Fossilization	0.05	*** 0.10	0.05
Sequential acquisition	* 0.07	*** 0.11	0.07
Silent period	* 0.06	0.06	0.07
Simultaneous acquisition	* 0.07	*** 0.09	0.06
Subordinate bilingualism	0.05	*** 0.11	0.05
Subtractive bilingualism	0.06	*** 0.09	0.06
Transfer	** 0.07	*** 0.12	0.07
Medium Effect Size			

	Speaks/Understands Another Language (<i>df</i> = 2)	Geographic Region (<i>df</i> = 16)	Would Choose to Learn Another Language (<i>df</i> = 2)
Additive bilingualism	*** 0.34	* 0.11	*** 0.30
Code-switching	*** 0.33	** 0.12	*** 0.40
Compound bilingualism	*** 0.31	* 0.10	*** 0.30
Coordinate bilingualism	*** 0.29	0.09	*** 0.30
Culture shock	*** 0.31	*** 0.13	*** 0.36
Dialect	*** 0.28	0.10	*** 0.39
Elective bilingualism	*** 0.29	0.09	*** 0.32
English language learner	*** 0.24	0.11	*** 0.39
English as a second language	*** 0.29	*** 0.13	*** 0.39
Ethnographic interviewing	*** 0.28	* 0.11	*** 0.31
Foreign accent	*** 0.29	*** 0.13	*** 0.36
Fossilization	*** 0.27	** 0.11	*** 0.30
Sequential acquisition	*** 0.39	* 0.11	*** 0.34
Silent period	*** 0.34	** 0.12	*** 0.33
Simultaneous acquisition	*** 0.38	0.10	*** 0.33
Subordinate bilingualism	*** 0.27	* 0.11	*** 0.31
Subtractive bilingualism	*** 0.37	** 0.12	*** 0.32
Transfer	*** 0.34	* 0.11	*** 0.35
Large Effect Size			
	Consider Clients who are CLD to be Underserved (<i>df</i> = 2)	Work Setting (<i>df</i> = 16)	SLPs who Encounter Other Languages in their Practice (<i>df</i> = 4)
Additive bilingualism	*** 0.35	** 0.12	*** 0.48
Code-switching	*** 0.43	*** 0.15	*** 0.61
Compound bilingualism	*** 0.33	* 0.10	*** 0.47
Coordinate bilingualism	*** 0.32	0.10	*** 0.46
Culture shock	*** 0.37	*** 0.13	*** 0.52
Dialect	*** 0.40	*** 0.14	*** 0.60
Elective bilingualism	*** 0.36	*** 0.13	*** 0.48
English language learner	*** 0.39	*** 0.18	*** 0.60
English as a second language	*** 0.38	*** 0.14	*** 0.62
Ethnographic interviewing	*** 0.34	*** 0.18	*** 0.49
Foreign accent	*** 0.37	*** 0.13	*** 0.55
Fossilization	*** 0.32	*** 0.13	*** 0.46
Sequential acquisition	*** 0.35	*** 0.13	*** 0.50
Silent period	*** 0.36	*** 0.15	*** 0.52
Simultaneous acquisition	*** 0.35	** 0.12	*** 0.54
Subordinate bilingualism	*** 0.33	0.09	*** 0.46
Subtractive bilingualism	*** 0.34	** 0.11	*** 0.47
Transfer	*** 0.36	*** 0.13	*** 0.49
Received Training...			
	...with Interpreters (<i>df</i> = 4)	...to Become Interpreters (<i>df</i> = 4)	...with Multilingual SLPs (<i>df</i> = 4)
			...to Become Multilingual SLPs

Additive bilingualism	*** 0.39	*** 0.38	*** 0.47	***0.47
Code-switching	*** 0.45	*** 0.37	*** 0.46	***0.44
Compound bilingualism	*** 0.37	*** 0.35	*** 0.41	***0.45
Coordinate bilingualism	*** 0.37	*** 0.35	*** 0.42	***0.45
Culture shock	*** 0.41	*** 0.36	*** 0.44	***0.44
Dialect	*** 0.43	*** 0.35	*** 0.43	***0.44
Elective bilingualism	*** 0.39	*** 0.35	*** 0.45	***0.44
English language learner	*** 0.43	*** 0.34	*** 0.43	***0.39
English as a second language	*** 0.43	*** 0.35	*** 0.43	***0.39
Ethnographic interviewing	*** 0.40	*** 0.35	*** 0.43	***0.44
Foreign accent	*** 0.41	*** 0.34	*** 0.41	***0.38
Fossilization	*** 0.38	*** 0.33	*** 0.40	***0.43
Sequential acquisition	*** 0.43	*** 0.37	*** 0.47	***0.47
Silent period	*** 0.43	*** 0.37	*** 0.46	***0.45
Simultaneous acquisition	*** 0.42	*** 0.35	*** 0.44	***0.43
Subordinate bilingualism	*** 0.38	*** 0.35	*** 0.42	***0.44
Subtractive bilingualism	*** 0.39	*** 0.37	*** 0.45	***0.48
Transfer	*** 0.41	*** 0.37	*** 0.46	***0.46

Note. Two degrees of freedom (*df*) determines the range of effect sizes for Cramer's V to be small = 0.07, medium = 0.21, and large = 0.35; four *df* equates to small = 0.05, medium = 0.15, and large = 0.25; eight *df* is equivalent to small = 0.04, medium = 0.11, and large = 0.18; and 16 *df* equates to small = 0.025, medium = 0.075, and large = 0.125.

Note: χ^2 results with * $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$.

Discussion

The purpose of this project was to increase the knowledge base related to serving clients who are CLD in SLP. Additionally, of importance was to compare and contrast multilingual and monolingual SLPs. We specifically explored differences in demographics, familiarity with concepts, clinical experiences, and attitudes related to serving clients who are CLD. We also explored various characteristics of SLPs and their association with both confidence when serving clients who are CLD and the familiarity with concepts. With a larger foundation of evidence depicting factors related to SLPs' comfort level and knowledge related to serving clients who are CLD, the profession will be able to focus energy and educational resources on the areas that are most associated with increased confidence and increased knowledge base.

Characteristics of Monolingual and Multilingual SLPs

Demographics

Multilingual and monolingual SLPs did not differ greatly in their highest levels of education or in their geographic locations. Surprisingly, both multilingual and monolingual SLPs had about the same proportions of those who had received training with and/or to become interpreters/multilingual SLPs. This might be reflective of a shift in the educational policies related to SLP preparation. Recent SLP master's graduates may have consistent backgrounds in education related to serving clients who are CLD. Additionally, there may be more continuing education courses related to serving diverse clients.

Multilingual and monolingual SLPs differed in their average familiarity with concepts. Multilingual SLPs, on average, reported 1.16 points greater familiarity than their monolingual counterparts. Regardless of this seeming gap in knowledge between multilingual and monolingual SLPs, SLPs' linguistic characteristic had a relatively minor association with SLPs' familiarity with concepts when compared with other factors.

Clinical Experience

Monolingual SLPs had about a 10% greater frequency than multilingual SLPs for practicing for 16 or more years. Multilingual SLPs had about a 10% greater frequency for practicing for 15 years or below. The difference in the distribution of monolingual and multilingual SLPs based on years of practice, suggests that in the past 15 years, more multilingual individuals are becoming SLPs.

Multilingual and monolingual SLPs had about the same proportions in each category of hours worked per week as well as work setting. However, monolingual SLPs were more likely to be in college and/or university settings (+2.04%), which is interesting considering multilingual

SLPs were more likely to have obtained a PhD (+2.47%) or “other doctoral degree” (+1.06%). Additionally, monolingual SLPs were more likely to work in private practice (+2.64%) or school settings (+3.77%). Multilingual SLPs were more likely to work in multiple settings (+7.64%). The increase with which multilingual SLPs are working in more than one setting, may indicate that their skills are in high demand, and needed across multiple work environments. Regardless of work setting, both multilingual and monolingual SLPs encounter clients who communicate in languages other than English in their clinical practice (although this is more representative of the multilingual SLPs’ experience by 9.55%). Monolingual and multilingual SLPs are also similar in the disorders that they treat in their practice (only differing at most by 1.16 percentage points).

Attitudes

While both multilingual and monolingual SLPs encounter clients who communicate in languages other than English in their clinical practice (83.78% and 74.23% respectively), multilingual SLPs were much more likely to respond that they were moderately to extremely confident when working with these clients (+32.96%). However, in the chi-square analyses, multilingualism only had a medium association with increased confidence. When asked the same question, monolingual SLPs were much more likely to respond with not at all to somewhat confident (+26.72%). Further, multilingual SLPs were much more likely to respond moderately to extremely (+22.09%) to whether fluency in a second language would be important to their clinical work. Monolingual SLPs tended to respond that learning a second language would be not at all important to slightly important (+15.92%) for their clinical practice. Surprisingly, when asked, “would it be useful for undergraduate/graduate students to study a second language,” multilingual and monolingual SLPs responded yes with about the same frequency (94.53% and 89.85% respectively). However, only 64.71% of multilingual SLPs and 54.47% of monolingual

SLPs reported that they would be interested in going back to school to study another language. Interestingly, both multilingual and monolingual SLPs reported that clients who speak languages other than English are underserved in SLP (62.57% and 56.08% respectively). These responses suggest that there might be a disconnect between SLPs' attitudes related to serving clients who are CLD, and their willingness to put these strategies into practice (e.g., learning another language).

Multilingual Respondents

The majority of multilingual respondents reported learning a second language in a school setting (50.62%). This, in conjunction with the fact that only 7.49% of multilingual respondents learned English as a second language, suggests that most of the multilingual SLPs learned another language electively rather than out of necessity.

Chi-Square Differences

Confidence and Variables of Interest

Interestingly, multilingualism did not have as significant of an effect as anticipated on SLPs' sense of confidence when serving clients who are CLD. Being multilingual had an effect size that was ranked only 8 out of the 13 predictor variables explored in chi-square. Characteristics that had the strongest associations with confidence were encountering clients who communicate in languages other than English in their clinical practice (ranked first), receiving training to become multilingual SLPs (ranked second), and receiving training with multilingual SLPs (ranked third). Characteristics that were the least associated with confidence were level of education (ranked 13), years of practice (ranked 12 of 13), and hours worked per week (ranked 11 of 13).

Familiarity with Concepts and Variables of Interest

The characteristics most highly associated with confidence were similar to those associated with SLPs' familiarity with concepts. The characteristics with the strongest associations were encountering clients who speak a language other than English in clinical practice (ranked first of 13), having received training with multilingual SLPs (ranked second of 13), and having received training to become multilingual SLPs (ranked third of 13). The characteristics that had the weakest associations with SLPs' familiarity with concepts included years of practice (ranked 13), highest level of education (ranked 12 of 13), and number of hours worked per week (ranked 11 of 13).

Clinical Implications

Considering the strong associations between encountering clients who communicate in languages other than English and SLPs' confidence and familiarity with concepts related to treating these individuals, graduate students and practicing clinicians may benefit from having clinical experiences where they are serving clients who are linguistically diverse. Preferably, these clinical experiences would occur under the guidance of a multilingual SLP and/or in combination with training to become a multilingual provider. Graduate schools and continuing education programs could focus on offering hands on experiences with both multilingual clients and multilingual SLPs. However, more research is necessary to determine the exact relationship between these hands-on experiences and SLPs' increased confidence and knowledge when working with clients who are CLD. In order to increase opportunities for students and monolingual SLPs to work with multilingual SLPs, graduate programs could seriously consider accepting more students who are proficient in multiple languages. Having a greater number of multilingual SLPs in the workforce will offer more opportunities to train with SLPs who speak

more than one language. Clients who are CLD, and caregivers of clients who are CLD, would benefit from receiving more effective and tailored services by well-educated SLPs.

Study Limitations

Consideration of threats to internal and external validity reveal several potential flaws in that may have impacted the results. A common challenge with survey designs (especially ones that involve controversial topics) is response bias. Those who feel compelled to respond to surveys, often hold polarized views that lean strongly either positively or negatively for a particular topic. The offer of an iPad as a prize drawing may have assisted with mitigating a biased response, as this type of prize is generally alluring to many people (encouraging a response from SLPs who are impartial to the subject of the survey).

Additionally, the fact that this survey covered sensitive topics related to SLPs' ability to serve clients who are CLD, might have impacted the way in which respondents answered questions. They may have felt compelled to respond favorably, to present themselves, or their group as competent practitioners in the field (Van de Mortel, 2008). Therefore, social desirability bias may have affected the results. In the future, this could be mitigated by employing a control of social desirability bias within the survey.

Finally, question formulation may have impacted respondents' answers. There may have been questions that were posed in such a way that swayed respondents to provide certain responses. In order to subdue this issue, the same questions could be posed in different ways throughout the survey to look for consistency in answers.

Future Directions

In the future, researchers could explore cause and effect relationships of applying training programs that include exposure to multilingual clients and multilingual SLPs in their clinical

practicums. Additionally, due to the age of the survey data, a more recent survey of a similar sample of SLPs would allow for the assessment of any trends related to SLPs' comfort and knowledge related to serving clients who are CLD.

Conclusion

Through this study, we attempted to describe characteristics related to multilingual and monolingual SLPs. Additionally, this study explored the association between SLPs' characteristics and their comfort levels, as well as their familiarity with concepts related to serving clients who are CLD. Multilingual and monolingual respondent characteristics included in the survey results were fairly comparable in both their clinical experiences, educational history, and training. Multilingual SLPs were found to have an increase in familiarity with concepts, as well as confidence than their monolingual counterparts (from frequency of responses). Additionally, SLPs who encounter clients who speak languages other than English in their clinical practice, those who have had training with multilingual SLPs, and those who have had training to become multilingual SLPs were strongly associated with having increased confidence and familiarity with concepts related to serving clients who are CLD. Future research could explore whether a causal relationship exists among these variables by employing experimental training programs. This information could further enhance SLP educational programs, so that SLPs have increased comfort and knowledge related to serving clients who are CLD. This could benefit both SLPs' sense of competency, as well as improving services for clients who are linguistically diverse.

Declaration of Interest

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References

- 2019 Member Counts, (n.d.). Retrieved March 24, 2020, from <https://www.asha.org/uploadedFiles/2019-Member-Counts.pdf>
- 2020 Certification Standards in Speech-Language Pathology. (n.d.). Retrieved August 21, 2019, from American Speech-Language-Hearing Association website: <https://www.asha.org/Certification/2020-SLP-Certification-Standards/>
- Betancourt, J. R., Green, A. R., Carrillo, J. E., & Ananeh-Firempong, O., 2nd. (2003). Defining cultural competence: A practical framework for addressing racial/ethnic disparities in health and health care. *Public Health Reports*, 118(4), 293–302.
- Brassart, E., Prévost, C., Bétrisey, C., Lemieux, M., & Desmarais, C. (2017). Strategies developed by service providers to enhance treatment engagement by immigrant parents raising a child with a disability. *Journal of Child and Family Studies*, 26, 1230–44.
- Bureau, U. C. (2015). New Census Bureau Report Analyzes U.S. Population Projections. Retrieved March 24, 2019, from The United States Census Bureau website: <https://www.census.gov/newsroom/press-releases/2015/cb15-tps16.html>
- Centeno, J. G. (2015). Assessing services with communicatively impaired bilingual adults in culturally and linguistically diverse neurorehabilitation programs. *Journal of Communication Disorders*, 58, 58–73.
- Centeno, J. G., & Eng, N. (2005). Bilingual speech-language pathology consultants in culturally diverse schools: Considerations on theoretically-based consultee engagement. *Journal of Educational & Psychological Consultation*, 16(4), 333–347.

- Clough, J., Lee, S., & Chae, D. H. (2013). Barriers to health care among Asian immigrants in the United States: A traditional review. *Journal of Health Care for the Poor and Underserved*, 24(1), 384–403.
- Daniel, W.W., & Cross, C.L. (2013). *Biostatistics: A foundation for analysis in the health sciences*. Hoboken, NJ: Wiley.
- Dolan, J. (2012). *Multilingualism in clinical practice: A survey of speech-language pathologists* (Unpublished undergraduate research project). East Carolina University, Greenville, NC.
- Drolet, M., Savard, J., Benoît, J., Arcand, I., Savard, S., Lagacé, J., Lauzon, S., & Dubouloz, C.-J. (2014). Health services for linguistic minorities in a bilingual setting: Challenges for bilingual professionals. *Qualitative Health Research*, 24(3), 295–305.
- Grandpierre, V., Milloy, V., Sikora, L., Fitzpatrick, E., Thomas, R., & Potter, B. (2018). Barriers and facilitators to cultural competence in rehabilitation services: A scoping review. *BMC Health Services Research*, 18, 1-N.PAG.
- Hasnain, R., Kondratowicz, D. M., Borokhovski, E., Nye, C., Balcazar, F., Portillo, N., Hanz, K., Johnson, T., & Gould, R. (2011). Do cultural competency interventions work: A systematic review on improving rehabilitation outcomes for ethnically and linguistically diverse individuals with disabilities. *The National Center for the Dissemination of Disability Research*, 31, 1–12.
- Imperatore Blanche, E., Diaz, J., Barretto, T., & Cermak, S. A. (2015). Caregiving experiences of Latino families with children with autism spectrum disorder. *American Journal of Occupational Therapy*, 69(5), 1–11.

- Kritikos, E. P. (2003). Speech-language pathologists' beliefs about language assessment of bilingual/bicultural individuals. *American Journal of Speech-Language Pathology*, 12(1), 73–91.
- Kummerer, S. E., & Lopez-Reyna N. A. (2006). The role of Mexican immigrant mothers' beliefs on parental involvement in speech-language therapy. *Communication Disorders Quarterly*, 27(2), 83–124.
- Lindsay, S., King, G., Klassen, A. F., Esses, V., & Stachel, M. (2012). Working with immigrant families raising a child with a disability: Challenges and recommendations for healthcare and community service providers. *Disability and Rehabilitation*, 34(23), 2007–2017.
- Mattelliano, M. A., & Stone, J. H. (2014). Cultural competence education in university rehabilitation programs. *Journal of Cultural Diversity*, 21(3), 112–118.
- Maul, C. A. (2015). Working with culturally and linguistically diverse students and their families: Perceptions and practices of school speech-language therapists in the United States. *International Journal of Language & Communication Disorders*, 50(6), 750–762.
- McLeod, S., Verdon, S., Bowen, C., and the International Expert Panel on Multilingual Children's Speech (2013). International aspirations for speech-language pathologists' practice with multilingual children with speech sound disorders: Development of a position paper. *Journal of Communication Disorders*, 46(4), 375–387.
- United States Bureau of the Census, (1995). *Statistical abstract of the United States: 1995* (115th edition) Washington, DC
- Van de Mortel, T. F. (2008). Faking it: Social desirability response bias in self-report research. *Australian Journal of Advanced Nursing*, 25(4), 40–48.

- Verdon, S., McLeod, S., & Wong, S. (2015a). Reconceptualizing practice with multilingual children with speech sound disorders: People, practicalities and policy. *International Journal of Language & Communication Disorders*, 50(1), 48–62.
- Verdon, S., McLeod, S., & Wong, S. (2015b). Supporting culturally and linguistically diverse children with speech, language and communication needs: Overarching principles, individual approaches. *Journal of Communication Disorders*, 58, 74–90.
- Zuckerman, K. E., Sinche, B., Mejia, A., Cobian, M., Becker, T., & Nicolaidis, C. (2014). Latino parents' perspectives on barriers to autism diagnosis. *Academic Pediatrics*, 14(3), 301–308.

Appendix

MULTILINGUALISM AND CLINICAL PRACTICE: A SURVEY OF SPEECH-LANGUAGE PATHOLOGISTS

As part of an undergraduate research project, my student, Jacqueline Dolan and I, Dr. Heather L. Ramsdell, PhD CCC-SLP, are conducting a survey to explore multilingualism in clinical practice. The purpose of this study is to survey the most commonly encountered languages in clinical practice throughout the country. We would like to determine the nature of and extent to which language barriers exist between clients and clinicians. Through this survey, we wish to gain more information about languages that students of Speech-Language Pathology would profit from studying at the undergraduate and graduate levels. Ultimately, we hope to better prepare and inform students and practicing professionals for work with multilingual individuals.

This survey is being distributed to Speech-Language Pathologists across the nation. It is brief, will take you approximately 10 minutes to complete. Your response is voluntary and any information you provide will remain anonymous. If you are interested in learning more about this study, there will be an opportunity to provide us with your contact information (email address) in a confidential manner when you complete the survey.

All respondents can enter a drawing to win an iPad 2 (Wi-Fi, 16GB), if interested in winning the iPad 2, you will be redirected to provide us with your contact information (email address) after completing the survey. We will randomly select the winning respondent on February 1, 2012, at which point we will contact the winner via email.

Your completion of this survey would be greatly appreciated and would help to advance the field by enabling our Team to find out more about multilingualism in clinical practice. We thank you for your time and consideration!

Please respond to all questions by selecting the appropriate option based on your current work setting. We will send one reminder email to those who have not yet completed the survey, and responses are needed by January 20, 2012.

(1) Are you a member of the American Speech-Language Hearing Association (ASHA)?

- a. Yes
- b. No

(2) What is your current certification status?

- a. None
- b. Clinical fellow (CF)
- c. Certified Speech-Language Pathologist (CCC-SLP)
- d. Certified Audiologist (CCC-A)
- e. Dual certified (CCC-SLP and CCC-A)
- f. Only state licensed
- g. Other

(3) What is the highest level of education that you have completed?

- a. Associate's degree
- b. Bachelor's degree
- c. Master's degree
- d. Doctor of philosophy
- e. Other doctoral degree (e.g., of Medicine, Audiology, Speech-Language Pathology, Education, etc.)
- f. Other

(4) What is(are) your area(s) of expertise? Check all that apply.

- | | | |
|---|--|---------------------------------|
| a. Accent modification | b. Brain disorders (neurogenics) | c. Literacy |
| d. Aphasia | e. Cognitive communication disorders | f. Oral myofunctional disorders |
| g. Apraxia of speech | h. Developmental disorders | i. Phonological disorders |
| j. Articulation disorder | k. Early intervention: infant feeding | l. Prevention and wellness |
| m. Auditory processing disorders | n. Early intervention: prelinguistic vocal development | o. Public speaking |
| p. Augmentative and alternative communication | q. Fluency | r. Resonance disorders |
| s. Aural rehabilitation | t. Language disorders | u. Swallowing disorders |
| v. Autism | w. Laryngectomy | x. Voice disorders |
| y. Bilingualism | z. Learning disabilities | aa. Other |

(5) How many years have you practiced as a Speech-Language Pathologist? _____

(6) In what state do you practice? Check all that apply.

Alabama	Idaho	Minnesota	North Dakota	Vermont
Alaska	Illinois	Mississippi	Ohio	Virginia
Arizona	Indiana	Missouri	Oklahoma	Washington
Arkansas	Iowa	Montana	Oregon	West Virginia
California	Kansas	Nebraska	Pennsylvania	Wisconsin
Colorado	Kentucky	Nevada	Rhode Island	Wyoming
Connecticut	Louisiana	New Hampshire	South Carolina	Washington DC
Delaware	Maine	New Jersey	South Dakota	Other
Florida	Maryland	New Mexico	Tennessee	
Georgia	Massachusetts	New York	Texas	
Hawaii	Michigan	North Carolina	Utah	

(7) In what setting(s) do you work? Check all that apply.

- a. College/university
- b. Hospital
- c. Non-residential health care facility
- d. Private practice
- e. Residential health care facility
- f. School
- g. Other

(8) How many hours per week do you work as a Speech-Language Pathologist?

- a. Less than 10 hours per week
- b. Between 11 and 20 hours per week
- c. Between 21 and 30 hours per week
- d. Between 31 and 40 hours per week
- e. More than 40 hours per week

(9) With what disorder(s) do you work? Check all that apply.

- | | | |
|-----------------------------------|------------------------------|------------------------------|
| Aphasia | Fluency disorders | Literacy |
| ADHD | Learning disabilities | Specific language impairment |
| Aural rehabilitation | Intellectual Disability | Speech Sound Disorders |
| ASD | Motor speech disorders | Voice/resonance |
| Cognitive communication disorders | Oral myofunctional disorders | Other |
| Dysphagia | AAC | |

(10) With what age group(s) do you work? Check all that apply.

- a. Age 0 to 6 months
- b. Age 7 to 2;11 years
- c. Age 3;0 to 5;11 years
- d. Age 6;0 to 11;11 years
- e. Age 12;0 to 17;11 years
- f. Age 18 to 64 years
- g. Age 65 to 74 years
- h. Age 75 years and up

(11) Is English your dominant language?

- a. Yes
- b. No

(12) Do you speak and/or understand any language other than English?

- a. Yes
- b. No → (SKIP TO Q.16)

(13) What other language(s) do you speak? Check all that apply and rate your fluency.

Not fluent	Somewhat	Fluent	Very fluent
	fluent		

a. None	1	2	3	4
b. ASL	1	2	3	4
c. Chinese	1	2	3	4
d. French	1	2	3	4
e. German	1	2	3	4
f. Italian	1	2	3	4
g. Spanish	1	2	3	4
h. Other	1	2	3	4

- (14) What other language(s) do you understand? Check all that apply and rate your level of proficiency.

	Not proficient	Somewhat proficient	Proficient	Very Proficient
a. None	1	2	3	4
b. ASL	1	2	3	4
c. Chinese	1	2	3	4
d. French	1	2	3	4
e. German	1	2	3	4
f. Italian	1	2	3	4
g. Spanish	1	2	3	4
h. Other	1	2	3	4

- (15) Did you learn your second language at home or in school?

- a. Home
- b. School
- c. Both home and school
- d. Other

- (16) Which of the following describes your educational preparation in multilingualism? Check all that apply and specify method of delivery.

	Face to face: Not abroad	Face to face: Abroad	Online	Neither face to face nor online
Self-initiated study	1	2	3	4
Grade school curriculum	1	2	3	4
High school curriculum	1	2	3	4
Undergraduate coursework	1	2	3	4
Graduate coursework	1	2	3	4
Continuing education	1	2	3	4
Attended conference presentation/symposium	1	2	3	4
Other	1	2	3	4

- (17) Have you ever received educational preparation in any of the following?

	Face to face: Not abroad	Face to face: Abroad	Online	Neither face to face nor online
Training with interpreters	1	2	3	4
Training to become an interpreter	1	2	3	4
Training with multilingual SLPs	1	2	3	4
Training to become a multilingual SLP	1	2	3	4
Other	1	2	3	4

(18) Do you encounter languages other than English in your clinical work?

- a. Yes
- b. No

(19) Do you feel that fluency in a second language is (would be) important in your work?

- a. Not at all important
- b. Low importance
- c. Slightly important
- d. Neutral
- e. Very important
- f. Extremely important

(20) Which of the following languages do you encounter in your clinical work? Check all that apply, indicating the service provider and the frequency with which the language(s) is(are) encountered.

	Provider			Frequency				
	Myself	Interpreter	Referral	Never	Rarely	Sometimes	Often	Always
a. ASL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1	2	3	4	5
b. Chinese	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1	2	3	4	5
c. English	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1	2	3	4	5
d. French	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1	2	3	4	5
e. German	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1	2	3	4	5
f. Italian	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1	2	3	4	5
g. Spanish	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1	2	3	4	5
h. Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1	2	3	4	5

(21) Which of the following general service categories do you encounter when working with clients who speak languages other than English, and to what extent?

	Never	Rarely	Sometimes	Often	Always
a. Articulation	1	2	3	4	5
b. Fluency	1	2	3	4	5
c. Hearing loss	1	2	3	4	5
d. Language	1	2	3	4	5
e. Voice	1	2	3	4	5

f. Other 1 2 3 4 5

(22) How confident are you when working with individuals who speak languages other than English in your clinical practice?

- a. Not at all confident
- b. Low confidence
- c. Somewhat confident
- d. Neutral
- e. Moderately confident
- f. Very confident
- g. Extremely confident

(23) Do you feel that any particular group of foreign language speakers is underserved with respect to provision of clinical speech-language pathology services?

- a. American Sign Language
- b. Chinese
- c. French
- d. German
- e. Italian
- f. Spanish
- g. Other

(24) Do you think that it would be useful for undergraduate/graduate students in communication sciences and disorders to study a second language?

- a. Yes
- b. No
- c. Other

(25) Which language(s) do you believe may be most important/useful to pursue during undergraduate/graduate studies in communication sciences and disorders? (check all that apply)

- a. American Sign Language
- b. Chinese
- c. French
- d. German
- e. Italian
- f. Spanish
- g. Other

(26) If you could go back to receive higher education/certification in another language, would you be interested? Select all that apply and indicate your level of interest.

	Not at all interested	Slightly interested	Somewhat interested	Very interested	Extremely interested
a. ASL	1	2	3	4	5
b. Chinese	1	2	3	4	5
c. English	1	2	3	4	5

d. French	1	2	3	4	5
e. German	1	2	3	4	5
f. Italian	1	2	3	4	5
g. Spanish	1	2	3	4	5
h. Other	1	2	3	4	5

- (27) With what concept related to multilingualism are you familiar? Check and rate all that apply.

	Not at all	Slightly	Some- what	Moderately	Extremely
a. Additive bilingualism	1	2	3	4	5
b. Code-switching	1	2	3	4	5
c. Compound bilingualism	1	2	3	4	5
d. Cultural shock	1	2	3	4	5
e. Dialect	1	2	3	4	5
f. Elective bilingualism	1	2	3	4	5
g. ELL*	1	2	3	4	5
h. ESL*	1	2	3	4	5
i. Ethnographic interviewing	1	2	3	4	5
j. Foreign accent	1	2	3	4	5
k. Fossilization	1	2	3	4	5
l. Sequential acquisition	1	2	3	4	5
m. Silent period	1	2	3	4	5
n. Simultaneous acquisition	1	2	3	4	5
o. Subordinate bilingualism	1	2	3	4	5
p. Subtractive bilingualism	1	2	3	4	5
q. Transfer	1	2	3	4	5

- (28) Individuals with limited English proficiency are those
- Who have a learning disability and therefore have atypical language skills
 - Who were not born in the United States and whose native language is not English
 - Who are limited in their abilities to learn English
 - Who do not go to school because of their limited ability to speak English

- (29) Second language learners often
- Experience a silent period prior to speaking the second language, when they are trying to understand the second language
 - Simultaneously use more than one language, or language variety, while speaking
 - Utilize language features that occur in the native language when producing the second language
 - Carryover non-native vowels and consonants from the second language to the native language

- (30) If a child whose native language (L1) is Spanish says [tis] for “these”, this could be explained as
- The fact that there are no voiced fricatives in Spanish

- b. A type of code switching
 - c. An acceptable variation of the word “these”; most children say it that way
 - d. A problem with transfer as there are not voiced “th” or “z” sounds in Spanish
- (31) Which one of the following languages is spoken by the largest group of speakers in the United States?
- a. Arabic
 - b. Chinese
 - c. German
 - d. Spanish
- (32) A syllable-timed language is a language in which
- a. All words end with a rising pitch
 - b. The meaning of a syllable (morpheme) changes with the systematic use of specific pitch variations
 - c. All words have only one syllable
 - d. Every syllable is perceived as taking up approximately the same duration
- (33) Which one of the following languages shares a phonemic system with American English?
- a. Korean
 - b. French
 - c. Spanish
 - d. Vietnamese
- (34) When working with individuals who speak multiple languages, it is always important to
- a. Treat errors in the individual’s native language only
 - b. Treat errors in the individual’s native and second language
 - c. Treat errors in the individual’s second language only
- (35) Is there any additional information that you would like to provide related to your use/knowledge of multilingualism? _____

*All email addresses were extracted from publicly available internet sites (e.g., ASHA’s ProSearch and EdFind databases).

For additional information, feel free to contact the principal investigator:

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