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## Preparing Culturally and Linguistically Diverse Students to Work with Culturally and Linguistically Diverse Populations: A Program Design and Student Outcomes Study

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### Cover Page Footnote

The authors would like to thank Zoran Bursac for his guidance and assistance with the methodological aspects of this study and editing assistance for data results.

According to the U.S. Census Bureau (2019), 21.5% of the population age five and older speaks a language other than English at home; additionally, 39.6% of the U.S. population is racially or ethnically diverse and this population is growing. By 2044, it is projected that the U.S. population will be a majority-minority population where non-white Hispanic/Latinx will comprise more than 50% of the population and by 2060, the percentage of Black, American Indian and Alaska Native, Asian, and Native Hawaiian, and other Pacific Islander residents is projected to increase by at least 40% (Colby & Ortman, 2015). This presents challenges to the field of speech-language pathology (SLP) in that the profession is currently ill-equipped to adequately treat this growing population due to a pervasive lack of cultural competence across speech-language pathologists.

The American-Speech-Language-Hearing Association (ASHA) states that cultural competence includes a variety of factors, such as age, disability, ethnicity, gender identity, national origin, race, religion, sex, sexual orientation, veteran status, and linguistic diversity (ASHA, 2017). The general lack of cultural and linguistic diversity among SLP service providers and the implications of this have been explicitly described by ASHA. For instance, in a survey of 201,961 ASHA members who held a Certificate of Clinical Competence (CCC) during the 2019 membership cycle, 85% of respondents self-identified as white non-Hispanic/Latinx and 9.2% did not specify ethnicity (ASHA, 2020a). The remaining 5.8% self-identified as Hispanic/Latinx. For race, 82% of respondents self-identified as white (only), 11% did not specify their race, and the remaining 7% self-identified as a racial minority including Hispanic/Latinx, Black, American Indian/Alaska Native, Asian, Native Hawaiian/other Pacific Islander, or Multiracial (ASHA, 2020a). Similarly, only 6.5% of respondents self-identified as bilingual service providers with 64.9% of those respondents indicating that they were Spanish speakers (ASHA, 2020b). Small, regional studies on the demographic characteristics of local speech-language pathologists reflect this nationwide lack of diversity within the profession and the breadth of diversity on these speech-language pathologists' caseloads (e.g., Guiberson & Atkins, 2010; Kohnert et al., 2003).

### **Lack of Student Diversity in Graduate SLP Programs**

While the critical shortage of bilingual speech-language pathologists (Edgar & Rosa-Lugo, 2007; Guiberson & Atkins, 2010) and general lack of diversity among professionals in SLP play a major role in the issue of inadequate services for culturally and linguistically diverse (CLD) clientele, a general lack of diversity among the students in these Communication Sciences and Disorders (CSD) programs compounds the issue. According to the CSD Education Survey for the 2018-2019 academic year, 29.5% of total undergraduate student enrollment were racial ethnic minorities; 21.3% of total master's student enrollment were racial ethnic minorities; and 17.3% of total research doctoral student enrollment were racial ethnic minorities (Council of Academic Programs in CSD & ASHA, 2020). There are some notable considerations in these data. The first is that the number of CLD CSD students is far below the national demographic average. The second is that the number of CLD undergraduate students in CSD is higher than the number of CLD master's students, prompting the question of why the number of CLD students drops by 8% in an area that is already lower than the national demographic average. Further highlighting the demographic disparities in graduate-level SLP programs is the fact that the majority of Praxis SLP test-takers for the period of January 2008 to May 2011 were disproportionately white non-Hispanic/Latinx (76.92%) (Riquelme, 2011). If these are the students that graduate SLP programs are primarily

serving, then it is no wonder that the same demographics are observed among licensed speech-language pathologists across the United States.

### **Lack of Professional CLD Training**

Aside from the lack of diversity among the students in graduate SLP programs, the need for a drastic increase in the quality and quantity of professional training in CLD is apparent in the calls for this by the profession at large (Cornish & White, 2016; Kohnert et al., 2003; Kritikos, 2003; Muñoz et al., 2011; Pimentel, 2003; Roseberry-McKibbin et al., 2005; Santhanam & Parveen, 2018), as well as in speech-language pathologists' consistently low self-efficacy and competency reports (Santhanam & Parveen, 2018). For instance, Guiberson and Atkins (2010) conducted a survey that explored several aspects of 154 Colorado-based school speech-language pathologists' personal and professional backgrounds. It was found that relative to diversity training, 72% of respondents stated that they received specialized training in serving CLD populations, though only 21% indicated that they were trained on how to utilize an interpreter through their SLP coursework. Survey results on professional perspectives revealed that though more than 70% of the respondents felt comfortable assessing and treating CLD children, only 51% reported that they were competent enough to do so (Guiberson & Atkins, 2010). These trends beg the question: what are graduate SLP programs doing to address this?

In a 49-question survey, Stockman et al. (2008) explored the responses of 731 faculty members from ASHA-accredited SLP programs to gain insight on instructional practices addressing multicultural and multilingual issues. Results indicated that 56% of respondents reported their programs used "curricular infusion only" to meet ASHA's multicultural/multilingual issues accreditation standard (Stockman et al., 2008). Thirty-one percent of respondents reported that their programs offered a "specific course plus curricular infusion" to meet the ASHA standard. However, 56% of the respondents reported that a "minimal amount" of time was spent infusing these topics into the curricula while only 1% of the respondents indicated that "most" time was spent on doing so. These findings, which come from only a portion of Stockman et al.'s (2008) results, brought to light the challenges of the seemingly popular "infusion only" model. For one, increasing the amount of CLD information infused in a course can be difficult given the time constraints and the sheer amount of information to be covered (Stockman et al., 2008). Additionally, implementation of an infusion model can be a challenge due to a lack of opportunities to work with and learn from CLD clients given the demographic makeup of surrounding communities (Stockman et al., 2008).

Areas such as teacher education, communication studies, ethnic studies, and disability studies have a deep body of work on teaching to sustain diversity in their respective disciplines. A cursory review of the SLP literature reveals several works available that describe particular approaches and frameworks to facilitate the recruitment of CLD students as well as the development of curricula that foster the acquisition of knowledge and clinical experiences in the context of CLD (Table 1). While the efficacy of implementing CLD curricula is plentiful in other health science disciplines such as graduate nursing (e.g., Boughton et al., 2010), more outcomes-based data are needed to support the efficacy of CLD student recruitment practices as well as the efficacy of the approaches used to improve the quality and quantity of CLD training in the graduate curriculum.

**Table 1***Proposals for development of CLD Curricula*

| Article                     | Approach  | Program Components  |
|-----------------------------|---|---|
| Barrera & Corso, (2002)     | Skilled dialogue based on 3 assumptions: <ol style="list-style-type: none"> <li>1. Diversity is a relational and context-embedded reality</li> <li>2. Understanding the dynamics of culture is a prerequisite to appropriately addressing the challenges posed by cultural diversity</li> <li>3. The key to cultural competence lies in our ability to craft respectful, reciprocal, and responsive verbal and nonverbal interactions.</li> </ol> | <ul style="list-style-type: none"> <li>● Build student respect, reciprocity, and responsiveness of diversity by facilitating:               <ul style="list-style-type: none"> <li>○ Learning about the perspectives of others while examining own perspectives</li> <li>○ Clarification of others' understanding of own perspective and acknowledgement of the contributions of others</li> <li>○ Reflection of understanding of others' perspectives</li> </ul> </li> <li>● Foster student mindset that supports divergent views in one's mind by encouraging:               <ul style="list-style-type: none"> <li>○ Judgement-free listening and observing while identifying specific contradictions</li> <li>○ Shifting focus to equalize participation in conversations</li> <li>○ The reframing of contradictions into complementary perspectives</li> <li>○ The incorporation of multiple perspectives</li> </ul> </li> </ul> |
| Walters & Geller, (2002)    | Cultural framework <ul style="list-style-type: none"> <li>● Using traditional and collaborative orientations to gain a deeper understanding of diversity</li> </ul>   | <ul style="list-style-type: none"> <li>● Provide knowledge of CSD within a CLD society</li> <li>● Focus on how cultures and families influence interactions, communication, social and cognitive development, and service delivery.</li> <li>● Apply a cultural approach to the areas of assessment, intervention, communication, and communication disorders               <ul style="list-style-type: none"> <li>○ Aim for a diverse recruitment of faculty and students</li> </ul> </li> </ul>   |
| Horton-Ikard et al., (2009) | Counseling psychology framework<br>Establishing multicultural courses (MC) to accomplish CSD learning goals   | <ul style="list-style-type: none"> <li>● Provide MC training that addresses racism, power, and prejudice in light of assessment, diagnosis, service delivery, intervention strategies, and ethical issues</li> <li>● Cover MC counseling research and racial identity development</li> <li>● Provide awareness training</li> <li>● Model non-biased assessment</li> <li>● Assign introspective tasks</li> </ul>   |

| Article                 | Approach   | Program Components   |
|-------------------------|--|--|
| Lazewnik et al., (2010) | Bilingualism courses as a program requirement  | <ul style="list-style-type: none"> <li>● Partner with faculty from programs that have bilingual courses</li> <li>● Encourage shadowing in regions where CLD practicum opportunities are scarce.</li> <li>● Recommend students for externships</li> <li>● Increase awareness of linguistic limitations in CLD assessment</li> <li>● Encourage use of interpreters</li> <li>● Provide training on dynamic alternative assessment methods</li> <li>● Discuss the inherent issues of standardized testing</li> </ul>   |
| McCarthy et al. (2014)  | Tripartite cultural framework: <ul style="list-style-type: none"> <li>● Faculty need the competencies required to model and teach culture-based content</li> <li>● Students need to acquire knowledge and skills associated with cultural competence in both the classroom and clinic settings.</li> <li>● Skills need to be taught in an environment that is culturally sensitive.</li> </ul> | <ul style="list-style-type: none"> <li>● Maintain faculty competencies through annual completion of an online diversity module and the inclusion of a diversity component in annual goals</li> <li>● Build students' knowledge and competencies by               <ul style="list-style-type: none"> <li>○ Teaching culture of the profession in addition to the culture of other professions</li> <li>○ Exposing them to a broad range of cultural competence topics before clinic</li> <li>○ Ensuring that clinical preceptors are modeling cultural competence</li> </ul> </li> <li>● Create a culturally sensitive environment by               <ul style="list-style-type: none"> <li>○ Planning around student calendars and religious obligations</li> <li>○ Taking dietary restrictions into consideration during department events</li> </ul> </li> <li>● Connect potential students with current students of the same cultural background</li> <li>● Design a plan to learn about student's backgrounds that are not understood</li> <li>● Participate in the university's multicultural summer enrichment program</li> </ul> |
| Franca & Harten, (2016) | Pluralistic educational model including: <ul style="list-style-type: none"> <li>● Foundational dedicated coursework</li> <li>● Infusion methods</li> </ul>   | <ul style="list-style-type: none"> <li>● Incorporate multicultural content in all courses that will enable students to:               <ul style="list-style-type: none"> <li>○ Develop clinical skills to determine difference versus disorder</li> <li>○ Identify CLD variables that impact SLP services: Test and personal biases</li> <li>○ Learn treatment techniques for CLD clients</li> </ul> </li> <li>● Understand how communication is influenced by physical, cognitive, emotional, linguistic, socioeconomic, and geographic variables.</li> </ul>   |

| Article                    | Approach   | Program Components  |
|----------------------------|--|---|
| Keller-Bell et al., (2017) | Cultural approach builds upon <ul style="list-style-type: none"> <li>● Programmatic planning</li> <li>● Multicultural courses</li> <li>● Infusion of multicultural content across courses</li> <li>● Specialized opportunities.</li> </ul> | <ul style="list-style-type: none"> <li>● Host activities to expose CLD students to the field of Speech-Language Pathology</li> <li>● Develop relationships with undergraduate programs as a recruitment strategy</li> <li>● Prepare students to be advocates for justice, equality, and humanity as professional SLPs</li> <li>● Provide students with eclectic views of multicultural issues that apply to the profession</li> <li>● Expose students to multicultural information in their core classes and clinic.</li> <li>● Provide specialized tracks such as bilingual services, CLD children with disabilities, and use of assistive technology focused on underserved population</li> </ul> |
| Quach & Tsai, (2017)       | <i>Project Tapestry</i> , program focused on Preparing a special cohort of students to become culturally competent clinicians  | <ul style="list-style-type: none"> <li>● Pair bilingual students with bilingual supervisors</li> <li>● Focus on             <ul style="list-style-type: none"> <li>○ prominent languages and cultures in the Bay area</li> <li>○ counseling and working with families from diverse backgrounds</li> <li>○ working with interpreters and translators</li> </ul> </li> <li>● Series of nine workshops and a supervised field experience in a high-need public school</li> </ul>   |

### FIU MS-SLP Program: A Bilingual Emphasis Model

**Structure of the Curriculum.** The Master's of Science in Speech-Language Pathology (MS-SLP) program at Florida International University (FIU) is one of 49 in the United States that offers a curriculum with a bilingual emphasis (ASHA, n.d.-a), which prepares graduates to work with the increasing number of bilingual individuals in need of speech therapy services. While Spanish and Haitian Creole are the primary languages emphasized in the curriculum due to the characteristics of the student and local population, linguistic aspects of other languages such as Portuguese, American Sign Language, and French are discussed. Components of the curriculum include dedicated courses in bilingualism, infusion of bilingual and CLD concepts across all courses, providing students with diverse clinical practicum experiences, and having faculty who identify as CLD with experience serving CLD clientele.

**Infusion of Bilingual and CLD Topics across the Curriculum.** All courses are delivered in English, making them accessible to monolingual English-speaking students. There are three dedicated bilingual courses in the program which expose students to clinical scenarios and the implications of those scenarios across the lifespan among several different speech and language disorders relative to the CLD populations. The first course in the sequence is Dual Language Acquisition and Disorders, which focuses on language development and disorders in bilingual children in light of cultural and social factors. The subsequent course, Assessment and Treatment of the Bilingual Child with Communication Disorders, covers topics such as dynamic assessment, testing bias, language selection for therapy, and ASHA's requirements for bilingual service provision as it relates to the code of ethics (ASHA, n.d.-b). Communication Disorders and Aging

in a Bilingual Society is the final course of the sequence, which includes content on assessment, treatment, and rehabilitation for bilingual adults.

Similar to all accredited graduate SLP programs across the United States, FIU offers the basic graduate-level courses that meet the knowledge and skills outcomes outlined in ASHA's 2020 certification standards (ASHA, 2020c). However, all courses offered in FIU's MS-SLP program include content relative to bilingual and CLD clientele. For instance, in the Phonological Disorders course, students are exposed to both the American English and Spanish speech sound inventories. Differences and similarities between the inventories are explored during in-class labs and students complete an assignment in which they must hypothesize how these similarities and differences may impact CLD clients' phonological development. A learning objective of the program's Differential Diagnosis in Communication Disorders course is that student learn to effectively communicate by acknowledging the needs, values, preferred mode of communication, and cultural/linguistic background of the client, family, caregivers, and others within the client's environment. In addition to these characteristics, FIU's MS-SLP program also keeps the most recent monolingual and bilingual assessments available for faculty and student check out which gives students the opportunity to practice using these tools with bilingual data in all of their courses. Thus, students in the FIU MS-SLP program learn all of the skills required for certification, but through the lens of CLD.

**Clinical Education.** Providing students with diverse clinical practicum experiences is at the heart of FIU's MS-SLP program. The program does not have an on-campus clinic; therefore, students complete all four of their clinical rotations in the South Florida community. This exclusively community-based experience exposes them to the challenges of treating communication disorders in primarily CLD clientele across the lifespan in several intervention contexts. The program's clinical externship settings include, but are not limited to, public and private schools, private practices, home health agencies, rehabs, assisted living facilities, hospitals (in-patient and out-patient), prescribed pediatric extended care centers, nursing homes, and preschools. The types of clients seen are representative of Miami-Dade County's demographic makeup, which is 69.1% Hispanic/Latinx, 17.9% Black, 13% white, and 1.7% Asian according to the U.S. Census Bureau (2019). Additionally, a great majority of the clinical supervisors who work with the students at these sites identify as CLD. It is estimated that approximately 80% of the clinicians who supervise FIU MS-SLP students are bilingual. Thus, they are ideal models for demonstrating to students how all the CLD-based concepts they learned in class can be applied in the therapy setting.

**Faculty Diversity and Areas of Expertise.** This specialized curriculum could not be developed nor implemented without knowledgeable faculty. More than half (~57%) of the full-time faculty of FIU's MS-SLP program identify as CLD and know two or more languages (e.g., Spanish, Portuguese, Tamil, American Sign Language). These faculty members bring a wealth of experience in conducting research on and providing therapy for CLD clients with communication disorders. More recently, FIU faculty have created new assessments as well as adaptations to existing assessments to be used with Spanish-speaking clientele.

Outside of the classroom setting, students have the opportunity to be mentored by faculty in CLD-based research via either the program's second year Master's Project or Master's Thesis courses. Students wishing to pursue research in a group format are instructed to enroll in the Master's



Project course, while students who wish to work independently or who are considering enrolling in a doctoral program after completing the MS-SLP program are encouraged to enroll in the Master's Thesis course. These courses are both three semesters long and serve as the program's culminating activity in addition to the Praxis test. Through these courses, students get hands-on experience in collecting and analyzing data from CLD participants under the guidance of a faculty member. Many students go on to present the final product with their faculty research mentor at professional conferences such as the ASHA annual conventions.

In addition to playing an active role in advising students in their research endeavors, faculty also serve as academic advisors for students throughout their time in the MS-SLP program. While students are required to meet with their faculty advisors at the beginning of the fall and spring semesters in which they are enrolled, they are encouraged to meet with their advisors as frequently as necessary to address individual needs. Faculty members also mentor second-year students in the required, one-day, Interprofessional Workshop. During this all-day training, MS-SLP program students collaborate with other FIU medical and health sciences graduate students in physical therapy, occupational therapy, health science administration, social work, medicine, dietetics, and nursing. In small interprofessional groups led by one faculty member, students examine a case study and provide profession-specific information relative to the case. The case presented focuses on a client from the Haitian community, which is a prominent ethnic group in Miami. Aspects of the client's culture, including language barriers and specific diet modifications to be incorporated that are sensitive to the client's sociocultural needs, are key considerations for the interprofessional team to address. The faculty members facilitate student collaboration and provide students from all the represented areas with professional feedback.

**Recruitment Practices.** FIU is committed to recruiting and training CLD students. The majority of students who attend the program hail from South Florida. However, there are students who relocate to Miami from many states around the country and from as far away as the Middle East and Eastern Europe. FIU's admissions requirements include an earned bachelor's degree, a minimum 3.0 grade point average (GPA), a minimum of three prerequisites completed in CSD, a letter of intent summarizing interest in the program, and two letters of recommendation. Additionally, Test of English as a Foreign Language exam scores of 550 and higher on the paper test or 80 on the internet-based exam for applicants whose primary language is not English and international students must have their transcripts translated to English prior to applying to the master's program.

While FIU's MS-SLP program required the Graduate Record Examination (GRE) for admissions during the first three years of the program, it chose to discontinue the use of the GRE as an application or admission requirement. When looking at the minimum GRE scores required by the majority of Florida's largest public universities with CSD master's programs, all required/suggested scores were above the mean for both Hispanic/Latinx and Blacks, which could severely limit the acceptance of CLD students into graduate programs. The GRE Report (Okahana & Zhou, 2019) indicates that in the fall of 2018, 60% of the 424,276 U.S. citizens and permanent residents who enrolled as first-time graduate students were white non-Hispanic/Latinx, which is in line with the U.S. population. However, mean GRE scores in 2018 (ETS, 2019) for white non-Hispanic/Latinx in Verbal Reasoning was 153.7, Quantitative Reasoning was 150.9 and Analytic Writing was 4.0. During this same period, the mean GRE scores for all Hispanic/Latinx combined

in Verbal Reasoning was 149.6, Quantitative Reasoning was 146.9 and Analytic Writing was 3.6, while for Blacks, Verbal Reasoning was 146.9, Quantitative Reasoning was 143.9 and Analytic Writing was 3.3. However, the majority of CLD graduate students do not choose the field of Health Sciences for advanced degrees. Given what we know about the barriers to CLD students posed by the GRE, FIU's mission to recruit and train CLD students necessitated these alternative admissions procedures that specifically did not include the GRE.

To further diversify and remove bias from the process, completed admissions application packets are reviewed by the entire faculty, who rate each component (i.e., GPA, letter of intent, and letters of recommendation). Each application is rated by at least two faculty members. The faculty compile a list of ranked applicants and the top 80 applicants are then invited to an in-person or web-assisted interview with two faculty members, at least one of whom is a bilingual who speaks Spanish. Interviews were added to the admissions procedures in 2015 to give applicants the opportunity to meet and have conversations with the faculty and ask any specific program questions. This also allows the faculty to ask any additional questions not answered in the applications. During this interview, applicants share their interest in the program and have the opportunity to interview in Spanish if they speak it, as typically about 80% of applicants are Spanish speakers (which is a higher rate of Spanish-speakers than the geographic area). This allows the faculty to rate the applicant's ability to read, speak, and comprehend Spanish to demonstrate bilingual status. Applicants are not ranked by demonstration of native, near-native, or advanced language proficiency; however, if applicants who self-identify as being Spanish speakers demonstrate little to no proficiency, their language status is updated in the department's application system. Designating accepted students as Spanish speakers allows for easier clinical rotation placement, as many sites request Spanish-speaking interns to work with their largely Spanish-speaking caseloads. If an applicant speaks another language other than Spanish, the applicant is requested to share their experience and proficiency with that language and have the opportunity to interview in that language if one of the faculty members speaks it as well. During the day of interview, applicants are also required to complete a one-page written response in English to a randomly assigned prompt, which allows screening of English writing proficiency as well as academic writing skills in general. Following this interview process, the applicants are ranked again and the top 50 are invited to join the incoming cohort while the remaining applicants are placed on the waiting list. Fall-start cohorts consist of a total 45 students.

**Student Demographic.** The most significant attribute of FIU's MS-SLP program is the demographic makeup. The program mirrors the population of South Florida, which is primarily Hispanic/Latinx. For the period of January 2015 to November 2019, the demographic makeup of the program was 81.1% Hispanic/Latinx, 12.9% white non-Hispanic/Latinx, 1.9% Afro-Caribbean, 1.8% Black, and 2.3% Asian. Also, 82.9% of the students speak another language, of which 77.5% of those students speak Spanish or Spanish plus another language in addition to English. This differs greatly from what is seen across other MS-SLP programs in the United States (ASHA, 2020a).

### **Research Questions**

Based on the bilingual emphasis curriculum and recruitment procedures, the purpose of the present study was to explore the academic outcomes attained by FIU MS-SLP program graduates through examination of their performance on the Praxis SLP test. The specific research questions were:

1. How do FIU students' Praxis test scores at graduation differ by demographic variables (e.g., race/ethnicity, pre-requisite course training location, language(s) spoken)?  
H<sub>1</sub>: FIU students' Praxis test scores at graduation will be similar across the demographic variables of race/ethnicity, pre-requisite course training location, and language(s) spoken.
2. How do FIU students' first time Praxis test rates differ by demographic variables?  
H<sub>2</sub>: FIU students' first time Praxis test scores will be similar across the demographic variables of race/ethnicity, pre-requisite course training location, and language(s) spoken.
3. How do FIU's graduates' Praxis scores compare to the national averages by race/ethnicity?  
H<sub>3</sub>: FIU students' Praxis test scores will be similar to national averages by race/ethnicity.

## Method

**Sample.** A records review was completed for graduates from FIU's MS-SLP program between January 2015 and November 2019 (five cohorts). All records during this time frame were used in the analysis ( $n = 217$ ). The mean age of admittance into the program was 27 years old ( $SD = 4.14$  years). The records represented 12.9% white non-Hispanic/Latinx, 1.8% Black, 1.9% Afro-Caribbean, 81.1% Hispanic/Latinx, and 2.3% Asian. Almost one in four of the graduates were CSD undergraduate majors from other universities and 75.1% of the graduates were FIU Certificate graduates, which is a program for post-baccalaureate students who earned a bachelor's degree in a major outside of CSD. Seventeen percent of the graduates were monolingual English speakers and 83% spoke another language in addition to English. Of those graduates who spoke another language, 73.3% spoke Spanish, 4.1% spoke Spanish and another language, and 6% spoke a language other than Spanish in addition to English. All graduates passed the Praxis test by graduation regardless of whether they spoke another language, their race/ethnicity, or where their prerequisites were taken; however, 13 graduates did not pass on the first attempt.

**Procedure.** Following institutional review board approval from FIU, de-identified data records were requested for the MS-SLP graduates from FIU's CSD Department, which were collected after graduation during graduate student exit interviews. The CSD Department staff permanently removed identifiable information (such as names, addresses, phone numbers, emails, and other identifiers) from the data set prior to sharing it with the research team. Individual data records were arbitrarily assigned a study identification number for analysis. These data were compared to similar national data obtained from the ETS Data Manager for the Professional Educator Programs: Quick and Custom Analytical Reports for the same date range (January 2015 – November 2019) (ETS, n.d.).

**Data Analysis.** Data were analyzed using both SPSS v20 and SAS/STAT v14.2. Descriptive statistics, such as means, standard deviations, frequencies and proportions were used to quantify the available data on the database, such as age of graduates, GPA at graduation, race/ethnicity, prerequisite location, languages spoken, and the Praxis test score on the first attempt as well as if the score passed or failed, depending on the scale of the measurement, respectively. Statistical analyses, such as correlations and regressions, were used to explore associations and patterns by the variables listed above.

## Results

Pearson correlations were estimated to test an association between Praxis test score with age and GPA at graduation. Praxis test scores at graduation were not significantly correlated with age ( $r = -0.6$ ,  $p = 0.41$ ) but were significantly correlated with GPA at graduation ( $r = 0.50$ ,  $p < 0.01$ ).

Independent 2-sample *t-tests* and one-way ANOVAs were applied to test for differences in Praxis test score by race/ethnicity, prerequisite location, and language(s) spoken. There were no statistically significant differences in Praxis test scores at graduation between groups for race/ethnicity ( $p = 0.11$ ), prerequisite location ( $p = 0.26$ ), speaking another language ( $p = 0.46$ ), or other language(s) spoken ( $p = 0.94$ ).

The effects of these graduate characteristics on Praxis test scores were evaluated using multivariable linear regression. There was no significant difference in age at admission between those who passed the Praxis test the first time and those who did not (27.54 compared to 27.01;  $p = 0.66$ ), but there was a significant difference between groups when considering GPA at graduation ( $p < 0.01$ ). Graduates who passed the Praxis test on the first attempt had significantly higher GPAs at graduation compared to those who did not (3.85 compared to 3.67;  $p < 0.01$ ).

Independent 2-sample *t-tests* and chi-square tests were applied to determine if there was an association between race/ethnicity, prerequisite location, and language(s) spoken with whether graduates passed the Praxis test on their first attempt. As reported in Table 2, passing the Praxis test on the first attempt was not significantly associated with prerequisite location ( $p = 0.24$ ), speaking another language ( $p = 0.36$ ), or other language(s) spoken ( $p = 0.37$ ), but was significantly associated with race/ethnicity ( $p < 0.01$ ). Ninety-six percent of white non-Hispanic/Latinx ( $n = 28$ ) passed the Praxis test on the first attempt, along with 100% of Blacks ( $n = 4$ ), 25% of Afro-Caribbeans ( $n = 4$ ), 95% of Hispanic/Latinx ( $n = 176$ ) and 100% of Asians ( $n = 5$ ).

Linear regression was used to predict the relationship between the variables of age, race/ethnicity, location of prerequisites, language(s) spoken, and GPA on Praxis test scores at graduation. GPA at graduation had a significant effect on Praxis test scores at graduation ( $p < 0.01$ ). For every 0.1-point increase in graduates' GPAs, Praxis test scores at graduation increased by 2.87 points. Age, race/ethnicity, location of prerequisites, and language(s) spoken, had no significant effect on Praxis test scores at graduation.

Logistic regression was used to evaluate the effects of characteristics on the relative odds that a graduate would pass the Praxis test on their first attempt. GPA at graduation had a significant effect on pass/fail rates. Every 0.1-point increase in GPA, was associated with 2.39 times higher odds of passing the Praxis test on the first attempt (95% CI: 1.54 - 3.73).

One-sample *t-tests* were used to compare the mean Praxis test score of FIU graduates to the national average Praxis test score and was further evaluated by race/ethnicity and language(s) spoken, as seen in Table 3. The average Praxis test score achieved by FIU graduates was 173.35, which was significantly lower than the national average of 177.26 ( $p = < 0.001$ ). However, keeping in mind that FIU's demographics are 81% Hispanic/Latinx, this mean score is not only well above the cut off passing score of 162 but also above the national average for Hispanic/Latinx. There was

no significant difference in the mean Praxis test score for Blacks ( $p = 0.80$ ), Asian Americans ( $p = 0.70$ ), or white non-Hispanic/Latinx ( $p = 0.06$ ) from their respective national averages. There was, however, a significant difference in mean Praxis test score at FIU for Hispanic/Latinx ( $p < 0.001$ ) from their respective national averages. Hispanic/Latinx FIU graduates had a higher average score of 173.43 versus the national average of 170.59.

**Table 2***FIU Graduate First Attempt Pass Rate by Race/Ethnicity*

|                               | <i>N</i> | <i>%</i> | <i>p-value</i> |
|-------------------------------|----------|----------|----------------|
| <i>Race/Ethnicity</i>         |          |          | <0.01          |
| White non-Hispanic            | 27       | 96.43    |                |
| Black                         | 4        | 100.00   |                |
| Afro-Caribbean                | 1        | 25.00    |                |
| Hispanic/Latinx               | 167      | 94.89    |                |
| Asian                         | 5        | 100.00   |                |
| <i>Prerequisites</i>          |          |          | 0.24           |
| CSD undergrad major           | 49       | 90.74    |                |
| FIU certificate               | 155      | 95.09    |                |
| <i>Speak Another Language</i> |          |          | 0.36           |
| No                            | 36       | 97.3     |                |
| Yes                           | 168      | 93.33    |                |
| <i>Other Languages Spoken</i> |          |          | 0.37           |
| None                          | 35       | 97.22    |                |
| Spanish                       | 150      | 94.34    |                |
| Other                         | 11       | 84.62    |                |
| Spanish + Other               | 8        | 88.89    |                |

**Table 3***FIU Praxis Score Test Result Averages Compared to National Average for Respective Subgroups.*

|                        | FIU      |               | National |          | <i>p-value</i> |
|------------------------|----------|---------------|----------|----------|----------------|
|                        | <i>N</i> | <i>M (SD)</i> | <i>N</i> | <i>M</i> |                |
| <i>Total</i>           | 217      | 173.35 (7.50) | 11485    | 177.26   | <0.001         |
| <i>Race/Ethnicity*</i> |          |               |          |          |                |
| Black                  | 4        | 168.75 (5.32) | 558      | 168.02   | 0.80           |
| Asian American         | 5        | 172.80 (7.26) | 330      | 174.15   | 0.70           |
| Hispanic/Latinx        | 176      | 173.43 (7.21) | 1132     | 170.59   | <0.001         |
| White non-Hispanic     | 28       | 174.79 (9.22) | 7191     | 178.27   | 0.06           |

*\*Afro-Caribbean (N = 4) excluded (no national comparison)*

## Discussion

The current study described the MS-SLP bilingual emphasis curriculum and recruitment practices at FIU. Outcomes for the MS-SLP graduates were also explored. The FIU MS-SLP program entails three dedicated courses on bilingual clientele with communication disorders across the lifespan, infusion of CLD concepts across all required courses, clinical practicum experiences with CLD clients, and taking a non-traditional approach in the admissions process by not making GRE scores compulsory. Through statistical analyses, FIU MS-SLP graduate Praxis test scores were compared to those of SLP graduates, nationally. Results revealed that the Hispanic/Latinx FIU MS-SLP graduates performed better than did the graduates from this ethnic group, nationally.

A review of SLP Praxis test scores, nationwide, for the period of January 2008 to May 2011 indicated that the majority of test-takers were white non-Hispanic/Latinx (76.92%) and that their mean score (686.57) was higher than the mean scores of all CLD test-takers (Riquelme, 2011). Taking all of this information into account, CLD students remain underrepresented in CLD graduate programs nationally and also face a host of difficulties in being accepted into graduate programs and passing the Praxis test. In comparison, white non-Hispanic/Latinx and Asian graduates of FIU's MS-SLP program, who historically score higher nationally, attained comparable Praxis scores. Black graduates of FIU's MS-SLP program attained comparable Praxis scores when compared to their national counterparts. Hispanic/Latinx FIU MS-SLP graduates scored significantly higher than their counterparts, nationally.

As noted in the results section, Afro-Caribbeans were not represented as an individual ethnic group in the national data. It is likely that these test takers identified as Black since "Afro-Caribbean" was not an option in the demographic survey portion of the Praxis. The Afro-Caribbean distinction, which was available in the FIU data, is significant on many levels. First, culturally speaking, Afro-Caribbeans are different from Blacks (usually, African Americans) in many ways that include traditions, languages, and history. Similarly, through representing these students in their own ethnic group, it was found that they performed significantly poorer on the Praxis than the other FIU student ethnic groups. This is particularly concerning given that the other FIU CLD groups performed better than or comparable to other CLD test takers nationwide. These findings could be indicative of specific barriers this group faces which needs to be explored further in future research (e.g., adding specific Praxis workshops or study groups for specific ethnic groups).

Based on these findings, it is hypothesized that the unique curriculum offered by FIU is facilitating these higher than average outcomes attained by Hispanic/Latinx graduates. Beginning with FIU's admissions process, traditional performance indicators like the GRE are removed from the equation which opens the door to many applicants for whom these measures are inherently biased against (e.g., CLD students). Other information about the applicants is considered in the admissions process such as bilingual language skills or the personal, academic, and professional experiences described during interviews. Upon admittance to the program, CLD students reap the benefits of a curriculum with a bilingual emphasis taught by culturally competent CLD faculty. These faculty have the linguistic and cultural knowledge necessary to appropriately educate, assess, and mentor CLD students as they explore SLP through a CLD lens. Another aspect to consider is the students themselves and the ecosystem this creates for peer mentoring. Here, the CLD students are the demographic majority of the program; therefore, CLD student performance

is likely optimized in this setting, as opposed to a setting where CLD students are a stark minority in a program.

## **Conclusion**

As described by Riquelme (2013), being culturally competent requires moving away from ethnocentrism as it can prevent healthcare professionals from effectively serving clients whose cultures do not match their own ethnocentric views. In this work, the need for an increase in the quantity and quality of professional training in CLD for speech-language pathologists as well as proposals for accomplishing this issue were explored. Programs that embed CLD content in academic and clinical learning objectives as well as recruit CLD students have had positive outcomes. The FIU MS-SLP program, which has a bilingual emphasis and a student body comprised primarily of CLD students, has shown efficacy in implementing a CLD curriculum as evidenced by graduates' performance on the Praxis test. There are some aspects of FIU's academic and clinical programs that support CLD students to be successful on the Praxis in ways that are not seen in most other graduate SLP programs. However, within the CLD population of FIU students, Afro-Caribbean graduates have outcomes on the Praxis that are different than the other CLD groups. In moving away from traditional admissions requirements that focus on GRE scores and making cultural competence an objective, programs such as the FIU MS-SLP program have begun to address the critical shortage of bilingual and CLD SLPs in the profession. They have also provided some CLD students a context to flourish and serve the CLD community at large. These findings could support the development of courses in other programs to more readily prepare students to work with CLD populations. Information provided within this paper may also provide guidance to other programs on evidence-based ways to support and prepare students from CLD backgrounds for the field. Considerations for other programs include: 1) waiving GRE requirements for admissions, 2) placing higher value on bilingualism and/or minority status and work/life experience in the field during admissions, 3) conducting admissions interviews, 4) infusing CLD topics across the curriculum in addition to offering separate dedicated courses, 5) providing clinical experiences with CLD populations, and 6) facilitating clinical supervision provided by CLD clinicians.

## **Limitations and Directions for Future Research**

There are several limitations noted with this study. The first limitation is that only a limited amount of data regarding specific FIU student demographics and outcomes were available for comparison. For example, there were no data available to report on 1) proportion of first-generation college students, 2) family income levels, 3) student perception assessments of the program, 4) pre- or post-program assessments, and 5) formative assessment results. Additionally, since FIU does not have an on-campus clinic, information on training with or for bilingual supervisors is not available. All practicum experiences are provided in the field; therefore, no standardized training can be ascertained. While all students passed their clinical rotations, grades in these rotations were not calculated in this study.

Future research should be designed to continue to build an evidence-base for pedagogical frameworks and approaches used to incorporate CLD in the SLP curriculum. Similarly, a variety of measures and other nationwide benchmarks should be used to supplement Praxis outcomes.

Future research can also include program evaluations from other graduate SLP programs that have large CLD populations. These evaluations can be used to identify barriers and creative solutions to increase CLD student outcomes. Specific interventions for improving Afro-Caribbean student outcomes should also be explored. Pre- and post-program assessments and formative assessments for CLD students and non-CLD students alike in programs with coursework and practicum in CLD topics to identify students' perceptions about and clinical performance with CLD populations should also be investigated.

## Disclosures

The authors are full-time employees of Florida International University.

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