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for Speech-Language and Hearing*



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About the Editor

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The following individuals served as reviewers, or otherwise contributed editorially, to this issue and/or another issue of *JNBASLH*. We thank them for their contributions to the journal. Any omissions were unintentional.

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About the Journal

The *Journal of the National Black Association for Speech-Language and Hearing (JNBASLH)* is a peer-reviewed, refereed journal that welcomes submissions concerning communication and communication disorders from practitioners, researchers or scholars that comprise diverse racial and ethnic backgrounds, as well as academic orientations.

JNBASLH editorial board welcomes submissions from professionals or scholars interested in communication breakdown and/or communication disorders in the context of the social, cultural and linguistic diversity within and among countries around the world.

JNBASLH is especially focused on those populations where diagnostic and intervention services are limited and/or are often provided services which are not culturally appropriate. It is expected that scholars in those areas could include, but not limited to, speech-language pathology, audiology, psychology, linguistics and sociology. Articles can cover any aspect of child or adult language communication and swallowing, including prevention, screening, assessment, intervention and environmental modifications. Special issues of *JNBASLH* concerning a specific topic may also be suggested by an author or through the initiation of the editors.

Aims & Scope

Topics accepted for publication in *JNBASLH* could include, but is not limited to, the following:

- Communication breakdowns among persons due to culture, age, race, background, education, or social status
- Use of the World Health Organization's International Classification of Functioning, Disability, and Health (ICF) framework to describe communication use and disorders among the world's populations.
- Communication disorders in underserved or marginalized populations around the world
- Service delivery frameworks for countries' minority populations, including those who are minorities for a variety of reasons including race, religion, or primary language spoken.
- Dialectical differences and their effects on communication among populations
- Evidence base practice research with culturally and linguistic diverse populations
- Provision of communication services in low income/resource countries
- Provision of communication services in middle income/resource countries
- Provision of communication services to immigrant and/or refuge populations
- Effects of poverty on communication development and the provision of services
- Education/training issues in serving diverse populations
- Ethical issues in serving diverse populations
- Role of religion in views of communication disability and its effect on service delivery

Submissions may include:

- research papers using quantitative or qualitative methodology
- description of clinical programs
- theoretical discussion papers
- scientifically conducted program evaluations demonstrating
- clinical forums
- works using disability frameworks or model's effectiveness of clinical protocols
- critical clinical literature reviews
- case studies
- tutorials
- letters to the editor.

Submission of Manuscripts

All manuscripts should be accompanied by a cover letter (e-mail) in which the corresponding author:

- Requests that the manuscript be considered for publication;
- Affirms that the manuscript has not been published previously, including in an electronic form;
- Affirms that the manuscript is not currently submitted elsewhere;
- Affirms that all applicable research adheres to the basic ethical considerations for the protection of human or animal participants in research;
- Notes the presence or absence of a dual commitment;
- Affirms that permission has been obtained to include any copyrighted material in the paper; and
- Supplies his or her business address, phone and fax numbers, and e-mail address.

All manuscripts must be submitted electronically and should follow the style and preparation presented in the *Publication Manual of the American Psychological Association* (Sixth Edition, 2010; see Journal for exceptions to APA style). Particular attention should be paid to the citing of references, both in the text and on the reference page. Manuscript submissions and inquiries should be addressed to: nbaslh@nbaslh.org.

Preparation of Manuscripts

Manuscripts must be written in English. Authors are referred to recent copies of the journal and are encouraged to copy the published format of papers therein.

Text should be supplied in a format compatible with Microsoft Word for Windows (PC). All manuscripts must be typed in 12pt font and in double-space with margins of at least 1-inch. Charts and tables are considered textual and should also be supplied in a format compatible with Word. All figures, including illustrations, diagrams, photographs, should be supplied in .jpg format.

Authors must write clearly and concisely, stating their objectives clearly, defining their terms, and substantiating their positions with well-reasoned, supporting evidence. In addition, they are encouraged to review articles in the area they are addressing which have been previously published in the journal and, where they feel appropriate, to reference them. This will enhance context, coherence, and continuity for readers.

All submissions are considered by the editorial board. A manuscript will be rejected if it does not fall within the scope of the journal or does not meet the submission requirements.

Manuscripts deemed acceptable will be sent to a minimum of two reviewers. This journal uses double-blind review, which means that both the reviewer and author identities are concealed from each other throughout the review process. The Editor and Associate Editor will consider the reviews and make a decision regarding a manuscript. Decisions are made on a case-by-case basis, typically within 6 weeks from submission, and the Editor's decision is final.

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Editor's Note

It is a privilege to publish Volume 14, Issue 1 of the Journal of the National Black Association for Speech-Language and Hearing (JNBASLH). In this issue of JNBASLH, you will find eight articles. Payne, Perry, Gordon and Lee investigate the effectiveness of an online preparation course in improving graduate students' performance on the Praxis Examination in Speech-Language Pathology. Next, Maldonado and Hassett note that issues pertaining to racial and ethnic distinction, as well as class and gender, can be difficult to negotiate for a variety of reasons and argue that more needs to be done to support the development of service providers in our field who are sensitive, respectful, and knowledgeable regarding issues of diversity. Then, Ellis and Mayo noting that aphasia occurring at younger non-traditional ages has substantial implications for survivors' quality of life, friendships and family-caregiver relationships, present three case series reports to explore the impact of aphasia in African Americans with an onset of aphasia before the age of 65 years. This is followed by Rivera Campos who presents a case study in which ultrasound imaging was used as a biofeedback tool to teach production of the apicoalveolar rhotic trill /r/ to an adult Spanish second language learner. Next, Gillespie, Bridges-Bond, Scheft and Livingston formally examined whether specific clinical skillsets used to evaluate graduate students in speech-language pathology can predict success toward achieving clinical competency. Then, Jones, Mayo, Cotter, Mayo, Hinsley and Thompson, postulating that the abstracts from peer-reviewed professional CSD journals could serve as exemplars for students to model in trying to improve their scholarly or professional writing performance, assessed the readability of sample journal abstracts. Next, Graham-Bethea and Kamhi investigated the relationship between African American English, complex syntax, and lexical diversity in adolescent African American English-speaking students in spoken and written language. Finally, Abdelaziz and Mayo report the findings of a survey of North Carolina speech-language pathologists designed to examine their assessment practices with English language learners (ELLs) in the context of Culturally Responsive Evaluation theory as well as their confidence assessing ELLs.

As always, I want to thank all of the scholars who submitted articles to JNBASLH and the reviewers who kindly reviewed them. I also want to thank the members of the editorial board, as well as the staff, who contribute to the success of each issue of JNBASLH.

Kenyatta O. Rivers, Ph.D., CCC-SLP Editor

**A SoTL INVESTIGATION OF THE EFFECTIVENESS OF AN ONLINE PRAXIS
PREPARATION COURSE**

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ABSTRACT

Scholarship of Teaching and Learning (SoTL) investigations examine the relationship between instructional efficacy versus actual learning in higher education in higher education. This SoTL investigation examined the effectiveness of an online preparation course in improving performance on the Praxis in Speech-Language Pathology. Participants included 33 students enrolled in a speech-language pathology master's program. Utilizing scores from a pre-test, final examination and the SLP Praxis, data analysis measured performance during and after the course and determined the magnitude of improvement. Results confirmed that the course was effective in increasing scores and that the online independent study preparation course was an effective instructional approach for students preparing for the SLP Praxis.

KEY WORDS: Praxis, distance education, speech-language pathology, teaching and learning

INTRODUCTION

In the discipline of communication sciences and disorders (CSD), the gold standard for assessment of learning is the Praxis in Speech-Language Pathology (SLP Praxis), a standardized instrument which is the national certification and licensure examination. Although its multiple-choice format is common and its validity and reliability are well established, the SLP Praxis is unique in that, in addition to foundational, academic, and clinical knowledge, it also requires critical thinking (Paul & Elder, 2007) and reasoning skills such as evaluation, analysis and synthesis (Bloom, Engelhart, Furst, Hill, & Krathwohl, 1956), as well as test-taking strategy (Payne, 2001; Smith, 2016). For success on the Praxis, proficiency with these cognitive skills must be demonstrated together with professional knowledge.

Historically, as in other standardized tests such as the SAT and GRE, there has been a performance differential for some test takers, particularly minority individuals (Payne & Johnson, 2015). To close this performance gap, a variety of commercial products including test preparation textbooks and live review courses exist. However, neither the extent to which these resources improve performance; their relative usefulness; or whether best results derive from review or enhancement of test-taking strategies has been examined. In addition, it is unknown whether the mode of preparation, e.g., self or group study; or live versus online instruction is most effective. Toward the exploration of these questions, this SoTL investigation examined the effectiveness of a multi-feature online preparation course in improving test performance on the SLP Praxis.

Courses via online platforms, known as distance education (DE) courses, are widely accepted as a common instructional practice in higher education. DE utilizes technology to deliver instruction without the instructor being physically present in the same place as the student. During 2016, more than 2.9 million students enrolled in graduate programs in the U.S. (Ginder, Kelly-Reid, & Mann, 2017). The authors further report that more than 1.8 million

(62%) of these students were enrolled in at least one DE course. Hence, there is an overwhelming popularity of DE which demands empirical investigation of its effectiveness.

Scholarship of Teaching and Learning (SoTL) is an emerging concept that can address this demand for investigation. SoTL research explores the reciprocal relationship between instructional effectiveness and learner outcomes. As such, SoTL seeks to examine the interaction of specific subject content, complexity of the subject matter and efficacy of the mode of instruction on learner outcomes. While SoTL methodological approaches vary, the typical approach allows the instructor/investigator to employ empirical research methods specific to the discipline and course content while using the classroom as a convenience sample.

O'Brien (2008) outlined four attributes of SoTL which include: 1) overarching concern for enhancing student learning; 2) deliberate empirical design for teaching; 3) systematic implementation, analysis, and evaluation of the research; and 4) contribution to scholarly practice through documentation, publication, and peer reviewed research articles. Furthermore, SoTL investigation is guided by the six qualitative standards for research and instruction including clear course objectives, adequate preparation, effective presentation, appropriate research methods, significant results and reflective critique (Glassick, Huber, & Maeroff, 1997). Drawing upon O'Brien's attributes of SoTL, as well as the standards proposed by Glassick, Huber, & Maeroff, this SoTL investigation examined the effectiveness of a multi-feature, online independent study preparation course in improving students' performance on the SLP Praxis.

Design of the SLP Praxis Course

The SLP Praxis Course© is an online interactive multi-feature course that presented the following components: 1) narrated modules on test-taking skills, 2) self-scoring Pre-test and final examination with explanations to correct and incorrect answers, 3) mandatory reading assignments with podcast summaries, 4)

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optional videotaped course reviews, and 5) required discussion board for interactive class participation. A complete description of the course components is included in Appendix A. To pass the course, students were required to access the mandatory course elements during the timeframe in which they were assigned.

Lectures for test-taking skills were delivered through eight pre-recorded Voice-Over-PowerPoint© Test-taking Skills Modules of 15 to 20 minutes duration to familiarize students with the question format, cognitive skills, test-taking strategies and affective qualities needed for optimal performance (See Appendix B for learner outcomes). Corresponding reading assignments from the text (Payne, 2001) were required for each module. The course allowed interaction and Question & Answer with the instructor and classmates through an online Discussion Board. Each week, participants submitted questions from the module, as well as the assigned readings. This mechanism allowed the instructor to monitor participants' usage and ensure that the required components were completed.

Sixteen optional one-hour course review videotapes were available for use by participants as they deemed necessary. The videotapes presented both undergraduate and graduate courses constituting the content areas of the SLP Praxis. Participants could access any or all course review videotapes at any time during the course.

METHOD

This study utilized a single-group pre-test/post-test design to examine the effectiveness of a graduate-level course delivered via DE. Following a pre-test, participants engaged in the online SLP Praxis course. The Praxis served as a post-test for comparison of performance.

The SLP Praxis Course was offered over nine weeks during participants' final semester as a mandatory one-credit, 15-hour online course in independent study format. Participants included a cohort of 33 students enrolled in a speech-language pathology master's program.

Participants represented a mix of cultural populations including African Americans, Caucasians, Pacific Islanders, East Indians, and Hispanics aged 24- 32 years. Reflecting the composition of the discipline, participants were exclusively female. All participants had a grade point average above 3.40.

Participants accessed the required course components according to a controlled weekly schedule which monitored usage to ensure that each module was completed and that the minimum time requirement for usage was achieved. However, the course reviews were not mandatory, and each participant used this component according to their own need.

Prior to engaging in the course activities, participants completed the Pre-test which provided baseline data for analysis. Similarly, a final examination served as a culminating requirement that also offered a practice opportunity for participants to exercise the skills learned. The main purpose of the final examination was to ascertain that participants mastered the learner outcomes. After completing the course, participants took the Praxis in accordance with their own schedule during the semester.

Pre-Test and Final Examination Development

The Pre-test and final examination questions were modeled to simulate the experience of the actual Praxis administration. Identical to the format of the 2014 redesign of the Praxis, questions were delivered in multiple-choice online format. Questions for the Pre-test were drawn from those retired from previous Praxis examinations (Educational Testing Service, 1982 and Educational Testing Service, 1995). Questions for the final examination were developed by the instructor and designed to simulate actual Praxis questions incorporating the cognitive and test-taking skills.

Consisting of 132 questions each, the Pre-test and final examination were designed to be completed within 2-1/2 hours, the established allowable time for the Praxis. In addition, the questions reflected the three Praxis content

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categories including: 1) Foundations and Professional Practice, 2) Screening, Assessment, Evaluation, and Diagnosis, and 3) Planning, Implementation, and Evaluation of Treatment, with each category having 44 questions.

Data Analysis

Performance data from the Pre-test, final examination and Praxis were recorded and analyzed. The basic presumption of this investigation was that the SLP Praxis Course improved performance on the Praxis. For the

analysis using Pre-test and Praxis scores, pairing to establish equivalence of these measures was required since the criterion for passing the Praxis varied with each administration due to the standardization process. For example, depending on the date the Praxis was taken by each participant, the number of questions scored ranged from 103 to 108, plus the number of score points required to pass with a scaled score of 162 (on a scale of 100 to 200) ranged from 57 to 70. An examinee receiving a passing score of 162 based on 105 questions might achieve the following distribution:

Category	Questions Scored	Points Earned
I	35	23
II	35	27
III	35	20
Total	105	70

Pairing of the final examination and Praxis was not conducted since final examination data were used solely to determine the extent to which learner outcomes were achieved and not compared to the Praxis.

To establish equivalence of the Pre-test and Praxis, the scores of each measure were paired for individual participants to equalize the number of questions counted, as well as the minimum correct answers for passing. Hence, for a given participant, questions were randomly chosen for removal from each participant's Pre-test so that both examinations ultimately consisted of the same number of questions in each content category. In addition, the number of questions required to score 162 on the Praxis was applied to the participant's Pre-test. Finally, a scaled score for the Pre-test was assigned to each participant to correspond to their Praxis score, i.e., if a score of 67 on a test of 105 questions yielded a scaled score of 162, the same formula was applied to the participant's Pre-test.

This process resulted in an adjusted Pre-test score which was used for comparison of the Pre-test to the Praxis.

Data analysis determined whether participants' scores improved because of the course, examined the magnitude of the difference in performance, as well as whether there was a relationship between scores on the various measures. Data analysis was conducted in three phases. Phase I examined whether participants' performance improved from the Pre-test to the final examination, as well as from the adjusted Pre-test to the Praxis. Three research questions guided the analyses of Phase I:

- 1) Is there a significant difference in correct answers on the Pre-test and final examination?
- 2) Is there a significant difference in correct answers on the adjusted Pre-test and Praxis?
- 3) Is there a significant difference in the pass/fail rates on the adjusted Pre-test and Praxis?

For questions #1 and #2, one-tailed t-tests for dependent samples were conducted to examine whether there were significant differences in group means with scores on the final examination being higher than the Pre-test; and scores on the Praxis being higher than the adjusted Pre-test. For question #3, a two-way Chi-Square analysis was conducted to examine the difference in the pass/fail rates on the adjusted Pre-test and the Praxis.

Assuming that participants' performance would improve from the adjusted Pre-test to the Praxis because of the course, the aim of Phase II was to mathematically determine the gain in score points added to the Praxis. Phase II examined the magnitude of increases in the total correct questions, as well as increases in the scaled score.

Phase III examined the association between the Pre-test and the Praxis. A Pearson correlational analysis was conducted on the adjusted Pre-test and Praxis scores. Typically, it is expected that high and low scores on the adjusted Pre-test should correspond to high and low scores on the Praxis (i.e., $r = 1$) in a linear relationship. The aim of the study was to reject this hypothesis

and conclude that if the SLP Praxis Course improved participants' scores, there would be no linear relationship between the variables since low scorers on the Pre-test would score higher on the Praxis.

With the assumption that some participants might have scored high on the Praxis without the course, Phase III also examined whether the same participants who scored high/low on the adjusted Pre-test respectively scored high/low on the Praxis. A Spearman Rho correlational analysis was performed for this purpose.

RESULTS

Table 1 presents the results of the t-test analysis for scores on the Pre-test and final examination. Of a total of 132 points, the mean for correct answers on the Pre-test was 87.09 with a standard deviation of 10.78. For the final examination, the mean increased to 97.78, an average increase of 10.69 points, however with a standard deviation of 16.39. The t-value of 3.6 was significant at the 0.0 alpha level which demonstrates that participants' scores significantly improved on the final examination.

Table 1. Participants' Performance on the Pre-test and Final Examination (n = 32).

	Pre-test	Final	Difference
Mean	87.09	97.78	+10.69
SD	10.78	16.39	

t = 3.6 df = 31 p = 0.00

After adjusting for equivalency, a t-test analysis was conducted on the mean scores for the adjusted Pre-test and the Praxis. As depicted in Table 2, the mean of scores for the Pre-test was 69.73 with a standard deviation of 7.39.

Scores on the Praxis increased by 3.3 points to a mean of 73.03 with a standard deviation of 8.18. The t-value of 2.3 was significance at $p = .01$. Thus, a significant increase in scores on the Praxis was evidenced by the analysis.

Table 2. Participants' Performance on the Adjusted Pre-test and Praxis (n = 32).

	Adjusted Pre-test	Praxis	Difference
Mean	69.73	73.03	+3.30
SD	7.39	8.18	

t = 2.3 df = 31 p = .01

A two-way Chi-Square analysis was conducted to determine if there was a significant difference in the pass/fail rates. Table 3 presents the pass/fail frequencies and results of this analysis. As evidenced in Table 3, for the adjusted Pre-test, nine participants passed, and 24 participants failed. Yet for the Praxis, 31 participants passed and two failed. The Chi-Square value of 30.71 was significant at an alpha level less than .05

establishing that there was a significant increase in the pass rate for the Praxis.

Also noted in the data of Table 3, while two participants failed the Praxis, 17 passed both the adjusted Pre-test and Praxis, and none failed both. This means that of the 24 participants who had previously failed the adjusted Pre-test, 14 went on to pass the Praxis.

Table 3. Pass/Fail Frequencies for Adjusted Pre-test and Praxis (n = 33).

	Pass	Fail
Pre-test	9	24
Praxis	31	2
Both	17	0

$\chi^2 = 30.71$ df = 1 p = .00

Further analysis focused on the gain in score points from the Pre-test for participants who passed the Praxis. The data of Table 4 show a gain of 3.58 questions correct with a corresponding gain in the scaled score of 9.52

points. The mean of correct answers on the adjusted Pre-test and Praxis was 69.74 and 73.32 respectively. The mean scaled score for the adjusted Pre-test was 159.83 which increased to 169.35 for the Praxis

Table 4. Gain in Questions Correct and Score Points for the Praxis (n = 31).

	Adjusted Pre-test	Praxis	Difference
Mean Correct	69.74	73.32	+3.58
Mean Scaled Score	159.83	169.35	+9.52

Closer analysis focused on the outlying scores. Areas A, B and C of Figure 1 mark the division of scores categorized as High, Moderate and Low, respectively. Area A contains the four highest scores and Area C contains the four lowest scores for both measures taken together. As depicted in Area A, only two participants scored high on both the adjusted Pre-test and the Praxis. Area C shows that four participants who scored low on the adjusted Pre-test similarly scored low on the Praxis. However, as depicted in Area A, two participants who had scored low on the adjusted Pre-test went on to score high on the Praxis.

Given that some participants might have scored high on the Praxis without the course, a final Spearman rank-order correlation was conducted to reveal whether the same participants who scored highest on the adjusted Pre-test similarly scored highest on the Praxis, and similarly for the lowest scoring participants. The Spearman analysis yielded a moderate association ($R = .43$; $R^2 = .18$) which was nonetheless significant ($p < .05$). The results of the Spearman correlation support the previous analyses that demonstrated an increase of scores on the Praxis.

DISCUSSION

Although the present SoTL methodology did not utilize a control group, the results of this investigation were confirmed through multiple analyses. Each analysis yielded significant results to support the conclusion that participants' scores improved after taking the SLP Praxis course.

Improved performance on the final examination confirm that participants learned the course content as marked by an increase of more than 10 score points. Yet, in the absence of a control group, it might be argued that it was the exposure afforded by the Pre-test which accounted for the increase.

Future SoTL investigations must examine such claim by assessing the impact of exposure to the examination in the absence of instruction.

However, the wisdom afforded by years of pedagogy supports the notion that strategic instruction promotes increased student learning outcomes. Therefore, the findings of this investigation support the logical conclusion that it was the participants learning of the course content that led to improved performance on the Praxis.

Analysis of performance on the Praxis also showed significant improvement, although after adjusting for equivalence of the Pre-test and Praxis, the observed increase was not impressive but nevertheless significant. The authors acknowledge that the adjustment may have failed to achieve exact equivalence; or the small increase may be a mathematical artifact since both means were lower due to fewer questions on the examinations. Since analysis using the mean obscures data from individual participants, observation of the raw data was useful. Inspection of the raw data revealed that, although several participants' Praxis scores decreased minimally, most participants realized positive gains of up to 17 points.

To derive a meaningful picture of the data relative to the Praxis, it was necessary to examine the pass/fail rates. Again, exact equivalence of the Pre-test and the Praxis may not have been accomplished; however a significant Chi-square analysis revealed that, while some participants passed both, a large number who failed the adjusted Pre-test subsequently passed the Praxis. Indeed, the number of participants passing the Praxis was more than triple those passing the adjusted Pre-test.

As observed, only two participants failed the Praxis. Therefore, further analysis was warranted on the scores of those who passed. The focus of this analysis was the gain in score points. Consistent with previous analyses, there was a slight difference in the mean of correct answers on the adjusted Pre-test and Praxis, but a sizeable gain for the Praxis scaled score. The lower adjusted Pre-test scaled score reflected the high frequency of participants who failed. Yet,

the Praxis scaled score exhibited a gain of approximately nine points which was seven points higher than the minimum score required for passing. This indicates that while the numerical gains were moderate, they nonetheless translated into passing scores.

The present SoTL investigation revealed that low scores on the adjusted Pre-test equated with slightly higher scores on the Praxis. This finding was consistent with those of the previous analyses, as well as the Spearman correlational analysis wherein a moderate positive correlation was similarly observed demonstrating that most participants who were low scorers on the adjusted Pre-test tended to score moderately high on the Praxis. Nonetheless, as previously observed, this moderate increase translated to a passing score for the Praxis. Evidence from correlation alone is insufficient to conclude that the course was the cause of improved scores on the Praxis. Yet together, the multiple analyses of this investigation allow the reasonable conclusion that the Praxis preparation course was effective in increasing scores on the Praxis.

CONCLUSION

While this investigation confirmed that an online independent study preparation course was effective in increasing scores on the SLP Praxis, the larger question was whether test preparation skills could be learned online in an independent study format. Two major features characterized the SLP Praxis course including: 1) its subject content focusing on the specific test-taking skills relevant to Praxis questions, and 2) multiple opportunities to apply and practice these skills. Secondary to the course content, the online

presentation allowed continuous and repeated access to the contents of the course.

The Praxis is a high-stakes, high stress examination. The SLP Praxis course represented a low-stress preparation environment. The Test-taking Skills Modules, Pre-test, final examination and Discussion Board were mandatory activities, however the participants' final grade depended not on achieving a high score on the final examination but on having completed the course activities. Thus, the online presentation provided students with a sense of autonomy and control in their learning since passing the Praxis, as opposed to passing the Pre-test and final examination was their motivation. While students were required to take the final examination, passing was not the objective as much as practicing the test-taking skills. Performance on the Pre-test was another motivator, as performance on the Pre-test indicated the amount of effort needed for learning the course material.

Naturally, further empirical research is needed to confirm these assertions and generalize findings beyond the SLP Praxis course including replication using a control group. The findings of this investigation also invite further research to examine which components of the SLP Praxis Course were most effective; the relationship between hours of usage, and repeated exposure to the activities on Praxis scores; as well as qualitative exploration of students' experiences while taking the course. The conclusion of this SoTL investigation is that a multiple component, online interactive preparation course focused on test-taking skills can conceivably be an effective study tool and provide the learning environment for improving performance on the Praxis.

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APPENDIX A

Components of the SLP Praxis Course

Continuous asynchronous access

Course components could be accessed on any electronic device whenever and repeatedly as needed within the 9-week course duration.

Test-taking Skills Modules

Eight modules narrated in voice-over PowerPoint format with printable handouts and scripts. Topics included Nature and Types of Multiple Choice Questions; Critical Thinking Skills; Question Strategies; General Strategy & Timing; Myths & Facts; Reading Speed; Guessing Strategy and Test Anxiety.

Course Reviews

16 1-hour undergraduate and graduate courses with printable lecture notes including Linguistics; Language Acquisition; Phonetics; Articulation Disorders; Neuroanatomy/Neurophysiology; Aphasia; Traumatic Brain Injury; Swallowing Disorders; Language Disorders; Voice Disorders; Clinical Methods; Differential Diagnosis; AAC; Audiology; Research; and Multicultural Awareness.

Praxis Pre-test and Final Examination

Multiple access opportunities to online Praxis simulations featuring 132 Praxis-type questions, immediate scoring, and explanations to the correct and incorrect answers.

Reading Assignments

Units from “How to Prepare for the Praxis Examination in Speech-Language Pathology” (Payne, 2001) corresponding to Test-taking Skills Modules.

Podcasts

Audible summaries of the Units from “How to Prepare for the Praxis Examination in Speech-Language Pathology” (Payne, 2001) corresponding to the Reading Assignments.

Discussion Board

Required interaction with instructor and other students for the Test-taking Skills Modules. Participants posted one or two questions from each module and reading assignment.

APPENDIX B

Learner Outcomes for Test-taking Skills Modules

- Unit 1** Nature and Types of Multiple Choice Questions
- 1) Recognize the components of a multiple-choice question
 - 2) Distinguish between Praxis questions and classroom examinations
 - 3) Explain why Praxis questions are perceived as more difficult than classroom examinations
- Unit 2** Critical Thinking Skills
- 1) Identify the stages of Bloom's Taxonomy of Educational Objectives
 - 2) Relate the stages of Bloom's Taxonomy to difficulty levels of Praxis questions
 - 3) Relate Bloom's Taxonomy to the cognitive processes needed for Praxis questions
- Unit 3** Question Strategies
- 1) Define reasoning skills as related to the requirements of Praxis questions
 - 2) Identify the specific reasoning skill as presented in a typical Praxis question
 - 3) Practice specific reasoning skills as demonstrated within Praxis questions
- Unit 4** General Strategy and Timing
- 1) Identify a general approach to taking the Praxis
 - 2) Identify strategies for pacing and time utilization
 - 3) Identify timing strategies for various types of Praxis questions
- Unit 5** Myths and Facts
- 1) Distinguish myths and realities concerning the Praxis
 - 2) Discuss how myths can be detrimental to performance
- Unit 6** Reading Speed
- 1) Discover personal reading speed for typical Praxis questions
 - 2) Discover strategies to increase reading speed
- Unit 7** Guessing Strategy
- 1) Identify situations where guessing may be used to optimize performance
 - 2) Identify guessing strategies for specific Praxis-type questions
- Unit 8** Test Anxiety
- 1) Identify symptoms of test anxiety
 - 2) Identify personal strategies to combat and cope with test anxiety

**EXPLORING PROVOCATIVE CHILDHOOD DISCOURSES AND MAKING A CASE
FOR GREATER CULTURAL COMPETENCE IN SPEECH-LANGUAGE
PATHOLOGY**

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ABSTRACT

Reductively stated, discourse is the way in which individuals communicate their knowledge of and roles within their surrounding world. Many speech-language pathologists have a unique opportunity to explore the varied and developing race, class, and gender-based discourses of our youngest clients. We argue that having a robust understanding of these topics increases cultural competence and positively impacts the ways in which we assess, diagnosis, and treat young children. In this article, implications for engaging in these provocative interactions will be provided and the need for continued training in diversity in speech-language pathology will be discussed. We also enumerate detailed recommendations to assist in the continued pursuit of greater cultural understanding for our pre- and in-service colleagues.

KEY WORDS: speech-language pathology, cultural competence, race, class, gender

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INTRODUCTION

FIELDNOTE 34: *It is late morning and a group of four-year olds are on their preschool's playground. They have been playing outside for almost thirty minutes and they are about to return to their class for lunch. William, an Asian boy, and Jeremy, a Black boy, are playing next to the school wall. Both are dressed in casual clothes, frayed blue jeans, dirt-smearred t-shirts, and sneakers. They are throwing small pebbles in the air and over a nearby fence which separates the playground from a parking lot full of cars. Several teachers have told them to stop, but the boys continue to throw their rocks. A group of three White girls in their class, Julia, Megan, and Makenzie, are sitting on the ground nearby. Julia is wearing a floral-print dress. She has nail polish on her fingers and her hair is tied back in a bow. Julia continuously plays with her hair to make sure that it is neatly arranged. Megan and Makenzie are both dressed in pants and sweaters. Their clothes are borrowed from a pastel color palette, all light pinks and lavenders. They are pretending to have a picnic and Julia is serving tea to the other girls. A white woman in her early twenties who has been trained as an undergraduate research assistant holds a video camera and moves closer to both groups to more carefully listen to their conversations.*

Julia [White, Latina girl of middle SES]: I'm a pretty princess and you get to be princesses too.

Megan [White girl of middle SES]: I don't wanna be a princess. I wanna be a queen.

Julia: Be a queen!

Megan: I am a queen.

Julia: OK, Queen Megan, do you want some tea?

Megan: Oh yes, please!

Makenzie [White girl of middle SES]: Can I have some tea? I wanna be a princess too!

Julia: Certainly! Here Princess Makenzie, here is your tea. Do you want some cookies? They are fancy! Like Fancy Nancy!

Makenzie: Thank you, Princess Julia!

Megan: Yeah, thank you!

Julia: You are most welcome!

The observer turned her attention to the boys who had just thrown rocks in her general direction.

William [Asian boy of middle SES]: Who's that?

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Jeremy [Black boy of lower SES]: I dunno.

William: Who's that?

Jeremy: Who you talkin' 'bout?

William: The White girl over there! (points to observer for emphasis)

Jeremy: I dunno, but look at that camera. She be rich!

The observer steps back from the boys as they continue to throw rocks over the fence. Several minutes later, the children are called to line up for lunch in their classroom.

This example depicts a scene that could occur on the playground of almost any early childhood education setting in the United States of America. Some children are observed during cooperative play, while others are engaged in somewhat questionable behaviors despite the attempted redirection of their teachers. Superficially, this vignette could be interpreted as an exploration of self-direction or non-compliance; however, delving more deeply, the scene becomes a more complex and nuanced illustration of children's emerging discourses related to race, class, and gender.

Starting with the grouping of these young learners, one can appreciate the division of race, ethnicity, and gender with regard to their congregation. The two non-majority boys are set to the side engaged in what many might consider an inappropriate activity. When an unknown, self-professed middle-class, White woman enters the setting, she is immediately identified as an outsider by children of non-majority status. Her presence is explicitly questioned, not by the girls of majority status who continue to play several feet from her, but by two young boys who are of differing race, ethnicity, and socioeconomic strata from the observer. Finally, a supposition regarding the observer's financial background is made simply because she is holding a recording device that the children assume denotes affluence.

In this brief episode, race, class, and gender converge in an evocative example of how these factors can be used to form the basis for discourse within a preschool setting. During a

single, brief interaction, one can observe the ways that the children are separated by both race and gender. Gender-typed activities such as the girls' tea party and the boys' rock-throwing are also appreciated. The girls wear dresses, soft-colored slacks, and nail polish. Their male counterparts wear jeans and ragged t-shirts. The children seem to play their gendered roles perfectly. Finally, assumptions of class are made by a boy of lower socioeconomic status based upon the fact that he sees a strange White woman carrying a camera he presumes to be expensive.

When speech-language pathologists (SLPs) work with young children, understanding how issues related to varied aspects of diversity (e.g., race, class, and gender) is an important part of providing effective and ethical intervention. We must appropriately address these types of discourses in our clinical practice. By closely examining these factors, we may have a better understanding of the children's needs and how to best individualize therapy. If these characteristics are not considered, providing treatment that is both sensitive and appropriate is unlikely. To be clear, although we have shared a brief vignette that explores the lived experience of a small group of children, we do not offer these findings in concert with dense microanalysis. These data are culled from a larger project that has yielded a number of formal research-based manuscripts. Instead, we offer this article as a means to address the importance of exploring young children's provocative discursive practices. We assert that there are ways in which we can better

understand our own cultural biases and the ways in which they may influence how we assess, diagnose, and treat these individuals when our clientele hail from different race, class, and gender-based perspectives than our own.

Cultural Understanding and the Speech-Language Pathologist

As SLPs, we are invested in issues related to language content and form, but it is also important to be concerned with the pragmatic skills that children are demonstrating. As such, a child's culture will have a large impact on their pragmatic interactions. As Battle (2012) stated, "Culture provides a system of knowledge that allows people of a cultural group to know how to communicate with one another" (p. 2). To best serve our clients, we must first have an understanding of how their culture influences the language they use within conversations. By increasing our own cultural competencies, we will gain a better understanding of our clients and their overall communication.

Glazier (2003) compared provocative subjects such as race, class, and gender to a children's game of "Hot Lava." The goal of this game is to avoid stepping on predetermined physical locations (e.g., tiles, stones, and cracks on a sidewalk) which represent "hot lava." By doing so, children negotiate a familiar terrain without getting burned. Glazier's metaphor typifies discursive topics that may likely "burn" practitioners. Service providers may avoid certain topics due to their discomfort. Further inquiry into these "hot lava" topics is paramount because when individuals who work with young children fail to address these important discourses, children may be inadvertently stratified within social conversations for their differences. Additionally, they may also participate in conversations that form the genesis of biases based on innocuous misinformation. By allowing these conversations to move forward without well-informed and developmentally appropriate intervention, service providers may overlook children's unique differences and fail to celebrate the diversity that each child represents.

The American Speech-Language-Hearing Association's (ASHA) Code of Ethics (2017) states that "individuals shall not discriminate in the delivery of professional services or in the conduct of research and scholarly activities on the basis of race, ethnicity, sex, gender identity/gender expression, sexual orientation, age, religion, national origin, disability, culture, language, or dialect" (p. 5). In order to comply with these regulations, we must be sensitive to the diverse needs of our clients. In doing so, we ensure provision of the most culturally appropriate services.

Multicultural appreciation and culturally sensitive practices should be employed by all SLPs; however, not all students and SLPs receive enough functional experience or coursework to provide them with skills they can apply in their clinical practice. Although many professionals implement culturally appropriate treatment strategies, research suggests that the way that some educators approach and implement instruction has not changed with regard to cultural differentiation (Formosinho & Figueiredo, 2014). We also know that the training practitioners have received varies from minimal to extensive. Some practitioners graduate from academic programs that offer dedicated coursework in cultural competence while others simply provide cursory mention of diversity within the context of more broadly focused classes (Franca & Harten, 2016; Keller-Bell, Scott, Jackson, Miller, Cox Gillespie, & Bridges-Bond, 2017). Much work has been done to increase the cultural competence of SLPs; however, more can be done to advance the progress that has already been made. In this article, we provide recommendations for pre-service training, clinical preparation when working with culturally and linguistically diverse (CLD) groups, and implications for future research.

Framing Race, Class, and Gender in Childhood Discourse

Recent ethnographic work in the area of early childhood education has suggested that young children are having conversations regarding race, class, and gender. In the field of speech-

language pathology, further inquiry into provocative topics is of paramount importance. In the following sections, we discuss the importance of engaging developmentally appropriate dialogue with young learners from diverse populations. To better situate the topics of race, class, and gender as they relate to young children's discourses, we present evidence from recent studies.

Young Children and Race

Young children engage in conversations that are implicitly and explicitly governed by diverse social variables. With regard to discourses related to race and ethnicity, children follow a common developmental trajectory, often using these factors to identify themselves and distinguish themselves from others who were different. They often use these markers to identify themselves as belonging to like groups. This falls in line with a staged perspective of racial and ethnic identity development as discussed by many Piagetian scholars (for example, Aboud, 1988, Ocampo et al., 1993; Park, 2011; Ruble et al., 2004) in which children only negotiate these discursive topics when able to sufficiently demonstrate the cognitive skills required to negotiate such advanced and abstract concepts. Conversely, Maldonado (2013) argued that children's discourses may expand and evolve given their social interaction with peers and teachers who are both alike and different in their racial and ethnic constitutions. His assertions speak to the complex sociocultural development of social positions and academic standings that may occur within classrooms (McVee, Brock, & Glazier, 2011).

As discussed by Lynch and Hanson (2011), service providers should consider the race of their client and the ways in which their lived experiences have impacted their language development. SLPs may consider the societal and educational barriers, in addition to the institutionalized racism, that may have affected the young children and family members with whom we work. By identifying the ways in which our young clients have been affected, we can develop functional therapy specifically tailored to meet our client's needs.

SLPs must also consider their personal biases in order to ensure that those views do not impact the ways in which they assess, diagnose, and treat their young clients. As Ebert (2013) has noted, White privilege can be loosely defined as the freedoms associated with this race. Many individuals lack the awareness that their race has influenced the ways in which society has responded to them. As Ebert (2013) further states, "Individuals must engage in critical self-reflection before they can understand and work effectively with others" (p. 61). We must consider how our own race has either benefited us or negatively impacted the ways in which we make therapeutic decisions.

Acknowledging Socioeconomic Status (SES)

According to Derman-Sparks, Amihault, Baba, Seer, and Thompson (2009), the access that children have to quality food, housing, and healthcare has a direct effect upon their academic success. Young children who live in poverty may find it more difficult to focus in school if they are tired and hungry and those who lack access to healthcare may miss more school due to increased illnesses left untreated. This can negatively impact their ability to learn. Additionally, they noted that young children also develop a "value-based biased message about socioeconomic class" (p. 2). Hosp (n.d.) further explained that the effects of poverty may provide a reason as to why children from this class were initially performing below their peers as *Response to Intervention* was evaluated. Children who grew up in homes of poverty were likely to have weaker literacy skills than those growing up in homes with higher income. Although literacy skills may be weaker in children living in poverty, pragmatically speaking, preschool-aged children are aware of what they have and compare their standings to that of their peers. For example, a child's socioeconomic status may become even more apparent during the holidays as the toys and presents that families are able to purchase will vary. Even children as young as four and five years old have a basic understanding of financial exchanges, knowing that money must be used to receive most goods or services (Hosp, n.d.).

Cartmill (2016) stated that “children from poor families typically know fewer words when they enter school than children from wealthy families” (p. 185). The language that children are exposed to before they begin school has a direct relationship to the frequency and ease with which they learn new vocabulary. The disparity in literacy skills between children from lower-class homes and middle- and upper-class homes is known as Word Gap, largely contributing to what many scholars refer to as the Academic Achievement Gap.

Word Gap was comprehensively explored by Hart and Risley (1995) as they examined familial interactions and language skills of children as they aged from 7 months to 3 years of age. Results indicated that children from homes supported by welfare had a much lower vocabulary size, fewer utterances per hour, and fewer total number of different words per hour compared to children from middle- and upper-class homes. The language skills of these children at the age of three were also a strong indicator of their later academic successes. Initial estimates suggested that children from low SES backgrounds could possibly hear fewer than 30 million words in combination than their more affluent peers.

More recent scientific investigation has explored the Word Gap phenomenon, and although the estimated difference between vocabulary knowledge between SES classes has been significantly reduced, scholars such as Wasik and Hindman (2015) suggest the disparity in semantic knowledge between children from low-income households and those from middle- and upper-class homes is still sizeable and of concern. They argued that children from middle- and upper-class homes were exposed to more vocabulary and language and were able to utilize that knowledge in their daily interactions. As SLPs working with young children, it is crucial that we better understand the socioeconomic statuses of our clients and how they may impact language and literacy skills. Having this enhanced understanding will allow us to scaffold their learning, providing them with exposure to unfamiliar vocabulary, which

can increase their language and literacy skills now and in the future.

As noted by Escalara (2009), young boys and girls play together until early preschool, but then they begin to socialize in gender-specific ways. At this point, children become more aware of gender stereotypes. According to Leaper (1991), gender differences can be observed in children as young as three years of age. In terms of pragmatics, preschool-aged boys communicate with direct and demanding strategies while girls of preschool age generally communicate in a way that is more polite and cooperative. Young girls will often be seen caring for their classmates in a maternal and nurturing way, while the boys are playing in a more “rough and tumble” fashion. As SLPs, it is important that we are aware of these varied types of discourses and communicative patterns to ensure we engage in dialogue that positions our clients as equals.

With regard to our professional constitution, ASHA (2016) indicates that only 3.7% of currently certified SLPs are male. Members of some cultural communities may find engaging with one gender more challenging than working with the other. For example, families with Middle Eastern cultural perspectives may prefer that therapy is rendered by a clinician of the same sex as the service recipient (Campbell-Wilson, 2012). Female and male SLPs will both benefit from researching cultural practices and expectations prior to meeting the young child with whom they will work. SLPs should not be afraid to ask thoughtful questions of their clients and their family, to ensure that everyone involved is comfortable and feels respected.

For some SLPs, the practices of their client’s family may be difficult to understand and, at times, observe. Lynch and Hanson (2011) discuss how challenging it may be for service providers to observe the practices of their client’s family. Some cultures view the men of the family as the leaders, enforcing strict adherence to this role by the women in the family. The SLP may attempt to advocate for those women; however, this may be seen as an offense to the family. Insults, even if

unintentional, can damage the working relationship between the SLP and the child. Being proactive and having an increased awareness of how gender may impact therapy is crucial for SLPs in today's diverse society.

Implications for Practice in Speech-Language Pathology

In this section, we present two practical implications for our field when working with diverse groups of children. Specifically, we note a need to a) change clinical practices; and b) more fervently promote diverse training and issues of diversity in speech-language pathology.

Changing Clinical Practice

The literature has traditionally indicated that schools can be a breeding ground for racism, classism, and sexism (Van Dijk, 1997; Wodak, 2001; Fairclough, 2010); therefore, it is of great importance for SLPs, administrators, educational policy makers, and researchers to become more aware of the discourses that serve to stratify learners and position them in negative ways. It is equally critical for them to learn ways to interrupt this process and scaffold a more balanced discussion between learners of all varieties. To do so, we argue that educational perspectives, policies, and procedures must change.

We present three recommendations that will make the social and academic discourses of race, class, and gender more easily navigated within our clinical practice. First, we suggest that there is a need to delve into these issues, even with the youngest learners, explicitly and without reservation. With reference to Glazier (2003), we argue that by demystifying these topics at an early age, we can mitigate some of the apprehension learners feel about these "hot lava" topics. Race, class, and gender should be discussed in developmentally appropriate ways as children and SLPs engage in meaningful ways. As supported by ASHA's Multicultural Issues Board (2001), services must be presented in a way that is respectful of and responsive to an individual's race, intellectual ability, ethnic

background, and religious beliefs. These aspects of one's culture must be acknowledged by SLPs in their clinical practice. These topics can, and should, be targeted by actively and effectively using reading materials and multi-modal media that specifically target diversity in all of its forms.

Acceptable behaviors surrounding developmentally appropriate discourse and inviting topics of diversity into our clinical practice should be welcomed. Parents can be invited to discuss their rich and varied cultural experiences with young learners. Their experiences should be shared with eager minds and questions about diversity and difference should be met with developmentally-appropriate responses that privilege and respect the unique perspectives of all families with whom we work. Ultimately, if this pedagogical approach were to be used extensively, diversity could truly be celebrated rather than vilified in the classroom and more global communities.

Next, we draw upon works of Critical Race Theory and education (e.g., Ladson-Billings, 2014; Ladson-Billings & Tate, 1995; Leonardo, 2012) and we recommend that SLPs actively establish a safe space in their therapy room where presumed norms can be examined and explored -- a place where critical multiculturalism can be engaged. Such interactions would foster a greater appreciation for non-majority students and allow for free and unencumbered discourse between adults and children, again demystifying differences and removing the stigma of race, class, and gender-based differences. This approach may serve to establish more democratic and equitable therapy rooms and ultimately, surrounding communities (Ladson-Billings, 1994; Tyson & Park, 2006).

Last, we endorse the use of culturally relevant pedagogy (see Ladson-Billings, 2012; Gay, 2000) within our clinical practice. This approach to social and academic interaction with a diverse group of learners would establish an atmosphere of acceptance and appreciation for differences within our therapeutic settings. Culturally relevant therapy utilizes student's cultural experiences in an effort to "maintain it

[student culture] and to transcend the negative effects of the dominant culture” (Ladson-Billings, 1994, p. 17). Recognizing the varied forms of discursive practice established between race and ethnicities, genders, and social and economic classes would allow SLPs to celebrate the differences without resorting to their problematization and ultimate stratification.

Understanding the subtle differences in linguistic form, whether related to dialectal variation or narrative formation, would ultimately lead to SLPs establishing a broader perspective of acceptance for these differences within the therapeutic setting. According to Harris (2010), speech-language pathology students require additional training to ensure that they are better prepared to assess and diagnose students of “broad diversity of the American population” (p. 18). This is pertinent to all practicing SLPs as well. Through comprehensive training programs, we hope the number of students over- and under-identified due to an increase in students who are bilingual, bicultural, and bidialectal will decline. Additionally, by positioning these varied discourses as equitable, students and SLPs, irrespective of their backgrounds, would be validated within the construction of the therapy room and peer culture within educational and therapeutic settings (Corsaro, 2003).

Continued Diversity Training within Speech-Language Pathology

The need to moderate discourses regarding race, class, and gender is especially important for service providers in our field. Speech-language pathologists will serve children of varied races, class, and gender expressions. ASHA (2013) clearly states that regardless of a practitioner’s “personal culture, practice setting, or caseload demographics, professionals must strive for culturally and linguistically appropriate service delivery” (Discussion section, para. 1). ASHA also points out that “cultural competence is as important to the successful provision of services as are scientific, technical, and clinical knowledge and skills” (Summary section, para. 1).

Issues pertaining to racial and ethnic distinction, as well as class and gender, can be difficult to negotiate for a variety of reasons. More needs to be done to support the development of service providers in our field who are sensitive, respectful, and knowledgeable regarding issues of diversity. Riquelme (2013) argued that we first need to consider our own personal biases. It is helpful to explore them as we need to understand how our personal culture and biases influence the decisions that we make while providing services. When we promote change in ourselves, we encourage appropriate reflection on how to provide services that are culturally sensitive.

We suggest three practices that would enhance multicultural sensitivity and increase the potential for fair and equitable discourses to be cultivated within speech-language pathology. These recommendations include a) specific pre-service/in-service training and advanced coursework in diversity that should be mandated for speech-language pathology students and practicing SLPs; b) on-going education that explores the needs of a changing American demographic; and c) clinical settings that focus upon work with diverse clientele.

First, formal education for speech-language pathology students, and continuing education for current SLPs, should speak plainly to the fact that diversity training is a necessity, not a luxury. We know that programs that earn accreditation by ASHA must provide multicultural training for speech-language pathology students. Historically however, there has been a somewhat unbalanced discourse in general education. Paine’s study from 1989 examined teacher education students, who were mostly White and English-speaking, and found that diversity was viewed as a problem rather than a resource. In an earlier work, Vivian Paley’s (1979) groundbreaking, *White Teacher*, comprehensively discusses the realities and cultural conflicts that may occur when racial disparities are manifested within the classroom. More contemporaneous literature (e.g., Zhang, Katsiyannis, Ju, & Roberts, 2014) suggests that non-majority students and their families are still problematized by teachers and suppositions are

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generally made that minority communities are generally uninvested and disinterested in successful participation within educational discourses.

As stated by ASHA (2016), of those who identified their race and ethnicity, only 12% of currently certified SLPs consider themselves of Hispanic or Racial minority origins. That means the overwhelming majority of certified SLPs (88%) consider themselves to be from majority groups. Diverse clinical experiences can provide these SLPs with meaningful information to engage with those clients who are culturally and linguistically different than the majority of ASHA's constituency. Despite the widespread understanding that culturally and linguistically diverse clients are becoming more prevalent among those receiving speech and language services, pre-service and in-service programs may still be prone to problematizing these individuals rather than celebrating their unique differences (Oswald, Coutinho, Best, & Singh, 1999; Rueda & Windmueller, 2006; Waitoller, Artiles, & Cheney, 2010).

We suggest that SLPs might be better equipped to have explicit conversations related to race, class, and gender if provided with the tools necessary during their training and continuing education. Such efforts may help to advance conversations within our clinical practice while positioning all clients as capable and valuable members of our communities.

ASHA (2001) acknowledges how important it is for all professionals to consider how an individual's culture and language acquisition impacts the ways in which services should be provided. They advocate for the use of culturally appropriate therapy to ensure clinicians are meeting the needs of their consumers, regardless of their race, class, or gender. Every accredited academic program should explicitly address multicultural issues in communication sciences and disorders; however, the opportunity for trainees to engage with people different than themselves is often limited. Therefore, further prospects for working with diverse populations should be promoted in order to honor the positive changes that have already

been implemented to further support the provision of culturally appropriate services. Previous research must also be acknowledged to promote this claim of culturally and linguistically appropriate services to the students in those schools.

Second, individuals who choose to work with young children should be made aware of rapidly shifting demography in America. Pre-service training should not be the end of the education related to diversity in speech-language pathology. Once employed, professional development opportunities and on-going training that addresses the advancing plurality of American students should be required so as to best serve the needs of our diverse learners. Active practitioners should be constantly questioning their own positions within clinical environments and critically assessing the identities and ideologies of students who are of differing races and ethnicities. Reflective practices regarding race, class and gender would also be appropriate so that allegiance to long-standing, and possibly inaccurate, perceptions and beliefs about diverse students would not lead to their subjugation within our clinical practice.

Third, SLPs should be encouraged to participate in clinical practice with diverse learners of varied racial, class-based, and gender-related differences whenever possible. Of course, this leads to an important point. There may not be adequate training available in this academic realm. Preiss (2008) argued that students should have clinical competence with diverse populations. Students of speech-language pathology must have the ability to understand the impact that culture has on their client's ability to communicate.

Speech-language pathologists who are trained in communities that are diverse develop unique skills compared to those who are trained with more homogenous populations. Students of our professions should be offered diverse opportunities in order to increase their cultural awareness. Individuals who seek out these opportunities should be recognized and praised for their desire to advance the provision of

appropriate services through culturally competent practices.

Lynch and Hanson (2011) wrote that one's cultural competence is pertinent to not only our personal lives but our professional lives as well. It is imperative that all SLPs receive training in this area, not only during their graduate coursework, but throughout their career with continuing education. Battle (2012) stated that SLPs "must understand culturally appropriate behaviors from many different cultures because they may otherwise misinterpret behaviors that could lead to misdiagnosis" (p. 132).

Núñez (2000) asserted that clinicians should also explore cross-cultural efficacy. Cross-cultural efficacy relies heavily on the service provider's understanding that neither their culture nor their patient's culture is more accurate than the other. Focusing on cross-cultural efficacy creates a third culture that undergirds the interactions between SLPs and their clients. This allows us to better understand how our own culture

impacts our clients and the ways in which we serve them.

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YOUNG AFRICAN AMERICAN ADULTS WITH APHASIA: A CASE SERIES

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ABSTRACT

Little is known about African Americans with aphasia. Virtually no studies have examined the impact of aphasia in young adult African Americans, even though stroke, the most common cause of aphasia, occurs far more frequently in African Americans at younger ages than other racial-ethnic groups. Aphasia occurring at younger non-traditional ages has substantial implications for survivors' quality of life, friendships and family-caregiver relationships. The objective of this case series report is to explore the impact of aphasia in African Americans with onset of aphasia before the age of 65. The observations of the cases will be discussed in the broader aphasia literature while also considering unique implications for African Americans.

KEY WORDS: Aphasia, African Americans, Stroke

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INTRODUCTION

Stroke in African Americans

Each year approximately 15 million individuals are diagnosed with strokes worldwide and 10 million of those will either die or be left with long term disability (World Health Organization, 2012). In the United States (US) an estimated 795,000 Americans experience strokes annually (Benjamin et al., 2018). There is evidence that stroke is on the decline in the US among Non-Hispanic Whites, however a corresponding decline has not been observed in African Americans (Kleindorfer, 2010). Studies have shown disparities in the risk of stroke between African Americans and Whites. White et al. (2005) found an age-adjusted risk of stroke of 191 per 100,000 in African Americans compared to 88 per 100,000 in Whites (White et al., 2005). Similarly, Howard et al. (2001) found the age-sex adjusted African American/White relative risk (RR) of stroke to be 1.51. Additionally, the age-sex African American/White adjusted relative risk of stroke at younger ages (ages 45-54) is substantially higher at a rate of 4.02 (Howard, Kleindorfer, Judd, McClure, Safford et al., 2011). Established factors associated with the disproportionate racial-ethnic risk of stroke at an earlier age include excess ratios of hypertension and diabetes, obesity, and socioeconomic factors (Howard, Cushman, Kissela, Kleindorfer et al. 2011; Huxley, Bell, Lutsey, Bushnell et al. 2014).

Aphasia in African Americans

Aphasia is a post-stroke condition that negatively impacts a stroke survivor's expressive and receptive language skills as well as overall communication ability (American Speech-Language-Hearing Association, 2018). A recent report indicated there are over 2.5 million Americans living with aphasia (Simmons-Mackie, 2018). Approximately 18% of all stroke survivors are discharged from US hospitals with aphasia (Ellis, Hardy, Lindrooth, & Peach, 2018). Similar to general stroke outcomes indicating higher risk of stroke among African Americans at younger ages, rates of aphasia were also higher among African Americans at younger ages. Ellis et al., (2018)

found the rate aphasia of stroke survivors age 19-44 was 7.7% in African Americans compared to 2.4% in Whites. Higher aphasia rates were also observed at ages 45-54 with a reported rate of 14.9% in African Americans and 5.8% in Whites.

Worse aphasia clinical outcomes have also been observed in African Americans. For example, in an early study using the Porch Index of Communicative Ability (PICA), a multidimensional test of aphasia designed to examine (comprehension, expression, reading, gesture, and writing), Wertz and colleagues (1997) found that following 48 weeks of language treatment, African Americans, who did not differ from Whites in initial severity of their aphasia, performed significantly worse than Whites on the Graphic and Gestural subtests of the PICA. Similarly, Ellis and Peach (2016) found worse aphasia outcomes among African Americans when compared to Whites in a study of 290 persons with aphasia (PWA). African Americans exhibited lower scores (4.8) on the 15- item Boston Naming Test compared to Whites (6.8) even after controlling for baseline differences in age, education, duration of aphasia and year of treatment ($p=.002$). In a second study, designed to comprehensively examine PWA language skills using the Western Aphasia Battery-Revised (WAB-R), Ellis & Peach (2017) also found lower word fluency (5.5 vs 7.6; $P=.015$), auditory word recognition (49.3 vs 53.3; $P=.02$), and comprehension of sequential commands (43.7 vs 53.2; $P=.017$) among African Americans when compared to Whites even after adjusting for age and years of education. Finally, Molrine & Pierce (2002) found racial differences in aphasia test subtest scores although they did not find differences in total scores of aphasia impairment.

Despite substantial evidence of African Americans having stroke and post-stroke aphasia at younger ages, higher aphasia rates and worse aphasia clinical outcomes, the study of aphasia in African Americans has been limited (Ellis, 2018). Even less attention has been given to young African Americans (<age 50) with stroke who are diagnosed with aphasia even though they are more likely to experience stroke and aphasia at younger ages (Ellis, Hardy,

Lindrooth, & Peach, 2018). There is also evidence of differences in stroke subtypes that potentially contribute to differences in aphasia rates and aphasia outcomes. The findings of the Northern Manhattan Study indicated that African Americans had higher rates of all stroke subtypes when compared to Whites (White et al., 2005). Differences were also observed in a study by Song, Burgess & Kidwell (2012) who found racial-ethnic differences in cardioembolic stroke and small vessel disease in a comparison between African Americans and Whites. The impact of these differences on rates of aphasia and aphasia outcomes among African Americans is not clear.

Regardless, little is known about aphasia in African Americans and substantial study of this population is needed. Because African Americans are younger at stroke and aphasia onset, they are more likely to live longer with the negative impact of aphasia when compared to traditionally aged stroke survivors (\geq age 65). To date, there is little available data regarding the presence and impact of aphasia in young African Americans adults with stroke. Therefore, the aim of this paper is to profile aphasia in three young African American adult stroke survivors with aphasia. The paper will use a case series approach to highlight demographic characteristics and aphasia impairment observed on standardized assessments. The paper will conclude with a discussion of observations of the three cases and exploration of issues potentially unique to young African Americans adults living with aphasia.

METHODS

The case series approach utilized in this study was organized around the Living with Aphasia: Framework for Outcome Measurement (A-FROM). A-FROM was developed to account for the impact of aphasia on diverse life areas in PWA (Kagan et al. 2008). A-FROM explores the impact of aphasia from the perspective of the following domains: severity of aphasia, communication and language environment, participation in life situations, and personal identity, attitudes and feelings (Kagan et al., 2008; Kagan 2011). A-FROM was designed to consider the impact that aphasia has on life areas

important to PWA as well as their families (Kagan et al., 2008). Severity of aphasia was measured with the Western Aphasia Battery-Revised (Kertesz, 2006) and the National Outcomes Measurement System (NOMS) (American Speech-Language-Hearing Association, 2012). The WAB-R is a standardized aphasia assessment that derives an aphasia quotient (AQ) based on measures of expressive language, receptive language, and repetition. NOMS utilizes a series of seven-point assessment scales to obtain functional abilities and over multiple time points. A score of one indicates minimal or no ability whereas a score of seven indicates independence.

Information about the PWA's communication and language environment was obtained from semi-structured interviews of the PWA/caregiver who responded to semi-structured interview questions. Information about the PWA's participation in life situations and personal identity, attitudes and feelings was also examined using semi-structured client/caregiver interview questions and the ASHA Quality of Communication Life scale (ASHA-QCL) (Paul, Frattali, Holland, Thompson, Caperton, & Slater, 2005). The ASHA-QCL includes 18 questions designed to measure the PWA's perception of quality of communication. Each question uses a visual analog scale with five equally spaced hash marks for scores of 0-5. The word "yes" is located at the top of the five-point scale and the word "no" is at the bottom. A mean overall score is calculated based on the average of the first 17 questions. A separate score is calculated for question #18 "In general, my quality of life is good". In this study the mean total score and scores for select questions that provide information on participation in life situations and personal identity, attitudes and feelings are reported.

Case 1

Case 1 is a 33 y.o. male who was first admitted with a diagnosis of left frontal subdural empyema in October 2015. After a two-day complicated hospital stay, Case 1 received a left frontal craniotomy for evacuation of left frontal subdural empyema.

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Initial study visit: 32 months post-onset of illness.

Education/employment: High school education; food service worker

Severity of Aphasia: WAB AQ 54.2. Broca's aphasia with moderate apraxia of speech. NOMS verbal=3; NOMS comprehension=4.

Communication and Language Environment: Lives with mother but spends his days with his elderly grandmother. Caregiver/parent reports very limited attempts to communicate in any environment.

Participation in Life Situations: Romantic relationship and all friendships at the time of his hospitalization ended within months of injury. Case 1 is the father of a young child but is unable to actively participate in the child's care due to communication issues. Case 1 has right hemiplegia and is not able to drive. Transportation is provided by mother, grandmother or transportation service for rehabilitation needs. Case 1 and caregiver report no engagement in community-based events due to communication issues and hemiplegia. Select questions on the ASHA-QCL indicated very minimal participation in life events. Case 1 reported a score of 5/5 on telephone use but score of 0/5 on all other questions related to participation (See Table 1)

Personal identity, attitudes and feelings: Select questions on the ASHA-QCL indicated mixed ratings of personal identity, attitudes and feelings. Case 1 reported a score of 5/5 on questions related to "like myself", "see the funny things of life", "confident I can communicate" and "speaking for myself". In contrast, scores of 0/5 were reported on "role in family remaining the same" and "people understand me when I talk" (See Table 1).

Mean ASHA-QCL score and general rating of quality of life: Case 1 received a mean ASHA-QCL score of 1.6/5 and score of 5/5 on quality of life.

Table 1. Scores obtained on the WAB-R and NOMS.

Measures	Case #1	Case #2	Case #3
WAB-R AQ (Mean/SD)	54.2	26.2	13.6
• Information content	5	2	0
• Fluency, grammatical competence and paraphasias	4	2	0
Spontaneous Speech Total Score	9	4	0
• Yes/No	51	54	57
• Auditory word recognition	55	58	7
• Sequential commands	4	36	4
Auditory Verbal Comprehension Total Score	110	148	68
Repetition Total Score	52	3	0
• Object naming	57	6	0
• Word Fluency	5	0	0
• Sentence completion	8	2	0
• Responsive speech	4	6	0
Naming and Word Finding Total Score	74	14	0
NOMS Verbal	3	1	1
NOMS Comprehension	4	5	2

Case 2

Case 2 is a 43 y.o. male who was first admitted with a diagnosis of left middle cerebral artery stroke in May 2018. Case 2 received tPA and a thrombectomy to remove a middle cerebral artery thrombosis.

Initial study visit: 4 months post-stroke onset.

Education/employment: High school education; electrical helper.

Severity of Aphasia: WAB AQ 26.2. Broca’s aphasia with severe apraxia of speech. NOMS verbal=2; NOMS comprehension=5.

Communication and Language Environment: Lives with his parents and is the father of an adult child and a middle school child. He has

very limited communication due to severe apraxia of speech

Participation in Life Situations: Romantic relationship and all friendships at the time of his hospitalization ended shortly after his stroke. Case 2 is not able to drive due to his severe communication deficits. All transportation is provided by his parents for all needs. Case 2 and parent/caregiver report some engagement in local neighborhood events where he is known but does not communicate. Select questions on the ASHA-QCL indicated reduced participation in life events. Case 2 reported a score of 5/5 on “like to talk to people” and scores of ~5.0 on “stay in touch with people” and “get out of the house to do things”. Case 2 does not use the telephone and does not find it easy to communicate (scores=0). (See Table 1)

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Personal identity, attitudes and feelings: Select questions on the ASHA-QCL indicated mixed ratings of personal identity, attitudes and feelings. Case 2 reported a score of 5/5 on “like myself”, “see the funny things of life” and “confident I can communicate”. Lower scores were reported on all other select questions (See Table 1).

Mean ASHA-QCL score and general rating of quality of life: Case 3 received a mean ASHA-QCL score of 3/5 and score of 1.7/5 on quality of life.

Case 3

Case 3 is a 35 y.o. female who was first admitted with a diagnosis of left middle cerebral artery and left posterior cerebral artery stroke in May 2018. Case 3 received tPA and a thrombectomy after admission. A few days after admission, Case 3 underwent a comprehensive craniotomy to reduce brain edema and herniation.

Initial study visit: 6 months post-stroke onset

Education/employment: College education; nurse.

Severity of Aphasia: WAB AQ=13.6. Global aphasia with severe apraxia of speech. NOMS verbal=1; NOMS comprehension=2.

Communication and Language Environment: Case 3 lives with her husband and small children. She has very limited communication that consists of one perseverative word produced in different intonations. She spends time in her home and her mother’s home daily.

Participation in Life Situations: Case 3 was married at the time of evaluation. Case 3 is not able to drive due to an inability to ambulate and a right hemiplegia. All transportation is provided by her mother and husband. Case 3’s parent/caregiver reports some engagement in the community but she is unable to communicate in those settings where she is a passive bystander. Select questions on the ASHA-QCL indicated reduced participation in life events. Case 3

reported a score of 5/5 on “people include me in conversations” and “using the telephone”. In contrast, scores of 0/5 were reported on “meet the communication needs of job/school” and “getting out of the house to do things” (See Table 1).

Personal identity, attitudes and feelings: Select questions on the ASHA-QCL indicated mixed ratings of personal identity, attitudes and feelings. Case 3 reported a score of 5/5 on “like myself” and “confident I can communicate”. Scores of 4/5 were reported on “role in the family the same”, “see the funny things in life”. Lower scores were reported on all other select questions (See Table 1).

Mean ASHA-QCL score and general rating of quality of life: Case 3 received a mean ASHA-QCL score of 3.2/5 and score of 2.5/5 on quality of life.

Table 2. Mean score on the ASHA-QCL and scores for select questions.

Measures	Case #1	Case #2	Case #3
Mean Total ASHA-QCL score (Q1-Q17)	1.6	3.0	3.2
Selection question about participation in life situations			
Q1. I like to talk to people	0.0	5.0	5
Q2. It's easy for me to communicate	0.0	0.0	2.5
Q5. I meet the communication needs of my job/school	0.0	2.5	0.0
Q6. I stay in touch with family/friends	0.0	3.8	2.5
Q7. People include me in conversations	0.0	2.5	5.0
Q9. I use the telephone	5.0	0.0	5.0
Q15. I get out of the house and do things	0.0	3.8	0.0
Select questions about personal identity, attitudes and feelings			
Q3. My role in the family is the same	0.0	1.1	4.0
Q4. I like myself	5.0	5.0	5.0
Q10. I see the funny things in life	5.0	5.0	4.0
Q11. People understand me when I talk	0.0	1.7	3.5
Q14. I am confident I can communicate	5.0	5.0	5.0
Q17. I speak for myself	5.0	3.8	2.5
Q18. In general my quality of life is good	5.0	1.7	2.5

DISCUSSION

The findings of this case series highlight the complexity of issues for young African Americans adults with aphasia. Aphasia and its primary cause, stroke, is more common in older adults who are at very different life stages. Experiencing aphasia in the sixth decade of life and beyond is quite different than experiencing aphasia in one's third or fourth decade regardless of racial-ethnic background. However, there are some aspects of living with aphasia as a young African American that may require novel consideration for both clinical practice and future research directions.

Utilization of the A-FROM conceptual framework in this case series offers a more detailed examination and consideration of life issues that may be unique to young African Americans adults with significant disability. This discussion has been designed to explore several key issues while placing them in the context of the greater aphasia literature.

Long Lives with Communication Disability

The three cases reported in this paper all presented with significant communication disability. One PWA presented with very severe aphasia, one severe and one moderate aphasia

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based on WAB-R AQ scores (Kertesz, 2006). Significant communication disability occurring at a young age has the potential to substantially and negatively impact all areas of life. Many lose their ability to be gainfully employed resulting in reduced self-worth and self-identity (Ganzfried, 2018). At the same time, young adults who experience strokes frequently live long lives and therefore those with aphasia will live long lives with aphasia and the consequences of aphasia. Rutten-Jacobs and colleagues (2013) found the 20-year death rates of stroke survivors exceeded the general population. However, approximately 73% of those with ischemic stroke and 84% of those with intracranial hemorrhage were alive at 20 years. The long-term consequences of living many years with aphasia are social isolation and disconnection from society due to communication disability (Fotiadou, Northcott, Chatidaki & Hilari, 2014; Hilari & Northcott, 2017). Depression (which can occur in 30 to 50% of stroke survivors) and loneliness are additional consequences of aphasia that occur over time (Ayerbe, Ayis, Crichton, Wolfe, & Rudd, 2014; Ganzfried, 2018; Northcott, Moss, Harrison & Hilari, 2016). It is important to note that loneliness negatively influences neurological recovery and potentially aphasia recovery (Cacioppo, Capitanio, & Cacioppo, 2014).

Long-Term Aphasia Rehabilitation: Satisfaction and Care Concerns

Young PWA frequently have long-term aphasia rehabilitation needs. Consequently, they are likely to experience a succession of evaluations and discharges from therapy over a longer period as they try to improve their communication skills. Young adults with aphasia although not working and having work-related private health insurance, have options to receive rehabilitation services. Adults under the age of 65 with disabilities can benefit from Medicare and Medicaid services for their rehabilitation needs (Center for Medicare Advocacy, 2018). Moreover, rehabilitation services for young adults with disabilities for some conditions can be covered under Medicare and Medicaid even when they are only expected to maintain or slow deterioration (Center for

Medicare Advocacy, 2018). Obtaining such services can be difficult and require multiple appeals and can take up to two years, however these options outweigh the greater likelihood of working age African Americans being uninsured (Skolarus, Jones, Lisabeth, & Burke, 2014). To date, few studies have examined the impact of Medicare and Medicaid services for aphasia rehabilitation in young adults with aphasia and therefore, the benefit and impact of those programs are not entirely clear.

A secondary issue related to aphasia rehabilitation care is related to satisfaction with aphasia rehabilitation care. There is evidence that African Americans with aphasia report dissatisfaction with speech-language pathology (SLP) services due to limited frequency of visits even when they experience persisting communication difficulties (Mahendra & Spicer, 2014). Mahendra and Spicer (2014) found that African Americans experienced dissatisfaction and negative interactions with some clinicians. Some clients reported concern about a lack of effort and innovation during treatment as well as reduced visit frequency despite an urgent need to improve subtle communication deficits that precluded their return to employment. Others reported condescending attitudes and negative comments that were not encouraging or helpful. These findings have broader implications for young African Americans adults with aphasia who are likely to need long-term SLP services.

Reduced Life Participation and Changes in Personal Identity

Aphasia has been likened to “identify theft” in that the communication limitations imposed by the disorder frequently rob the PWA of their ability to participate in life as they once did and is associated with major disruptions in their sense of personal and social identity (Shadden, 2005). A substantial focus has recently emerged related to life participation among individuals with aphasia. The Life Participation Approach to Aphasia (LPAA) states that “regardless of the stage of management, LPAA emphasizes the attainment of re-engagement in life by strengthening daily participation in activities of choice” (p.1) (Chapey et al., 2000). In this case series of young adults with aphasia, life

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participation appears to have diminished greatly or become generally non-existent for the participants. Information from the ASHA-QCL indicated the most obvious contributors to reductions in participation were related to communication. Each participant reported very low scores on ease of communication, being unable to meet the communication needs of their previous job, being able to use the telephone and getting out of the house. Interestingly, Case #1 reported 5/5 (“yes”) on being able to use the telephone however his current skills likely only allow him to listen as he is not able to verbalize efficiently enough for telephone use. Information from the semi-structured interviews also indicated that each PWA either lived with or was supported by parents who were middle-aged employed individuals. Consequently, each stroke survivor was severely limited by their inability to drive and relied on parents for their transportation needs. The severity of the communication deficits also precluded involvement in activities common for young adults. In summary, each young adult described in this paper was mainly relegated to engagement in aphasia rehabilitation or their primary home setting.

The observations of limited participation are of great concern. PWA are less concerned about the number of social activities they are involved in as they are general engagement in social activities (Dalemans, Witte, Wade, & van den Heuvel, 2010). The PWA in this care series reported very little if any engagement in social activities most notably the result of severe communications deficits. Daleman et al. (2010) found that many PWA report strong social networks and contacts and engagement in social activities prior to the onset of aphasia. However, many of their pre-aphasia activities declined dramatically after the onset of aphasia due difficulties associated with needing to plan what they say and the general tempo of conversations. Consequently, their new communication problems cause many to feel they no longer belong in their pre-aphasia social groups and activities (Dalemans, Witte, Wade, & van den Heuvel, 2010). It is possible that the disengagement of pre-aphasia relationships has a different impact on reports of life satisfaction and quality of life in young adults with aphasia

than traditional aged stroke survivors with aphasia. Research designed to compare age-related differential impact of aphasia on participation is required to adequately test this hypothesis.

Disruption of Friendships

Most adults, whether young or old, value friendships. Friendships create a sense of acceptance and belonging to age-peers. Aphasia is a condition known to disrupt or eliminate friendships because many PWA are unable to express their thoughts in an efficient and timely manner or be able to follow conversations (Fotiadou, Northcott, Chatidaki & Hilari, 2014; Northcott & Hilari, 2011). Vickers (2010) noted that one year post-stroke, PWA living at home reported a 64 percent reduction in their contact with friends while Hilari and Northcott (2006) observed that 30 percent of PWA stated they had no friends. The loss of friendships can contribute to significant depression and loneliness (Northcott, Moss, Harrison & Hilari, 2016). In this case series, each PWA reported no significant friendships with age-peers. It is likely the dissolution of friendships that exists at the onset of aphasia was related to the severity of their communication disability. Some PWA report an unwillingness to participate in social relationships due to their communication issues which reduce their ability to receive emotional support (Fotidou et al., 2014). The observed impact of aphasia on maintaining or initiating friendships is likely the same regardless of race-ethnicity and the observations here are not unique to African Americans. It is more likely that the negative consequences are related to age given that post-stroke aphasia is primarily a condition of older adults. Consequently, there are fewer younger age-peers with aphasia than would be available for support and encouragement through aphasia support groups which consists of mostly older adults. Friendships are complicated regardless of age when communication issues are not present. The findings here show that aphasia-related communication issues disrupt and end friendships thereby leaving young PWA to live long lives absent of solid peer relationships.

Caregivers Again

A common theme across cases was a high reliance on parents. According to Threats (2010), families of PWA experience “third party disability” or the impact of a disabling condition on the family members. Aphasia in young adults and in this case African Americans, frequently places a new burden on middle-age adults who are typically transitioning to becoming grandparents rather than reestablishing themselves as primary caregivers of adult children. In this study, two of the three individuals were unmarried and relied primarily on their mothers for transportation and other rehabilitative needs. The third case also had a high reliance on a parent even though married. According to Caswell (2014), the young stroke survivor with aphasia and his/her parent(s) would have established an “adult-to-adult relationship” prior to stroke onset. The traumatic event unfortunately causes individuals with disabilities such as aphasia to re-enter into a parent-PWA relationship that is like their childhood relationship. This is difficult for both the PWA and the parent(s) and has the potential to cause tension and frustration. This tension and frustration can exist in family members of PWA due to the burden associated with their communication issues and care needs (Ganzfried, 2018). The lack of age-based friendships excludes the young adult PWA from having an outlet for discussion, comfort, advisement and support. Many of the issues related to the absence of friendships resulting in greater social isolation and disconnection are intertwined with parents becoming caregivers again thereby compounding the impact of aphasia in young adults.

The Indirect Cost of Aphasia.

Although not specifically targeted in the data reported, the cost of aphasia in young adults is substantial. Young adults with aphasia have their lives disrupted during a critical life stage. Most are either approaching or are in their peak earning years and preparing/saving for typical

later life stages such as their children going to college and later becoming grandparents. The indirect cost of aphasia in young adults can be substantial but hard to measure (Ellis & Mauldin, 2013). Indirect costs include: lost wages due to disability or depression, reduced quality of life, caregiver lost wages due to work absences and caregiver burden. Indirect costs also include societal losses such as inability to engage in community service, inability to pay income taxes, and inability to make charitable contributions (Ellis & Mauldin, 2013). In a study examining the post-stroke goals of 50 PWA, Worrall et al. (2011) reported that younger persons with aphasia were particularly aware of the loss of work and career and often held deep, strong desires to return to some form of employment. Each of the PWA in this study had small school age children and their inability to regain their pre-aphasia parental roles is a substantial indirect cost of aphasia. Both the PWA and their children experience loss and some children can feel neglected when their parents have aphasia (Ganzfried, 2018). Young adult parents with aphasia experience dramatic changes in their parent-child relationship due to the inability to communicate effectively. Studies are urgently needed to examine the impact of aphasia in young adults on parenting and marital satisfaction.

CONCLUSIONS

Aphasia can have a devastating impact on any adult as result of the communication disability. Young adults with aphasia have unique experiences that are associated with the interaction between their life stage and their communication disability. A systematic and programmatic line of research is needed to adequately understand the unique needs of young African American adults with aphasia and strategies to achieve optimal outcomes. Future studies should specifically emphasize the negative impact of aphasia on marriages, parent-child relationships, employment/career re-integration and the emotional needs of PWA,

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FROM ENGLISH RHOTIC APPROXIMANT TO SPANISH RHOTIC TRILL: A CASE STUDY

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ABSTRACT

The purpose of this case study was to explore the use ultrasound imaging as a biofeedback tool to teach production of the apicoalveolar rhotic trill /r/ to an adult Spanish second language learner. To gather and analyze data, a single case research design was implemented. Ultrasound imaging allowed for monitoring of tongue section positioning during production of speech sounds and allowed for individualized feedback focused on accurate and inaccurate tongue section positioning. Results show changes in tongue configuration during ultrasound sessions as well as post-treatment. Implications for clinical and teaching practices are furthered discussed.

KEY WORDS: biofeedback, Spanish, speech sounds, trill, rhotic, single case research

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INTRODUCTION

Ultrasound imaging is widely used in the medical field for the assessment of various physiological parameters of the human body due to its relative safety compared to technologies that use radiation like X-rays (Merritt 1989). Ultrasound imaging has been recommended in the area of speech production because it allows patients to monitor structures inside the oral cavity (Kelsey, Minifie & Hixon, 1969). Using ultrasound technology, one can monitor the positioning and configuration of the tongue, an articulator that is constantly changing positioning and shape along the vocal track when speech sounds are produced. However, changes in positioning and shape during speech production are not random, given that individuals purposely make these changes by learning how to control movement of the various segments of the tongue.

The tongue can be subdivided into functional segments that can be moved independently (Stone, Epstein, & Iskarous, 2004). These functional segments are tongue root, tongue dorsum, tongue blade, tongue tip, and lateral sides (Stone et al., 2004). To produce speech sounds, independent movements of these segments must be achieved to aid in shaping the vocal tract by creating constrictions that produce the intended acoustic information for the target speech sound. If a shaped vocal tract does not produce the expected acoustic information—due to misarticulations—the sound can be perceived as erroneous and speech intelligibility can be negatively affected.

Misarticulation of speech sounds is common in children as well as in second language learners, both of whom are mastering the sounds of a language. In children, misarticulations are expected to be resolved as the child matures, with late developing sounds exhibiting an adult-like production by age 7 (Bleile, 2006). Speech sound misarticulations beyond that age are typically followed by referrals for speech remediation treatment (Bernthal, Bankson, & Flipsen, 2013). In adults who are learning a second language, misarticulations can occur due to the challenge of learning sounds that are not shared between the main and second languages.

For this difficulty, adult learners receive formal instruction on how to produce the target sound, typically through formal coursework.

For English native speakers learning Spanish as a foreign language, the apicoalveolar trill /r/ is commonly the target of errors or substitutions (Añorga & Benander, 2015; Johnson, 2008). Though both languages include two rhotics in their sound inventory, one of the two rhotics is not shared as English uses /r/ and /ɹ/ while Spanish uses /r/ and /r̄/ (Ladefoged & Maddieson, 1996). For children who are native speakers of Spanish, the /r/ sound is the last sound to be mastered (Carballo & Mendoza, 2000; Jiménez, 1987) as /r/ requires precise articulation and aerodynamics (Solé, 2002). This same challenge is faced by many native speakers of English that are learning Spanish as a foreign language when productions of /r/ are produced as /ɹ/ or /r̄/ (Johnson, 2008).

English and Spanish Rhotics

English Rhotic Approximant

English uses two rhotic sounds, an approximant /ɹ/, and a tap /ɾ/ (Ladefoged & Maddieson, 1996). Tongue shape for production of the approximant rhotic can vary by speaker and a multiplicity of tongue configurations may be used (Dellatre and Freeman, 1968; Zhou, Espy-Wilson, Boyce, Tiede, Holland, Choe, 2008; Zawadzki and Kuehn, 1980; Alwan, Narayanan, et al, 1997; Guenther, Espy-Wilson, Boyce, Matthies, Zandipour, Perkell, 1999). Data shows that the main constriction for the rhotic approximant can be positioned at several points: alveolar, post-alveolar, and mid-palatal. This variability also influences positioning of the various functional segments of the tongue, creating multiple tongue configurations that produce a perceptually accurate rhotic approximant. Some configurations have a raised tongue tip and blade that points towards the palate, whereas other configurations have a raised tip and blade that does not point towards the palate. The tongue dorsum can also have various configurations, sometimes being arched, dipped or relatively horizontal.

Spanish Apicoalveolar Trill

Spanish also uses the rhotic tap /ɾ/ (Ladefoged & Maddieson, 1996). However, unlike English, Spanish uses an apicoalveolar rhotic /r/ (Ladefoged and Maddieson, 1996; Navarro-Tomas, 1996). Production of /r/ is primarily described as a series of brief and fast apicoalveolar constrictions sustained by aerodynamics (Solé, 2002; Martínez-Celdrán, 1997). These brief and fast apicoalveolar constrictions are made by positioning the frontal segments of the tongue, tongue blade and tongue tip in the alveolar area (Ladefoged & Maddieson, 1996; Navarro-Tomas, 1996). However, other segments of the tongue, like the tongue root, tongue dorsum, and lateral sides require precise positions to achieve /r/. Tongue root has been described as being retracted (Boyce et al., 2016) and air is channeled along the tongue by the bracing of the lateral sides against the teeth (McGowan, 2002). Unlike the English rhotic approximant, /r/ does not have variable tongue configurations that can be used to achieve the target sound.

Teaching production of sounds to second language learners of Spanish

For some second language learners, learning new articulatory movements for a target sound not found in their primary language can be challenging (Waltmunson, 2005). This challenge can be greater if the sound being learned has complex articulatory requirements. Such is the case of /r/, where proper production requires precise tongue configuration and aerodynamics that are sensitive to change (Solé, 2002). In the case of native speakers of American English, learning to produce /r/ will require learning new articulatory movements that are not shared with the English rhotic approximant. This challenge can be intensified by the various tongue shapes native speakers of American English can use for production of /ɹ/ (Zhou, Espy-Wilson, Boyce, Tiede, Holland, Choe, 2008).

Common sources of formal instruction of /r/ include textbooks, diagrams, animations, auditory models, and recorded speech. Though these sources have been used with positive

outcomes, some learners can still struggle with acquisition of /r/ (e.g. Lord, 2005; Hurtado & Estrada, 2010; Añorga & Benander, 2015; Kissling 2013). The continued struggle could be borne of the various innate challenges or inaccuracies these sources commonly present. Diagrams and animations regularly offered in textbooks or via computer software are frequently artistic interpretations of the articulatory requirements of a speech sound. These interpretations can portray inaccuracies in constriction placement and tongue section positioning along the vocal tract for the represented speech sound. Another limitation is that these representations mainly focus on what has been described as the main place of articulation of the sound. In case of /r/, attention is primarily given to the apicoalveolar constriction and not much attention is provided to positioning of the rest of the tongue sections. A common pattern is the use of midsagittal views of the oral cavity and articulators to showcase location of the main constriction. Though this view allows the learner to better understand positioning of the main constriction along the vocal tract, the view provides no information about the positioning of lateral sides of the tongue, as such information would require a coronal view of the tongue to be displayed.

A different type of tool used for teaching sound production and for increasing awareness of differences between speech sounds is the use of spectrographic displays (Lord, 2005). Spectrographic displays can be used as a biofeedback tool to provide immediate information about the attempted production, which can then be individualized to bring attention to similarities and discrepancies between the native speaker's and learner's attempt. Herd (2011) reports increased /r/ production accuracy of participants who were native speakers of American English and were learning Spanish as a second language after using spectrographic displays. Participants were presented with a spectrographic image of a native speaker's production of /r/ and were asked to match their attempt with the image presented. Though it is beneficial to have immediate feedback for comparison between the expected and attempted performance, information presented on a spectrographic

display comes with challenges for second language learners. First, interpreting spectrographic displays requires training, as the information displayed cannot be intuitively analyzed and understood by the average person. Second, spectrographic displays are abstract representations of tongue configuration and localization of constrictions along the vocal tract, more so than an artistic interpretation of the vocal tract configuration during production of a speech sound. Third, there is no simple correspondence between tongue configuration and the acoustic signal (Neri, A, Cucchiari, Strik & Boves, 2002).

Biofeedback for Remediating Residual Speech Sound Errors in Children

Children who exhibit speech sound errors beyond the typical age of acquisition are considered to have residual speech sound errors (Shriberg, Austin, Lewis, McSweeney, & Wilson, 1997). These children are referred to speech-language pathologists (SLPs) for remediation of these errors. Some approaches used for teaching accurate production of a speech sound include elicitation procedures based on shaping a sound from another (e.g. shaping /s/ from /t/) and phonetic placement cueing (e.g. use tongue depressor to touch sides of tongue for /s/) with multiple opportunities for repetition and production practice (Secord, Boyce, Donohue, Fox, & Shine, 2007; Van Riper & Erickson, 1996). Other approaches include biofeedback technologies such as spectrographic displays (McAllister Byun & Hitchcock, 2012), electropalatography (Dagenais, 1995; Dent, Gibbon, & Hardcastle, 1995) or ultrasound imaging (Adler-Bock, Bernhardt, Gick, & Bacsfalvi, 2007; Preston, Brick, & Landi, 2013, Preston et al., 2014; Modha, Bernhardt, Church & Bacsfalvi, 2008).

Ultrasound visual biofeedback has been effective for remediating speech sound errors in children with residual speech sounds errors that affected production of velar stops (Cleland, Scobbie, & Wrench, 2015), palatal sounds (Cleland, Scobbie, & Wrench, 2015), alveolar (Cleland, Scobbie, & Wrench, 2015), and rhotic approximants (Preston, et al., 2014; Cleland, Scobbie, & Wrench, 2015; Adler-Bock,

Bernhardt, Gick & Bacsfalvi, 2007). Imaging of tongue shape when a sound is produced allows for precise and individualized feedback that focuses on the tongue section placement—either accurate or inaccurate—of the individual. This is in contrast to the lack of tongue shape information that can be derived from an individual when more commonly used approaches are employed, such as by shaping a sound from another and phonetic placement. With imaging technologies, the learner and the clinician are made aware of discrete errors that cannot otherwise be identified via perceptual judgement of a sound, or discrete progress in tongue shapes that resembles a more native-like tongue shape even if the production attempted resulted in a sound error.

Research data on the use of ultrasound imaging for remediation of speech sound errors is limited as this technology is not readily available to the average SLP. However, the technology appears to be promising for remediation of speech sound errors. Although there is very limited research on the effectiveness of this technology for teaching pronunciation of foreign language, the ability to monitor tongue section positioning should be strongly considered as a potential tool for teaching pronunciation of to foreign language learners (during accent modification therapy).

The purpose of this research was to use ultrasound visual biofeedback to teach production of the apicoalveolar rhotic trill /r/ to an adult learner of Spanish as a foreign language. We hypothesize that usage of ultrasound visual biofeedback will promote accurate productions of /r/ by monitoring positioning of tongue sections to meet articulatory requirements for /r/. This research intends to answer the following research question: Does ultrasound visual biofeedback facilitates increased production accuracy of /r/ in an adult who is learning Spanish as a foreign language? For this study, we have the following hypotheses: 1) That ultrasound visual biofeedback will promote accurate productions of /r/ in the treated context. 2) That accurate productions of /r/ in the treated context will generalize to untreated contexts. The findings will address the gap in the literature about the

potential use of this technology in the area of teaching pronunciation of speech sounds to learners of foreign language.

METHODS

A time-series case study design was used for data collection and to monitor changes over time in the accuracy of /r/ production. Time-series data were also recorded for untreated targets to measure generalization.

Participant

An adult native speaker of American English from Michigan with /r/ production errors participated in this research. The participant had taken courses at the college level of Spanish and spent 10 months in Spain.

Equipment

A Micro System ultrasound scanner was used with a 2-4 MHz transducer probe was used for imaging purposes. Audio and video were simultaneously recorded. A P120 cardioid microphone was used to record audio. For sonographic display, a computer software recording at 30 fps was used.

Data Collection Procedures

Criterion-based assessment for /r/

A criterion-based assessment for /r/ production was developed to elicit production of /r/. The assessment consisted of a list of words containing /r/ in: (1) at initial word position, (2) intervocalic word position and (3) after consonantal sounds /s/, /n/, and /l/ (See Appendix A). Isolated words used from the criterion-based assessment containing /r/ after consonants /s/, /n/, and /l/ were taken from previous work done by Rafat (2008). The participant was asked to read the word list while the ultrasound transducer was positioned and stabilized under the participant's chin using a head stabilizer. The head stabilizer ensured a midsagittal position of the tongue when imaged.

Pre-treatment baselines

To monitor consistency of inaccurate /r/ productions before initiation of treatment, six baseline data points were gathered. Baselines were obtained by using the same criterion-based assessment for /r/ described above (See Appendix A). All baseline data points were taken using the criterion-based assessment for /r/. The participant was unable to produce an accurate /r/ production in any of the presented contexts. Thus, baseline data show no variability in production accuracy of /r/ in any of the contexts.

Treated and untreated /r/ contexts

Productions of /r/ from an initial assessment were perceptually judged by two native speakers of Spanish. Reliability of probe scoring was above 80%. Only contexts with canonical /r/ production accuracy of less than 20% were considered for treated and untreated contexts. From the initial assessment analysis, intervocalic context (VCV) was randomly selected as a treated context with initial (CV) and after consonants /s/, /n/, and /l/ (CC) as untreated. Due to limited number of Spanish words containing /r/ after consonants /s/, /n/, and /l/ (CC) this context was not considered as a potential treated context. VCV was targeted during treatment whereas CV and CC were not targeted but monitored for generalization of skills. Changes over time in /r/ accuracy for all contexts were monitored using probes.

Probes for monitoring changes over time

To track changes in /r/ accuracy, a ten (10) word list was created for initial /r/ and intervocalic /r/ contexts. These words were selected from the baseline word list. The same words from baseline were used for monitoring /r/ after consonants /s/, /n/, and /l/. The treated context was probed after every session while untreated contexts were probed every three sessions.

Structured treatment protocols

Structured treatment protocols were used for teaching production of /r/ and to provide verbal feedback based on performance. Modified

versions of structured protocol used by Preston, et al. (2014) were made to account for language variability between Spanish and English as well as to further structure practice. Two different structured protocols were used for teaching and practicing production of /r/, Structured Shaping Protocol (SSP) and Structured Word Practice Protocol (SWPP) (See appendices B and C).

Structured Shaping Protocol

SSP allowed for targeted practice of positioning of the various parts of the tongue (See Figure 1) using facilitative contexts (See Appendix B). These contexts were selected based on: (a) error in tongue section placement exhibited by the participant when attempting to produce /r/ and (b) similarities between the vowel-consonant contexts in tongue section placement with tongue configuration for /r/. For example, shaping /r/ from /a/ as means of maintaining a retracted tongue root positioning during /r/ if

error productions from the participant were characterized by a forward tongue root positioning. To begin SSP, five trials for accurate positioning of target tongue section were provided at a level where all feedback focused on performance of positioning the target tongue section (Level 1). Accurate positioning of tongue section scored 1 while inaccurate scored 0. As the participant mastered accurate positioning of target tongue section, participant moved to Level 2 (where feedback on judgement of correctness was introduced) and Level 3 (where amount of feedback is diminished). Moving level criteria was defined as accurately positioning target tongue section in at least four out of five trials. If criteria was not met, the participant was downgraded a level (e.g. from Level 2 to Level 1) and practice continued. SSP was used in every treatment session until participant produced six perceptually correct /r/ sounds. Once six accurate trills were produced, the SSP protocol ended and SWPP was initiated.

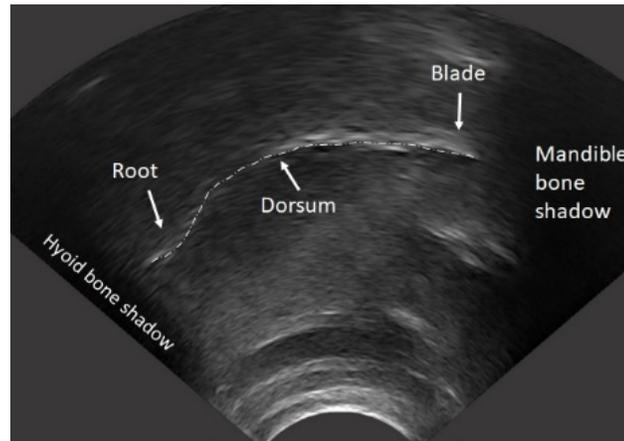


Figure 1. Sonographic image of tongue. Tongue sections visible in mid-sagittal view as well as other landmarks visible on the sonographic display. White line demarcates the contour of tongue surface (enhanced with dotted line). Tongue is facing right.

Structured Word Practice Protocol

SWPP allowed for practice of the treated intervocalic context through various complexity levels: (a) syllables, (b) disyllabic words, (c) phrases, and (d) cloze phrase (See Appendix C). To begin SWPP, five trials for accurate production of /r/ using the treated context VCV were provided. For example, /ara/. Accurate production of /r/ was scored as 1 whereas inaccurate production was scored as 0. As the participant mastered accurate /r/ production, the participant moved from one complexity level to another (e.g. from syllables to disyllabic words to phrases). Moving criteria was defined as accurate /r/ production in at least four out of five trials. If the criteria was not met, the participant was downgraded a complexity level (e.g. from phrases to disyllabic words) and practice continued.

Feedback administration during SSP and SWPP

Oral feedback focused on the positioning of the parts of the tongue—based on sonographic image—was provided to the participant during the treatment sessions. Research on motor tasks have found that skill acquisition can be enhanced by frequency feedback on performance on a task (Knowledge of Performance [KP]) as well as judgements of correctness of the task (Knowledge of Results [KR]) (Schmidt & Lee, 2011). KP feedback was provided with high-frequency during the initial stages (Level 1 in SSP and syllables complexity level during SWPP). As the accuracy increased, KP was transitioned to lower frequency and KR was provided.

At later stages of practice in both SSP and SWPP, less KR was provided and auto-monitoring was introduced. During auto-monitoring instances, the participant was asked to judge the performance based on the sonographic display. It is important to note that instances of auto-monitoring used in our protocols are not part of the principles of motor learning (Maas, et al., 2008). However, they were included as means of promoting independent learning by the participant.

Treatment fidelity and reliability

A total of fifteen (15) one hour treatment sessions were provided. A graduate research assistant with training in the use of the SSP and SWPP protocols reviewed 20% (three sessions) to document adherence to feedback provision during SSP and SWPP. Specified feedback was provided on 94% of trials. Errors involved providing KP when only KR was required and providing KR when no feedback was required.

Probes for treated and untreated contexts

Twenty percent of probes for treated and untreated contexts were scored by three listeners, treating clinician and two secondary listeners who was blind to the purpose of the study. Both secondary listeners perceptually judged probed for instances of accurate /r/ production. Listeners were native Spanish speakers with different dialects of Spanish (Mexico and Puerto Rico), both with a master's degree in Speech-Language Pathology. One listener rated CVC probes (3 probes) while other listener rated one CV probe and one CC probe. Probe agreement between treating clinician and each of the secondary listeners was above 80%. Thus, we used treating clinicians scoring for analysis.

RESULTS

Participant data are presented in Figure 2. The dependent variable for time-series data was accurate /r/ production as judged by unfamiliar listeners. Baseline data show stability of error /r/ production errors prior treatment sessions. VCV context (treated) show no acquisition of /r/ during treatment sessions during probes. However, CV context (untreated) showed accurate /r/ productions during probes. This improvement was first observed in treatment session 5 and continued until the last treatment session. Similar observation was observed for CC context (untreated) but the amount of /r/ were typically less compared to CV.

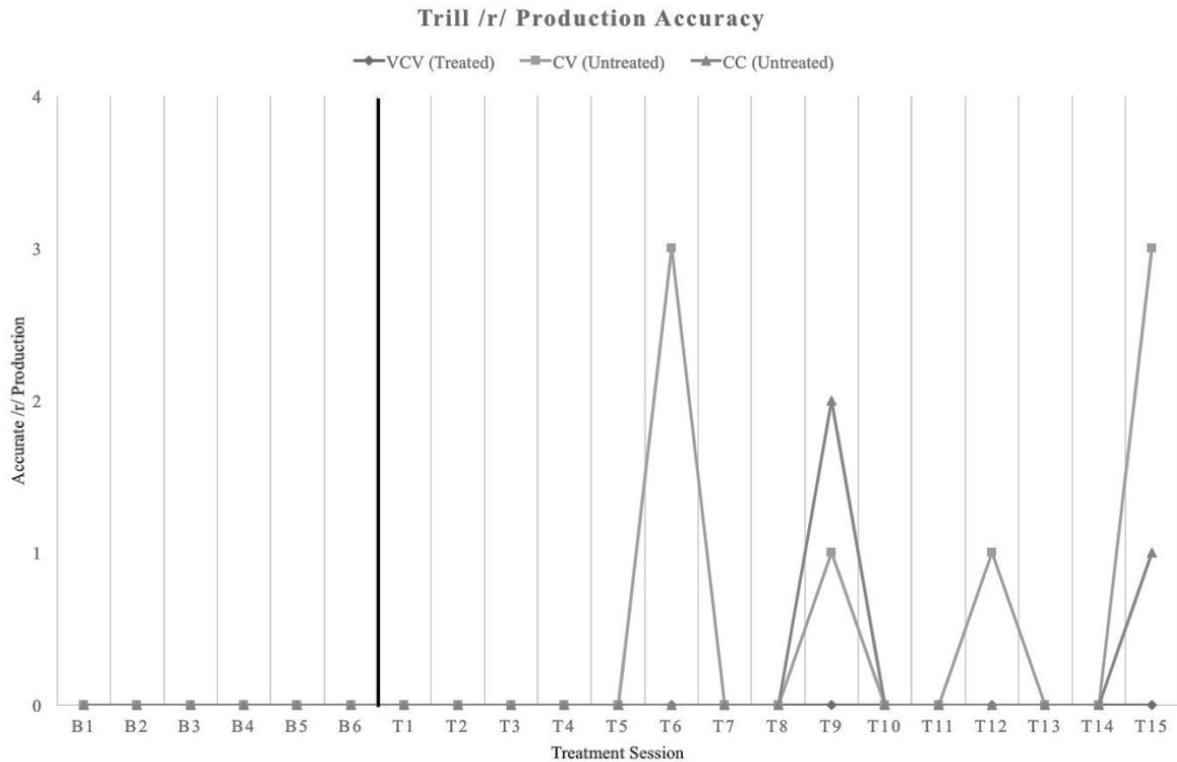


Figure 2. Trill /r/ production accuracy. Relationship between dependent (trill accuracy) and independent variables (ultrasound biofeedback treatment sessions) on probes for treated and untreated contexts.

Trill tongue shape

Error /r/ tongue for our participant is characterized by a retracted tongue root positioning, a depression on the dorsum and an elevated, and bunched tongue blade (See Figure 3). This shape is similar to MRI scans of tongue shapes used by native speakers of American English for production of the rhotic approximant by Tiede, Boyce, Holland and Choe (2004) and Suzanne Boyce (Secord, Boyce, Donohue, Fox & Shine, 2007). Though trilling was perceptually identifiable, the multiple constrictions occurred at the level of the dorsum (See Figure 4), presumably against the uvula as oral structures above the line demarcating midsagittal tongue surface are not imaged by ultrasound. A known speech sound characterized by vibrating the uvula is the uvular trill /R/ (Ladefoge & Maddieson, 1996). However, X-Ray tracings of tongue shape for /R/ from Delattre and Freeman (1968) and Boyce, Hamilton, Rivera-Campos (2016) show a

retracted and more rounded tongue dorsum, dissimilar to tongue dorsum positioning observed from our participant.

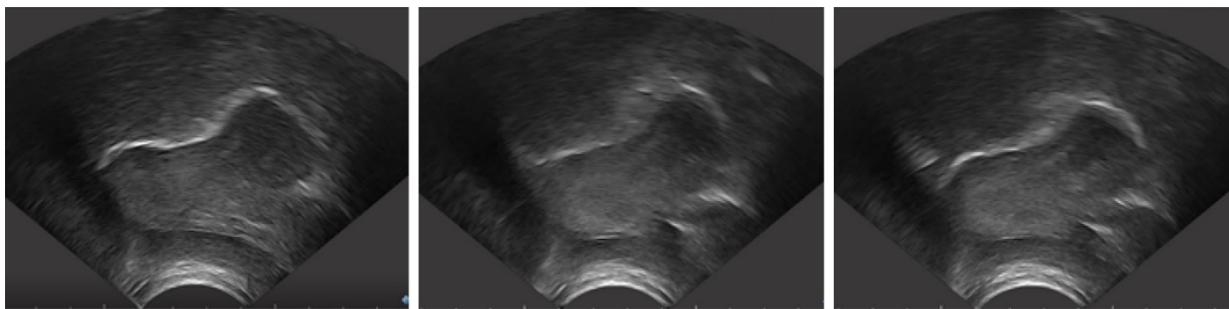


Figure 3. Tongue configuration for rhotics. Picture on the left shows participant's tongue configuration for the English rhotic approximant /ɹ/ in the word "car." Picture on the middle shows participant's error tongue configuration for intervocalic /r/ with front vowel context in the Spanish word /birete/ "graduation cap" during baseline. Picture on the right shows participant's error tongue configuration for intervocalic /r/ with central and back vowel context in the Spanish word /baro/ "clay" during baseline. Notice similar positioning and configuration of tongue root, dorsum, and blade.

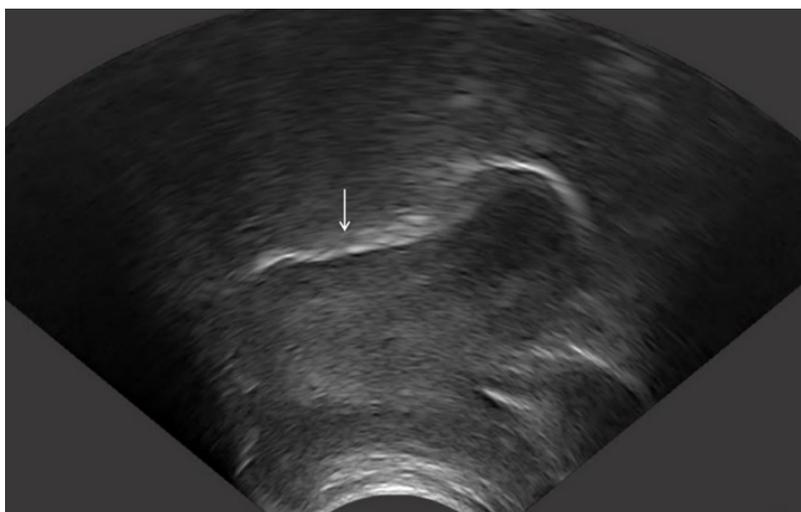


Figure 4. Sustained phonation of error /r/ in isolation. Arrow indicates location of fast and multiple contacts between tongue dorsum and uvula as seen on ultrasound video recording.

Tongue shape during accurate production of /r/ was characterized by a retracted tongue root positioning, a light depression at the dorsum, and raised blade. Overall tongue shape configuration for accurate /r/ productions looked similar to that of a native speaker of Spanish (See Figure 5). Though probes administered

after treatment sessions showed a limited correspondence between ultrasound biofeedback treatment and /r/ production during probes, there were observable changes in tongue configuration as it became similar to that of a native speaker (See Figures 5 and 6).

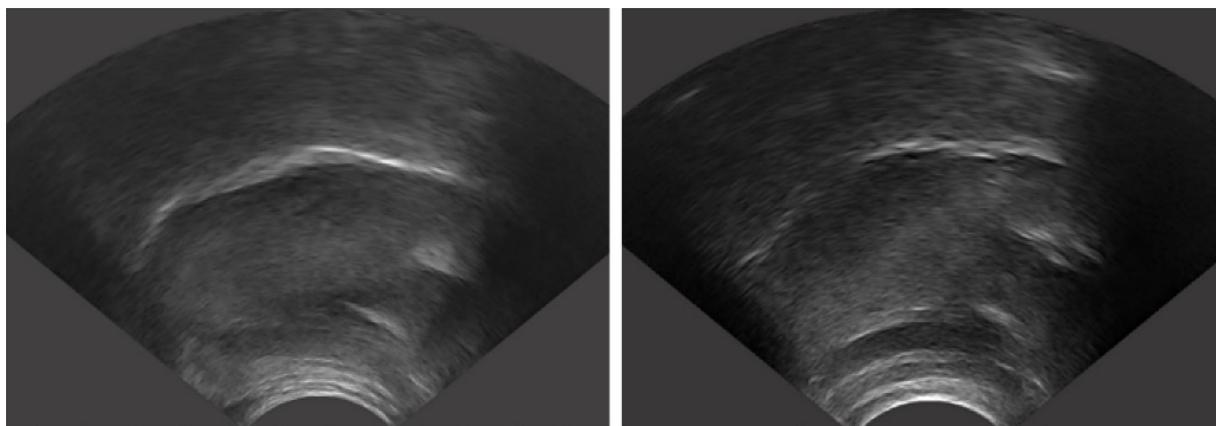


Figure 5. Tongue configuration for accurate /r/. Picture on left shows tongue configuration of accurate production of /r/ during the Spanish word /posreβolusjonarjo/ “postrevolutionary.” Picture on the right shows tongue configuration of sustained /r/ from a native speaker. Notice similar tongue configuration between both /r/ productions.

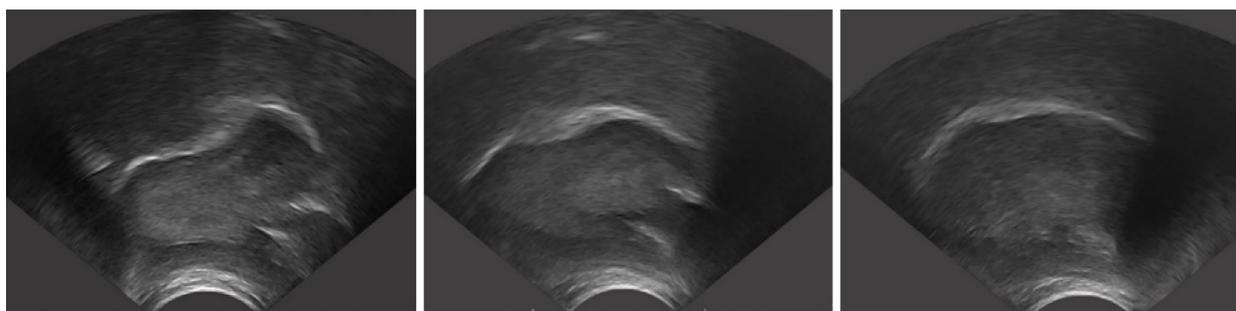


Figure 6. Error and accurate tongue configurations for /r/. Picture on the left shows error tongue configuration for /r/ in the word /baro/ “clay” during baseline. Picture in the middle shows an error tongue configuration for /r/ during CC context. Picture on the right shows tongue configuration during accurate production of /r/ in Spanish word /red/ “net.” Notice that depression on the dorsum in error tongue configuration during CC is more pronounced when compared to dorsum configuration during accurate trill for /red/ “net.”

DISCUSSION

Data from probes indicate a limited relation between the initiation of ultrasound biofeedback treatment sessions and /r/ production accuracy. Our hypothesis that ultrasound biofeedback will promote accurate production of /r/ in the treated context was not confirmed, as there were no accurate /r/ productions in VCV. Our hypothesis that accurate productions of /r/ in the treated context would generalize to untreated contexts was not confirmed as there was no accurate /r/ productions in the treated context. However, probes for untreated context showed accurate productions of /r/ for both CV and CC.

In the field of speech production and foreign language learning we can find two potential explanations for the observed productions of /r/ during untreated contexts CV and CC. First, data from Johnson (2008) showed that as Spanish proficiency levels increased in research participants from The University of Arizona, the number of correct /r/s at word initial increased. That is, participants with lower Spanish proficiency showed less accuracy in word initial /r/ when compared to participants with higher Spanish proficiency. In his research, the author classified participant Spanish proficiency based on the level of Spanish courses participants’ were currently taking. These levels included First Semester Spanish, Fourth Semester

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Spanish, Intermediate Spanish and graduate level courses. Our participant has had advanced courses in Spanish at the college level as well as experience living in Spain for ten months. The level of experience of our participant combined with Johnson's observation regarding Spanish proficiency level suggests the possibility that our participant might have benefited from a trained rather than an untrained CV context.

A second potential explanation for acquisition of /r/ in untrained CC context might stem from having of a voiceless pre-rhotic segment. Closer inspection of /r/ accuracy in CC context shows that accurate productions mainly occurred in words like: *desregulaciones*, *disruptiva*, *posrevolucionario*, and *posromántico*. Previous work by Solé (2002) describes voiceless /r/ as having lowered intraoral pressures for initiation and maintenance of trilling. Though the scope of this work did not aim at detailed acoustic analysis of /r/ productions, taking under consideration Solé's observation and the element of coarticulation of speech sounds, a voiceless pre-rhotic segment as /s/ could have promoted initiation and maintenance of trilling as the voiceless feature of /s/ may have partly be transferred to /r/.

Although not frequently applied to the field of speech sound production, errorless learning theory could potentially provide a third theoretical explanations of these results. To acquire a new motor movement during a typical motor learning situation, an individual accrues declarative and applies such knowledge to judge results (trial and error). Within this experiment, the participant learned all the instructions about what was needed to produce an accurate /r/ and used that knowledge to make judgements about accurate or inaccurate tongue configuration. This process requires working memory, as the instructions are temporarily stored and used for monitoring motor movement and make adjustments "on line." Although accruing declarative knowledge is common in typical learning situations, when this knowledge is being applied by working memory, it has been found to be disruptive (Beilock & Carr, 2001; Mullen & Hardy, 2000; Wulf & Weigelt, 1997). It is plausible that the application of our participant's declarative knowledge—obtained

by KP and KR feedback during treatment sessions—and processed in working memory during productions was detrimental for the success of accurate /r/ production in VCV, as this context was the focus of the treatment sessions. Similarly, it has been found that performance under pressure is detrimental to acquisition of complex motor skills (Lam, Maxwell & Masters, 2009). Feedback can potentially create pressure on the learner as amount of feedback provided during early levels of acquisition of the target motor skill (Levels 1 and 2) required clinical judgement in order to be provided (See Appendix B). This clinical judgement can indirectly be perceived as negative judgement, particularly if feedback was directed to repositioning of tongue section from an error shape.

There is limited research in the use of ultrasound biofeedback for teaching production of an articulatory complex sound such as /r/ to learners of a foreign language. Though this technology has yielded positive results with the remediation of speech sound errors in children, there is limited information about its potential benefits with adults whose challenges on the acquisition and mastery production of a sound is not borne from a speech sound disorder, but from differences in sound inventories between the primary language and foreign language. The results described in this work can be of particular interests to speech language pathologists that work in the area accent modification or with individuals interested in mastering their heritage language. Being able to monitor tongue section positioning can allow the clinician and the learner to monitor progress towards the articulatory requirements of the target sound. This allows both the clinician and the learner to be aware of articulatory improvement or changes that go beyond a perceptual judgement of the target sound.

Limitations and future directions

Limitations of this study provide avenues for future research. This study used one participant to provide preliminary data to answer our research questions. For future research aimed at replicating our methods, data should gathered for more than one participant. Since our results

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are not generalizable to other second language learners with different levels of Spanish proficiency when compared to our participant, future work should look at the efficacy of ultrasound biofeedback on participants with different levels of Spanish proficiency.

CONCLUSION

Ultrasound biofeedback allows learners to see “on line” the tongue shape being used for production of target sound. For speech sounds that require complex articulatory gestures, ultrasound biofeedback allows for identification of inaccurate tongue section placement and use that information to guide accurate placement. Although probes for treated VCV context did

not show improvement for /r/ accuracy, changes in tongue configuration from baseline and probes were observed. These changes in tongue configuration promoted /r/ accuracy in untreated CV and CC contexts.

Ultrasound biofeedback has the potential to be considered as a tool for teaching speech sound production to learners of a foreign language as inaccurate positioning of tongue sections cannot be easily identified without imaging technologies. Thus, learners could potentially develop and maintain motor patterns that promote inaccurate production of speech sounds by developing and maintaining motor patterns through repeated error practice.

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APPENDIX A

Context of /r/ production	Words
Word initial	Riqueza, Rubén, Ruín, Recibo, Raciona, Risa, Ron, Ruleta, Ramón, Roca, Rudeza, Riachuelo, Rosado, Relajo, Ropaje, Río, Red, Rufián, Rey, Raquel
Intervocalic	Acurruco, Carrucho, Verruga, Amarra, Carril, Garra, Agarre, Chorro, Pizarrón, Corriente, Gorro, Borra, Arrimo, Birrete, Tierra, Herramienta, Jarrones, Barre, Perro
After consonants /s/, /n/, and /l/	Honra, Israel, Sonrisa, Monra, Sonreír, Enredo, Desregulaciones, Disruptiva, Posrevolucionario, Posromántico, Malrotar, Alrededor, Ulrico, Dalriada

APPENDIX B

Sample of Structured Shaping Protocol with scoring. Dotted arrow lines illustrate changes in feedback levels as participant master positioning of target tongue section. Each instance provided the participant with one of four types of feedback; Knowledge of Performance (KP), Knowledge of Results (KR), no feedback (cells with no letters), and Auto-monitoring (A).

Context	Level 1 Feedback					T	Level 2 Feedback					T	Level 3 Feedback					T
<i>/ara/</i>	0 ^{KP}	0 ^{KP}	1 ^{KP}	0 ^{KP}	1 ^{KP}	2	KR	KP	KR	KR	KP				KR		A	
	0 ^{KP}	1 ^{KP}	1 ^{KP}	1 ^{KP}	1 ^{KP}	4	1 ^{KP}	1 ^{KR}	1 ^{KP}	1 ^{KR}	1 ^{KR}	5	0 ^{KR}	0	1 ^A	1	1	3
	KP	KP	KP	KP	KP		1 ^{KR}	KP	KP	KR	KR		A					KR
	KP	KP	KP	KP	KP		KR	KR	KR	KP	KP				A	KR		

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APPENDIX C

Sample of Structured Word Practice Protocol. Progression criteria through complexity levels (e.g. moving from syllable to disyllabic, disyllabic to phrases, etc.) was similar to Structured Shaping Protocol.

Ctx	Syllable Cv / vCv : arra					T	Disyllabic: jarra					T	Phr: Mi jarra					T	CPhr: Mi jarra de agua					T	
/ara/	KP	KP	KP	KP	KP		KP	KR	KR	KR	KP		KP	KR		KR						KR		A	
	KP	KP	KP	KP	KP		KR	KR	KP	KR	KP		KR		KP	KR			KR			A			
/ara/	KP	KP	KP	KP	KP		KR	KP	KR	KP	KR			KP	KR	KR			A						KR
	KP	KP	KP	KP	KP		KR	KR	KP	KP	KR			KR	KR		KP					A	KR		

PREDICTING COMPETENCY IN GRADUATE CLINICAL TRAINING

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ABSTRACT

Graduate programs in communication sciences and disorders (CSD) are charged with the responsibility of providing quality clinical training experiences that promote each student's growth and development toward achieving the knowledge, skills and professionalism critical to achieving clinical competence. Further, graduate programs must engage in evaluative and predictive monitoring of each student's growth toward achieving the prescribed competencies. The purpose of this study was to determine whether specific clinical skillsets used to evaluate graduate students can predict success toward achieving clinical competency. This pilot quantitative correlational study examined pre-existing final (end of the semester) data of 103 first-year graduate clinicians. The *Student Clinical Evaluation* was the instrument of choice, utilizing data spanning 10 years. This study examined the correlational relationships between sections and/or questions on the *Student Clinical Evaluation* instrument. Professionalism (e.g., self-evaluative, reflective, critical thinking, etc.) was found to be strongly predictive of clinical competence. Yet, it was evident that many students do not enter graduate training equipped with these skills. These findings suggest that *intentional* training of self-evaluative, reflective, and critical thinking skills is critical to growing highly competent professionals who practice effective habits of the mind.

KEY WORDS: clinical competency, clinical supervision, professionalism, critical thinking, habits of the mind

INTRODUCTION

A successful graduate student clinical rotation is objectively measured by assessing knowledge, skills, and professionalism across the competency areas of diagnostics, therapy planning, therapy, documentation, administrative skills, professionalism, and other related areas. The development of competent and ethical practice begins with the academic and clinical training that establishes the knowledge, skills and professionalism identified as clinical competency (e.g., evidence-based practice) implemented across diverse clinical settings with diverse populations across the lifespan (ASHA, 2013).

Research has shown that emphasis in clinical teaching has been acknowledged as important in professional preparation (McCrea, 2003). Strohschein, Hagler & May (2002) stated that contextually-based clinical education is the best way in which to teach the skills and professionalism critical to becoming a competent speech-language pathologist. If the intention of clinical supervision is to assist graduate students to become self-reliant clinicians capable of independent problem-solving, self-supervision, and reflective analytical practice (Saras, 2004, Ho & Whitehall, 2009), then how does one support the achievement of this goal, the establishing of these characteristics as “habits of the mind” (Bandura, 2001)? Hart and associates (2007) presented the concept that supervisors need predictive tools to identify student clinicians who may need extra support to reach their clinical education goals (Hart, Turner, Duesing, Galley, et al., 2007). How does one decide where emphasis in clinical teaching should lie when targeting intended success for graduate clinicians in communication disorders practicum experiences?

The ASHA Committee on Supervision developed a position paper that was adopted by its Legislative Council in November 1984. This paper indicated that the essence of effective clinical supervision is centered around teaching “self-analysis, self-evaluation, and problem-solving skills on the part of the individual being supervised” (ASHA, 1985, p. 3).

Clinical competence, as discussed by Epstein and Hundert, is considered to be “the habitual and judicious use of communication, knowledge, technical skills, clinical reasoning, emotions, values, and reflection in daily practice for the benefit of the individual and community being served” (Bogo, 2014, p. 12). Competence depends on habits of mind, including attentiveness, critical curiosity, self-awareness, and presence. Professional competence is developmental, impermanent, and context-dependent (Epstein and Hundert, 2002).

In its September 2014 certification standards, ASHA mandated specific guidelines for clinical training (ASHA, 2014). These are rigorous standards concerning the graduate students’ abilities to demonstrate communication skills sufficient to achieve effective clinical and professional interaction with clients/patients and relevant others (ASHA, 2014). Previous studies also acknowledge the importance of facilitating students’ integration of theoretical and clinical knowledge through reflective, experiential and problem-based clinical reasoning (Goldberg, Richberg-McCormick, & Wood, 2006, Ho & Whitehall, 2009).

A systematic literature review of articles published since 2005 found few articles that reviewed predictors of graduate school success in general; moreover, these articles did not discuss predictors of clinical training or practicum success. In related fields such as occupational therapy, medicine and psychology, predictors such as entrance exams, race, gender, and socioeconomic factors have been examined. Therefore, it was noted that research, which specifically focused on predicting clinical practicum success in communication disorders, is needed to support data-driven decisions that facilitate the development of skills and professionalism for successful practicum experiences (Ho & Whitehall, 2009). Research questions posed in this research article include the following:

1. Do elements of a clinical evaluation predict graduate student success in a first-year in-house clinical practicum experience? What factors influence a

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clinical supervisor's perceptions of effective clinical practice among graduate communication disorders students?

2. What skill sets serve as predictors of clinical competency?

Professionalism involves adding a humanistic quality (compassion, integrity, respect) to the use of knowledge/skills. Professionalism involves personal values or behaviors and characteristics which are sometimes difficult to explain and quantify, but often easy to recognize when they are deficient or negative in nature. These qualities are included in teaching, medicine and business, and they involve duty, commitment to excellence, accountability, integrity, appearance, demeanor, knowledge, judgment, honor, respect, compassion, communication, altruism, and responsibility. The American Speech-Language-Hearing Association (ASHA) refers to "workplace" success skills that students need to possess in the 21st century as 1. planning and priority setting, 2. organizing and time management, 3. managing diversity, 4. team building, 5. interpersonal savvy and peer relationships, 6. organizational agility, 7. conflict management, 8. problem solving, perspective and creativity, and 9. dealing with paradox and learning on the fly (ASHA, 2000). The ASHA Code of Ethics directs individuals to honor their responsibility to achieve and maintain the highest level of professional competence and performance (ASHA, 2016).

Becoming a speech-language pathologist is a complex process that is largely dictated by ASHA (Haynes, Moran, Pindzola, 2012). In order to become a speech-language pathologist, one needs the knowledge, skills and professionalism set forth by The Council for Clinical Certification in Audiology and Speech-Language Pathology (CFCC). Graduate programs are charged with the responsibility of providing a quality training experience that promotes each student's growth and development toward achieving the knowledge, skills and professionalism critical to perform competent clinical practice. Further, graduate

programs must monitor each student's progress/growth in a way that is evaluative and predictive of the student's achievement of the expected outcome, defined as competency.

Students' knowledge and skills are assessed by judging whether they show a lack of demonstration (0), academic knowledge with emerging clinical skills (1), knowledge and skills at an adequate level of clinical competency (2), and both knowledge and skills at an independent level (3), as indicated on the Student Clinical Evaluation utilized in this study. The scores from each of the seven sections are averaged to achieve an overall measure of clinical skills.

The Charge of Accredited Programs in Speech-Language Pathology

Competency must be demonstrated in the application of current knowledge pertaining to methods of prevention, assessment and intervention of communication and swallowing disorders and differences. Application of knowledge should be evident in the identification of etiologies; characteristics; related acoustical, psychological, developmental, linguistic and cultural correlates that have implications for speech production (articulation, voice, resonance, fluency); language understanding and use (phonology, syntax, semantics, pragmatics, etc.); and aspects of literacy (cognition, hearing, and alternative/augmentative means of communication) (ASHA, 2013).

The accreditation of graduate training programs assures the public that professional services rendered are of the highest quality. It is the intent of ASHA's Council on Academic Accreditation (CAA) to ensure that high professional quality standards are consistently met by programs in their preparation of students (CAA, 2015). Accredited programs are those programs identified as meeting, if not exceeding, standards reflecting quality teaching, learning, research, and professional practice (CAA, 2015). While standards are clearly defined, institutions are given the flexibility to exercise institutional freedom and constructive innovation in the achievement of institutional goals and

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accreditation standards (CAA, 2015). Thus, program activities and their implementation are neither explicitly prescribed nor narrowly defined. CAA-accredited programs must ensure that their graduating students have been provided the academic and clinical education necessary to prepare them for entry as competent professionals meeting the requirements for state licensure and ASHA certification.

Multiple evidences are critical to every accredited program's self-evaluation in determining program effectiveness and success rate. A program's measurement of employment rate, graduation rate, and Praxis pass rate provide critical summative measures; the Praxis examination in speech-language pathology is a national exam required for certification. Documentation of students' academic and clinical performance as formative assessment is essential in assisting students, as well as the faculty's monitoring of student progress (CAA, 2015). Qualitative and quantitative measures provide information for decision-making in establishing continuous student and program improvements.

Standards for Certification in Speech-Language Pathology

Professional/clinical competency requires graduate training that has provided the breadth and depth of experiences needed to achieve required skills and competencies identified in ASHA's standards for clinical competence in speech-language pathology. Graduate training programs are charged with the responsibility of providing graduate students a rigorous academic curriculum (e.g., coursework, labs, case studies, simulations, projects, and exams) along with clinical training experiences across a variety of clinical settings with diverse populations in order to produce highly qualified speech-language pathologists (SLPs) as defined by the above ASHA standards. These training experiences must be under the supervision of certified SLPs.

Speech-language pathology faculty are qualified and required to evaluate student clinicians' professional behavior and skill development. ASHA's 1985 position paper on clinical

supervision identified 13 tasks considered basic to effective clinical teaching in communication disorders (ASHA, 1985; Shapiro et al., 2002). For example, these tasks include assisting the supervisee in developing clinical goals and objectives; developing and refining assessment skills; developing and refining clinical management skills; observing and analyzing assessment and treatment sessions; developing and maintaining clinical and supervisory records; maintaining an effective working relationship with the supervisor; evaluating clinical performance; developing skills of verbal reporting, writing, and editing; modeling and facilitating professional conduct, and demonstrating research skills in the clinical or supervisory process (p. 3).

Effective clinical supervision involves teaching the development of self-analysis, self-evaluation, and problem-solving skills to the student clinician. The achievement of this goal defines the success of one's clinical teaching. It is evident that self-analysis, self-evaluation and problem-solving skills, often equated with professionalism, play a critical role in the effective training of a clinically competent graduate clinician (ASHA, 1985). In describing these professional characteristics, Frank Pajares (2002) cites the theories of Albert Bandura, who proposed that personal behavior "without introspection cannot aspire to explain the complexities of human functioning. It is by looking into their own conscious mind that people make sense of their own psychological processes" (1986, p. 25).

Drazinski & McKerlie (2009) examined the continuum of professional behaviors in developing an evaluative tool which measures graduate clinicians' professionalism, which is defined as that qualitative entity which involves the use of knowledge and skills. Drazinski and McKerlie (2009) proposed that the explicit training and evaluation of professionalism in graduate clinicians is a needed response to students' rights, as well as an ethical and professional responsibility. Knowledge and skills equated with professionalism include interpersonal communication skills (being tactful, cooperative and collaborative), clinical reasoning and problem-solving (evaluating

problems and solutions, identifying problems and consulting with others), and response to feedback (positive affect, active listening, implementing solutions). ASHA refers to Knowledge and Skills Acquisition (KASA) as the above abilities across all targeted areas (hearing, articulation, fluency, swallowing, voice, expressive and receptive language, cognitive, augmentative/alternative modalities and social modalities) (ASHA, 2013). The outcome of their study indicated the need for an evaluative clinical tool for periodic (midterm, final) evaluation and self-evaluation, as well as a tool to be embedded in didactic and clinical courses. These findings prove significant in highlighting the need for establishing clinical evaluative tools and identifying skillsets that are effective measures and serve as predictors of clinical competency.

Resnick, Whiteside and Kong (2014) noted the need to develop an objective measurement 1) to make data-driven clinical decisions and 2) to define student-driven outcome measures corresponding to practicum experiences across the continuum (e.g., entry level to externship practicum experiences). The end result of their study was the development of the CSAR – Clinical Skills Acquisition Rubric – a formative and summative assessment tool designed to assess graduate clinician competency (e.g., knowledge and skills) across 35 key objectives as defined by ASHA Standards (2014). The CSAR measures clinical competency across seven levels of clinical learning. These skills evolved from a level of dependence to a level of independence. The points of assessment were midterm and final. The correlation of treatment and diagnosis between the Knowledge and Skills Acquisition (KASA) items and the CSAR was found to be low, as a reflection of content. The low correlations were attributed, by the authors, to the greater objectivity as well as the greater specificity of the CSAR when compared to the KASA.

Theoretical Foundations

Albert Bandura, a world-renowned researcher in the field of psychology, studied theoretical problems regarding self-regulation. In the mid-1980s, Bandura, through his social cognitive

theory of human functioning, stated “cognitive, vicarious, self-regulatory and self-reflective processes” are paramount to the modification of human behaviors (Bandura, 2001, p. 2). Therefore, people can be self-organizing, proactive, self-reflecting and self-regulating versus the reactive beings who respond to peripheral environmental changes (Bandura, 2001). “Human action, being socially situated, is the product of a dynamic interplay of personal and situational influences” (Bandura, 1999, p. 3). This theory reflects the graduate clinicians who exercise cognitive self-reflective processes that serve to measure and determine the reasons for success or lack of success in clinical planning and implementation. This theory explains why some graduate clinicians have the ability to contemplate options for future planning, both independently and cooperatively, with supervisors recognizing the opportunity to increase clinical skills through mentoring and training. If this, in fact, is an acceptable theory, graduate clinicians should be proactive in their use of critical thinking skills and reflective practices. Use of effective “habits of mind, including attentiveness, critical curiosity, self-awareness, and presence” (Epstein & Hundert, 2002, p. 227), leads to good decisions in ethical and professional performance which would be reflected in areas of therapy planning, therapy, and documentation as indicated by the data. Increases in the ability to be attentive, curious, self-aware, and present with the people we serve lead to effective planning, assessment, and treatment.

Examination of the Relevant Current Literature

A systematic review of literature revealed that since 2005, there are few articles that address predictors of graduate students’ clinical success in communication disorders. Victor and associates presented a survey of supervisory research at the 2008 ASHA Convention. In their examination of clinical research spanning 1977-1994, they identified only one article, published by Anderson in 1978, which addressed the supervisory evaluation process. Studies acknowledge the importance of facilitating students’ integration of theoretical and clinical knowledge through reflective, experiential and

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problem-based clinical reasoning (Goldberg, Richberg-McCormick, & Wood, 2006; Ho & Whitehall, 2009). There is little published in the international literature about allied health professionals experiencing the transition from student to practitioner, according to the research of Smith and Pilling, who, in 2007, reviewed two articles that examined the transitional phase from graduate student to professional clinician (Lee & Mackenzie, 2003; Tryssenaar & Perkins, 2001). Effective managerial competencies of novice clinicians were reviewed by Adamson and associates (2001).

Literature in the field of nursing offers more in the area of transition from student to novice practitioner, but the transference of this phenomenon to other allied health fields has not been proven to be accurate (Goh & Watt, 2003). In 1984, Benner outlined the five stages of clinical competence acquisition in nursing – starting with the novice nurse and moving to the advanced beginner, the competent nurse, the proficient nurse, and the expert nurse. The Stage 1 Novice has no experience and is taught rules to support performance opportunities. The rules are not individual to any client and are without context. Therefore, there is little flexibility. The Stage 2 Advanced Beginner has “marginally acceptable performance.” Principles begin to be formulated in the context of individual situations and mentoring. Leith calls this the creation of a “database” of information, which is used to support decisions in clinical situations (Leith, 2002). The Stage 3 Competent Nurse has been working in the contexts of treating the same disorders for two or three years; this nurse is conscientious, deliberate in planning, efficient and organized, with the wherewithal to be flexible in the contextual differences of the job. However, this nurse may not be able to “recognize a situation in terms of an overall picture or in terms of which aspects are most important.” The Stage 4 Proficient Nurse can see the situation as whole, with performance directed by the larger picture with an idea of how one reaches these goals. This would be the difference between knowing the long-term and then determining the short-terms. This holistic approach guides the ability to make good decisions; maxims reflect the fine and subtle differences of a clinical case. The Stage 5 Expert

has enough knowledge and experience, with an instinctive command of the clinical situation. This nurse is able to understand the situation so well as to not waste time on incidental activities that result in little progress. This nurse has acute analytical skills, recognizing when procedures do not work and an accurate alternative plan must be found.

Brenner’s five stages may be applied to the desired growth of speech-language graduate clinicians and could serve as a model for future studies, as researchers seek to measure growth and predict skillsets needed to make the transition to acquiring higher competencies. Further, “preparedness for the workplace requires an understanding of external political influences and environment, time management, critical thinking and self-reflection, as well as effective interdisciplinary team skills. These are critical competencies required to enable students to become effective professionals” (Smith and Piling, 2007, p. 266). As one can see, very little has been written in regards to predicting graduate student success within the training program in communication disorders.

This study was designed to investigate factors related to competent clinical practice among communication disorder graduate students at a historically black college and university (HBCU) in the southeast United States. The study also sought to investigate associations between graduate students’ knowledge, skills, and professionalism across the competency areas of diagnostics, therapy planning, therapy, documentation, administrative skills, professionalism, and other related areas of competent clinical practice.

METHOD

Research Design

This study used a cross-sectional and correlational research design. Surveys were used to investigate what factors influence clinical supervisor perceptions of effective clinical practice among communication disorders students.

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Participants

Final clinical evaluations were administered by the supervisor for 4-6 graduate clinicians per semester. Of the 103 participants, 95.1% were female and 4.9% were males. The majority of the participants, 90.3%, were between the ages of 22-30. The majority of the students, 87.9%,

were residents of North Carolina. Caucasian American students represented 54.4% of the sample; African-American represented 41.7% students, and over 3% were of Asian, Latino or other ancestry. (See Table 1.) Supervision at this site was completed by one university-affiliated, state-licensed and certified clinical supervisor during the fall and spring semesters.

Table 1. Demographics for Communication Disorders Students (N = 103).

Variable	N	%
Age		
22-30	93	90.3%
31-above	6	5.8%
No response	4	3.9%
Gender		
Female	97	95.1%
Male	6	4.9%
Race		
African-American/Black	43	41.7%
Asian	1	.9%
Caucasian	56	54.4%
Latino	1	.9%
International/Other	2	1.9%
Residency		
NC resident		87.9%
Other		12.1%

Procedures

This study entailed the collection of pre-existing data from the end-of-the-semester, final graduate Student Clinical Evaluations completed at an in-house school practicum site placement, a K-8 charter school. A total of 103 graduate student clinical evaluations, dated spring and fall from years 2005 to spring 2014, were collected by the first author investigator. These clinical evaluations documented the assessment of clinical skills gained during the semester of service. Hard copies of the final evaluations were collected from cumulative folders for years 2005-2009. From 2009 forward, the evaluations were collected from the electronic portfolios of each graduate student who matriculated through

the target school. Each evaluation instrument took approximately 35 minutes to complete.

Measures

The items for the current measure were adopted from the standards for competent clinical practice established by ASHA (1984). The ASHA Committee on Supervision suggested that there are seven key areas of demonstrated competency in communication disorder clinical practice. The seven key areas included the students' knowledge and skill development in areas such as the ability to communicate effectively with client/patient, family, and caregivers, (considering cultural and linguistic background) and the ability to interact

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appropriately with supervisor and peers. Graduate clinicians were expected to demonstrate the ability to interpret, integrate and synthesize all information to develop diagnoses; make appropriate recommendations given test results; develop appropriate intervention plans with measurable and achievable goals; and demonstrate the ability to formulate a succession of graduated intermediate steps leading to achievement of a goal. By employing the standards established by The ASHA Committee on Supervision in 1984, a 46-item questionnaire was created. (See Appendix A.) Seven questions assessed students' professionalism; nine questions dealt with diagnostic work; six questions assessed therapy planning; eight questions involved therapy; six questions reviewed documentation; four questions looked at administrative skills; and six questions focused on other related skills. Scores were as follows: 0 = The student did not demonstrate any academic knowledge or clinical skills in this area; 1 = The student demonstrated academic knowledge in this area, with emerging clinical skills in this area; 2 = The student demonstrated knowledge and skills in this area at an adequate level of clinical competency; 3 = The student demonstrated knowledge and skills in this area and an independent level of clinical competency. To obtain a total score for each subscale, the items were summed and averaged.

The scores were aggregated and statistically analyzed using SPSS in an effort to identify relationships between sections and/or questions found on the Student Clinical Evaluation (Howell, 2004). The correlation coefficient was used to determine the strength and direction of the relationships when looking at success in the overall clinical experience with a range of -1 (strong negative relationship), to +1 (strong positive relationship) with 0 representing no relationship. High coefficients represent strong relationships (Irwin, Pannbacker, & Lass, 2008). Measures of regression were used to determine predictability of one section (or question) of the evaluation from the information about another section or question (Howell, 2004).

The alpha for the professionalism subscale was .81. The alphas for the diagnostic work and therapy planning subscales were .88 and .86, respectively. The alphas for the therapy and documentation subscale were .89 and .79, respectively. The alpha for administrative skills was .78.

RESULTS

To assess skill sets associated with clinical competency in communication disorders among graduate school students, Pearson correlations were run to investigate relationships between a clinical supervisor's perception of students and their diagnostic work (DW), related professional skills (RPS), therapy planning (TPT), therapy (T), ability to document (DOC), administrative skills (AS), and other related areas (ORA). Preliminary analysis (see Table 2) revealed that the students' understanding of diagnostic work was significantly related to professional skills ($r=.26$; $p\leq.05$) and therapy planning ($r=.52$; $p\leq.001$). One's ability to understand diagnostic work was also related to the ability to effectuate therapy ($r=.41$; $p\leq.001$) and one's ability to professionally document ($r=.49$; $p\leq.001$). Diagnostic work was also significantly related to students' administrative skills ($r=.39$; $p\leq.001$). A number of significant correlations related to professional skills were found (such as the ability to communicate with client and family, adherence to ASHA's ethical standards, and the ability to carry oneself in a professional manner), which were significantly related to therapy planning ($r=.74$; $p\leq.001$) and the ability to deliver therapy ($r=.76$; $p\leq.001$). Related professional skills were also significantly related to adequate documentation in the therapeutic setting ($r=.60$; $p\leq.001$) and administrative skills ($r=.46$; $p\leq.001$). Related professional skills among students were also significantly related to the clinical supervisor's perceptions of other related competencies necessary to be successful as a communication disorders clinician (i.e., a practicum and class attendance and response to feedback) ($r=.76$; $p\leq.001$).

Table 2. Correlation for ASHA Standards Among Communication Disorders Graduate Students.

Variable	1	2	3	4	5	6	7
DW							
RPS	.26*						
TP	.51**	.74**					
T	.41**	.76**	.88**				
DOC	.49**	.60**	.63**	.56**			
AS	.39**	.46**	.60**	.55**	.55**		
ORA	.26	.76**	.79**	.87**	.52**	.61**	
Mean	22.25	18.83	16.07	21.78	15.47	8.95	15.76
SD	4.04	2.45	2.31	3.19	2.24	2.21	2.67

* $p < .05$, ** $p < .01$

Predicting Clinical Competency among Graduate Students

To identify factors that best predict clinical competence among graduate students (i.e., practicum-related professional skills, the ability to respond appropriately to constructive criticism), a hierarchical regression was run. The following variables were entered as predictors: related professional skills (i.e., communication with family and client, adherence to the code of ethics, and professionalism), diagnostic work (i.e., administrative and accurate scoring of tests,

utilization of test results to make accurate diagnostics, and recommendation), therapy planning, therapy, documentation, and administrative skills. The overall model (See Table 3,) including all variables, explained 27% of the variance in professional skills: $F(6, 97) = 6.93$; $p \leq .001$. Further review of the regression model summary indicates that the strongest predictor of clinical competency (ORA5) among communication disorders students was the related professional skills that students had obtained ($b = .35$; $p \leq .05$).

Table 3. Predicting Clinical Competence.

	<i>b</i> (<i>se</i>)
Constant	.044
Diagnostic Work	-.10(.02)
Related Professional Skills	.35(.03)*
Therapy Planning	.33(.05)
Therapy	-.09(.03)
Documentation	.13(.03)
Administrative Skills	-.14(.03)
<i>F</i> (6,92)	6.94**
<i>R</i> ²	.27

p*<.05; *p*<.01

The scores were aggregated and statistically analyzed using SPSS in an effort to demonstrate correlations (relationships) between sections and/or questions found on the Student Clinical Evaluation (Howell, 2004). The correlation coefficient was used to determine the strength and direction of the relationships when looking at success in the overall clinical experience with a range of -1 (strong negative relationship) to +1 (strong positive relationship), with 0 representing no relationship. High coefficients represent strong relationships (Irwin, Pannbacker, & Lass, 2008). Alpha levels would need to be at minimum 5% (.05) to demonstrate a significant relationship (Howell, 2004). Measures of regression were used to determine predictability of one section (or question) of the evaluation from the information about another section or question (Howell, 2004).

Correlations between Clinical Skill Sets

Pearson correlations were used to investigate relationships between a clinical supervisor's ratings in the areas of Related Professional Skills, Diagnostic Work, Therapy Planning, Therapy, Documentation, and Administrative Skills. A number of correlations related to professional skills were found – such as the ability to communicate with client and family, adherence to ASHA's ethical standards, and the ability to demonstrate both practical and clinically-based problem-solving skills – to be significantly related to therapy planning (*r*=.74;

p≤.001) and the ability to deliver therapy (*r*=.76; *p*≤.001). Related Professional Skills were also significantly related to adequate documentation in the therapeutic setting (*r*=.60; *p*≤.001) and Administrative Skills (*r*=.46; *p*≤.001). Related Professional Skills among students were also significantly related to the clinical supervisor's judgment of related competencies necessary to be successful as a communication disorders clinician (e.g., practicum and class attendance, as well as response to feedback) (*r*=.76; *p*≤.001). See Table 2.

DISCUSSION AND IMPLICATIONS

Measures of correlation (relationship) and regression (prediction) were implemented in an effort to discover whether elements of a clinical evaluation predict graduate student success. Correlation measures demonstrated significant relationships between the professional skills. For instance, a correlation was found between the ability to receive and follow instructions and the ability to think critically regarding both practical and clinically-based problems, therapy planning, and therapy implementation. There was also a strong correlation between professional skills and the degree of a supervisor's input needed to achieve competency and the ability of the graduate clinician to respond positively to constructive criticism. The aforementioned data revealed that the strongest predictor of clinical competency is related to the amount of supervision needed. Supervision decreases as

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students demonstrate professional skills, such as the use of practical and clinically-based problem-solving skills. The amount of supervision needed is decreased when students adhere to recommendations/suggestions with consistent follow-through. Further, students should be able to communicate effectively considering their cultural and linguistic backgrounds. Students should interact appropriately with the supervisor and peers, understanding and adhering to the ASHA Code of Ethics.

Functionally, the assumption could be made that a graduate clinician may be judged to need less supervision because s/he exercised effective habits of the mind. This is the graduate clinician who has the cognitive self-reflection, self-regulation, and self-organizational skills to make accurate decisions while communicating with the supervisor and then following through on mutually accepted plans of actions (Bandura, 2001). This is the graduate student who observes and questions various evidence-based processes critically for each individual client, while being aware of the strengths and limitations of his/her plans (McCrea, 2003).

Effective habits of the mind can be defined as professionalism (Dewey, 1922, 1933; McCrea, 2003). Katz (1993) defines professionalism as patterns of behaviors that are exhibited frequently and intentionally in the absence of coercion, representing habits of the mind. Building on Dewey's (1922, 1933) work, which addresses the cultivation of habits of the mind necessary for effective teaching, Ritchhart (2001) views professionalism as a collection of cognitive tendencies that capture one's patterns of thinking. "Ritchhart's definition is grounded in a dispositional view of intelligence and is premised on the concept that 'intelligent performance is more than an exercise of ability'" (Thornton, 2006, p. 54). Professionalism, according to Ritchhart, speaks not only to what a person can do, his/her abilities, but also to what someone is inclined to do. "Thus, [professionalism] address[es] the gap between our abilities and our actions" (Ritchhart, 2001, p. 3).

These metacognitive ways of thinking, habits of the mind (McCrea, 2003), lend themselves to the improvement of clinical skills directly, as indicated by the scoring of adequate or independent on the Student Clinical Evaluation. However, the ultimate benefit belongs to clients who are affected by this exercise of effective habits of the mind. Ultimately, good patient/client intervention leads to a high level of care and the improvement of clients' quality of life. It is the sign of a caring, compassionate, and competent graduate clinician well prepared for a progression of clinical training activities (Villegas and Lucas, 2002).

Limitations

A limitation of this study was the absence of a second clinical supervisor serving as a second observer, thus reducing the potential of observer bias. The Rosenthal Effect, described as the potential "hidden" bias of human judgment, can account for the phenomenon of observer/interpreter effect (Shiavetti & Metz, 2002, p. 114). However, potential bias and consequent observer effect were reduced by repeated measures and multiple evidences (e.g., student SOAP notes, clinical reports, lesson plans, intervention methods) that were collected across time. Weekly evaluations provided formative assessments of student competency, while cumulative measures over the course of the semester provided final summative data.

The application of inter-observer rating would have served to establish agreement that a second rater was observing and rating the same behavior as reported by the first rater, thus verifying that the two raters were in fact seeing/observing the same thing (Shiavetti & Metz, 2002, p. 119). Other considerations, such as increasing the number of participants, would serve to establish a larger sample size, while examining the implication of longitudinal data.

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Future Implications

We, as clinical supervisors, should be proactive in supporting the skills that lead our students to independence and competence in assessment and treatment. In order to facilitate these skills, clinical supervisors and professors must recognize that many students have not come to graduate communication disorders programs with the professionalism needed to be competent clinicians. We cannot assume they have come to their first-year of clinic with a disposition to use effective habits of the mind (Thornton, 2006). Future research should explore the ability of supervisors and students to affect professionalism at the same level and intensity in which knowledge and skills have been addressed. In his seminal work, Dewey (1922) emphasized the importance of the acquisition and development of professionalism, differentiating them from innate characteristics, traits or temperament. His work suggests that professionalism can be taught and cultivated (Thornton, 2006, p. 67). Behaviors that demonstrate self-evaluative thought processes can be seen in graduate clinicians who proactively research their clinical sites, perform file reviews, seek the clinical direction of their supervisors, search the knowledge gained in coursework, and incorporate the appropriate evidence-based practices into their clinical cases.

“Inasmuch as intentionality is a mental process, we see professionalism as habits of mind not as mindless habits ... habits of mind that give rise to the employment of skills and are manifested

(ideally) by skillful behavior” (Katz & Raths, 1985, p. 303). Reflecting on the findings of this research suggests that effective habits of mind are dynamic, reflective, contemplative, collaborative, and evaluative. Therefore, habits of mind can be described as conscious discernment that evolves, depending upon various individual clinical cases and contexts.

This has implications for increasing success in clinic at the foundational level of critical thinking and intentional reflective practice. Habits of the mind (Thornton, 2006) insure self-awareness, humility, and advocacy components needed to successfully participate in differential assessment and treatment at the initial training level. Indeed cultural competence requires a level of self-reflection that transcends the lifelong beliefs instilled by familial experiences. The ability to intentionally promote effective professional skills has the potential to increase graduate student clinical success through the strengthening of effective habits of the mind in preparation for more challenging experiences.

Further, it has been suggested that attention should focus on intentional instruction in areas of critical thinking and professionalism. Finn (2011) suggests that the most direct way to learn skills of professionalism and to understand the importance is to add these skills to the instructional curriculum in graduate training programs. Given further quantitative investigations in predicting clinical success, data-driven decisions in clinical speech-language pathology could lead to increased success in practicum experiences.

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APPENDIX A

STUDENT CLINICAL EVALUATION

CLINICIAN'S NAME _____

SUPERVISOR _____

SEMESTER/YEAR:

FALL _____ SPRING _____ SUMMER _____

MIDTERM _____ FINAL _____

DATE _____

RATING SCALE: Please rate the student's knowledge and skills using the following rating scale:

- (3) The student demonstrated **knowledge and skills** in this area and an independent level of clinical competency.
- (2) The student demonstrated **knowledge and skills** in this area at an adequate level of clinical competency.
- (1) The student demonstrated academic **knowledge** in this area, with emerging clinical skills in this area.
- (0) The student **did not demonstrate** any academic knowledge or clinical skill in this area.

SECTION I: RELATED PROFESSIONAL SKILLS

_____ Communicates effectively with client/patient, family, and caregivers considering their cultural and linguistic background.

_____ Interacts appropriately with supervisor and peers.

_____ Receptive of supervisor's recommendations/suggestions and follows through.

_____ Adheres to the ASHA Code of Ethics and manages one's self professionally.

_____ Demonstrates ability to communicate clinical information about clients effectively.

_____ Dress and appearance are professional and appropriate for the clinical demands.

_____ Demonstrates both practical and clinically based problem-solving skills.

Section I Average: ----- = _____

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SECTION II: DIAGNOSTIC WORK

- _____ Selects appropriate tests for the case supported by a rationale.
- _____ Obtains background information adequately.
- _____ Administers tests according to standardized procedures.
- _____ Conducts informal assessments appropriately for their purpose.
- _____ Adapts evaluation procedures to meet the client/patient's needs.
- _____ Scores and records tests accurately.
- _____ Interprets, integrates and synthesizes all information to develop diagnoses.
- _____ Makes appropriate recommendations given test results.
- _____ Relays test results and recommendation to the client/parent appropriately.

Section II Average: ----- = _____

SECTION III: THERAPY PLANNING

- _____ Develops appropriate intervention plans with measurable and achievable goals.
- _____ Demonstrates ability to formulate a succession of graduated intermediate steps leading to achievement of a goal.
- _____ Selects or develops and uses appropriate materials, instruments, and treatment strategies for intervention.
- _____ Takes previous treatment results into consideration.
- _____ Involves clients, patients, family, caregivers in treatment planning.
- _____ Demonstrates knowledge the nature of disorders being treated.

Section III Average: ----- = _____

SECTION IV: THERAPY

- _____ Procedures and activities are appropriate to address treatment objectives.
- _____ Various modalities are utilized.
- _____ Integrates appropriate activities into therapy.
- _____ Utilizes evidence-based intervention strategies.
- _____ Provides meaningful reinforcement.
- _____ Implements appropriate methods of measuring clinical progress in each goal area.
- _____ Demonstrates ability to adjust activities or procedures to client's needs.
- _____ Uses treatment time efficiently.

Section IV Average: ----- = _____

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SECTION V: DOCUMENTATION

- ___ Written reports exhibit logical and organized expression of ideas.
 - ___ Written reports are complete, concise and contain accurate information.
 - ___ Writing has appropriate form, spelling, grammar, punctuation and neatness.
 - ___ Soap notes accurately reflect client performance and skilled intervention provided in the therapy session.
 - ___ Goals and objectives contain all necessary components.
 - ___ Reports are turned in on time.
- Section V Average: ----- = _____**

SECTION VI: ADMINSTRATIVE SKILLS

- ___ Completes all administrative and reporting functions necessary to support evaluation and intervention.
 - ___ Collaborates with other professionals in case management as needed.
 - ___ Provides counseling regarding communication and swallowing disorders to clients patients, family, and caregivers.
 - ___ Makes referrals to other professionals as necessary.
- Section VI Average: ----- = _____**

SECTION VII: OTHER RELATED AREAS

- ___ Practicum class attendance
 - ___ Clinic Attendance (in-house, off-site)
 - ___ Activities/Assignments
 - ___ Project (i.e. case study, portfolio, oral presentation, etc.)
 - ___ Degree of supervisory input required to achieve competence
 - ___ Responds appropriately to constructive criticism/feedback provided by supervisor
- Section VII Average: ----- = _____**

Overall Composite Rating: ----- = _____

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GENERAL COMMENTS:

This evaluation was discussed with the student and the student was provided the opportunity to provide feedback. Written feedback is attached and noted.

(Graduate Clinician)

(Supervisor)

(Date)

(Date)

**“READABILITY” OF COMMUNICATION SCIENCES AND DISORDERS JOURNALS: A
METHOD FOR IMPROVING THE SCHOLARLY/PROFESSIONAL WRITING
PERFORMANCE OF COMMUNICATION SCIENCES AND DISORDERS STUDENTS**

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ABSTRACT

The *Flesch-Kincaid Readability Scale* was used to assess the readability of abstracts from peer-reviewed articles randomly selected from journals in Communication Sciences and Disorders (CSD). It was postulated that the abstracts from professional journals, because of their peer-review or refereed standards, could serve as exemplars for students to model in trying to improve their scholarly or professional writing performance. The Flesch-Kincaid (F-K) was also used to evaluate writing samples from two groups of students: 1) freshmen communications students, and 2) graduate CSD majors. The results suggest that journal abstracts from CSD journals do reflect readability standards that are appropriate for a college-educated audience. Also, the results suggest a need to introduce scholarly/professional writing skills training to prospective CSD majors prior to their entry into graduate training programs where heightened writing performance is expected.

KEY WORDS: Writing performance, readability measures, preliminary CSD training, teaching and learning

INTRODUCTION

The transition from undergraduate to graduate study in Communication Sciences and Disorders (CSD) can be a challenging process for many students. Unlike undergraduate studies, where courses outside the discipline are designated as general education requirements and courses within the CSD major are offered as overview courses (e.g., voice *and* fluency disorders), graduate CSD students must complete an in-depth study of one discipline (i.e., speech-language pathology or audiology), and simultaneously enter an extended clinical training process supervised by faculty members. Additionally, graduate study in CSD demands more reading and writing---both academic and clinical. Moreover, much of the required reading and writing assignments in graduate school are exacting and challenging.

In our experience and in the words of others, among the many goals of the required reading and writing assignments at the graduate level are: (a) to familiarize the student with the scholarly literature of the profession of CSD and related disciplines; (b) to instill in the student the content, vocabulary, and methods of inquiry in the profession; (c) to foster in students the ability to communicate their knowledge of the profession in an intelligent and effective manner; (d) to offer a foundation for students to begin to translate “book knowledge” into clinical, evidence-based practices; and (e) to help CSD students become critical thinkers, both as students and later as practicing professionals (Finn, Brundage, & DiLollo, 2016). It is also possible, in our opinion, that the textbook chapters and journal articles CSD students are required to read and interpret could serve as exemplars to model when trying to improve their scholarly and professional writing. Given the competitive nature of admission to graduate study in CSD and the challenges associated with eventual success, in the form of degree attainment (Boles, 2018; Troche & Towson, 2018), it is incumbent upon CSD students to develop the writing skills they will need to become effective speech-language pathologists or audiologists, and well-versed contributors to the disciplines’ bodies of knowledge.

Assessing Scholarly Text Readability

Assessing the readability of text to determine its clarity or intelligibility for a particular audience has been an endeavor of scholars dating back several decades. Of historical note are the Gunning Fog Index Readability Formula (Gunning, 1952), the Dale-Chall Readability formula (Dale and Chall, 1948), and McLaughlin’s SMOG grading (McLaughlin, 1969). One of the more enduring measures and one conveniently assessable in many contemporary word-processing programs (e.g., Microsoft Word) is the combined *Flesch-Kincaid Readability Scale* (Kincaid et al, 1975).

The original *Flesch Reading Ease Scale* was developed in 1948 by Rudolf Flesch, an English professor and consultant with the Associated Press. His work was to help publishers improve the readability of newspapers. Later, Flesch’s research moved to the education sector to help teachers choose texts appropriate to the reading level of their students (Comer, 2011). Now, the Flesch Reading Ease is used by digital marketers, research communicators, policy writers, and others. The scale is based on a formula that computes the average number of syllables-per- word and words-per-sentence. Syllables-per-word is a measure of word difficulty, and words-per-sentence is an indicator of syntactic complexity (Flesch, 1949).

In 1976, J. Peter Kincaid, a scientist and educator, along with a team of researchers, reformatted Flesch’s formula to develop an *equivalent grade level* scale. This was in consultation with the U.S. Navy, which used this scale principally to measure the comprehension level of naval training manuals. The new approach was named the *Flesch-Kincaid Grade Level Scale* and has become a standard measure for the U.S. Department of Defense, the Internal Revenue Service and the Social Services Administration (Wylie Communications, 2018).

Reading Ease Scale

The reading ease scale is a measure that uses scores ranging from 0 - 100. The higher the score, the easier the read. Low scores indicate text that is more difficult to read or more complex for the average reader to understand. For most business writing, a score of 65 is

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considered a good target, and scores between 60 and 80 should be understood by most 5th to 10th graders (WebFX, 2009). Reading ease scores

for professional or scholarly writing are generally lower (e.g., 30 -50 range), reflecting more writing complexity (Wright, 2012).

The formula for the Flesch Reading Ease score is:

$$206.835 - (1.015 \times \text{ASL}) - (84.6 \times \text{ASW})$$

where:

ASL = average sentence length (the number of words divided by the number of sentences)

ASW = average number of syllables per word (the number of syllables divided by the number of words)

Table 1 shows how reading ease scores align with readability and educational levels.

Table 1. Reading Ease Ratings.

Reading Ease Score	Readability Level/Category (re: average reader)	Educational Level
0 - 29	Very Difficult	College Graduates
30 - 49	Difficult	College
50 - 59	Fairly Difficult	High School Senior
60 - 69	Standard	13 to 15 year-olds
70 - 79	Fairly Easy	12 year-olds
80 - 89	Easy	11 year-olds
90 - 100	Very Easy	10 year-olds

Equivalent Grade-Level Scale

The equivalent grade-level scale presents a score as a U.S. grade level (i.e., 5th grade, 6th grade, etc.) equivalent. This is done to make it easier for teachers, parents, librarians, and others to

judge the readability level of various books and instructional texts. It also suggests the number of years of equivalent education generally required to understand the text (My Byline Media, 2019).

The formula for the Flesch-Kincaid Grade Level score is:

$$(.39 \times \text{ASL}) + (11.8 \times \text{ASW}) - 15.59$$

where:

ASL = average sentence length (the number of words divided by the number of sentences)

ASW = average number of syllables per word (the number of syllables divided by the number of words)

The information shown in Table 2 aligns grade level scores with the level of reading difficulty, syllable/word and words/sentence structure, and

estimated grade level completed (Clarkson College, 2018).

Table 2. Flesch Grade Level (Flesch, 1949).

Grade Level Score	Level of difficulty for average reader	Average number of syllables/word	Average number of words/sentence	Estimated school grade completed
≤ 4.0	Very easy	1.23 or fewer	8 or fewer	4 th
5.0	Easy	1.31	11	5 th
6.0	Fairly easy	1.39	14	6 th
7.0	Standard	1.47	17	7 th
8.0	Standard	1.51	19	8 th
9.0	Standard	1.55	21	HS freshman
10.0	Fairly difficult	1.67	25	HS sophomore
11.0	Fairly difficult	1.67	25	HS junior
12.0	Fairly difficult	1.67	25	HS senior
13.0	Difficult	1.92 or more	29 or more	College Freshman
14.0	Very difficult	1.92 or more	29 or more	College sophomore

Table 3 was constructed by the authors and shows an index aligning the reading ease scores

for various text examples with equivalent U.S. grade levels.

Table 3. Flesch-Kincaid Readability Index.

Reading Ease Score – U.S. Grade Level	
	100 - 1
Comics	96 - 2
<i>How the Grinch Stole Christmas</i>	92 - 3
	88 - 4
	84 - 5
Consumer ads	80 - 6
Newspaper article	76 - 7
	72 - 8
People Magazine	68 - 9
<i>Reader's Digest</i>	64 - 10
	60 - 11
Forbes Magazine	56 - 12
	52 - 13
<i>Relativity</i> by A. Einstein	48 - 14
<i>Harvard Business Review</i>	44 - 15
	40 - 16
	36 - 17
<i>Harvard Law Review</i>	32 - 18
	28 - 19
	24 - 20
	20 - 21
	16 - 22
	12 - 23
Complex Legal Document	8 - 24
	4 - 25
	0 - 26

Computer Application

Computers with word-processing programs, for example, Microsoft Word, give users convenient access to the *Flesch-Kincaid Readability Scale*. The program provides a word count measure, it averages sentence length, calculates reading ease and equivalent grade level, and notes the percentage of passive-voice sentences. Chart 1, below, illustrates how these and other data are displayed (Stockmeyer 2009).

Accessing the Readability Statistics in Microsoft Word:

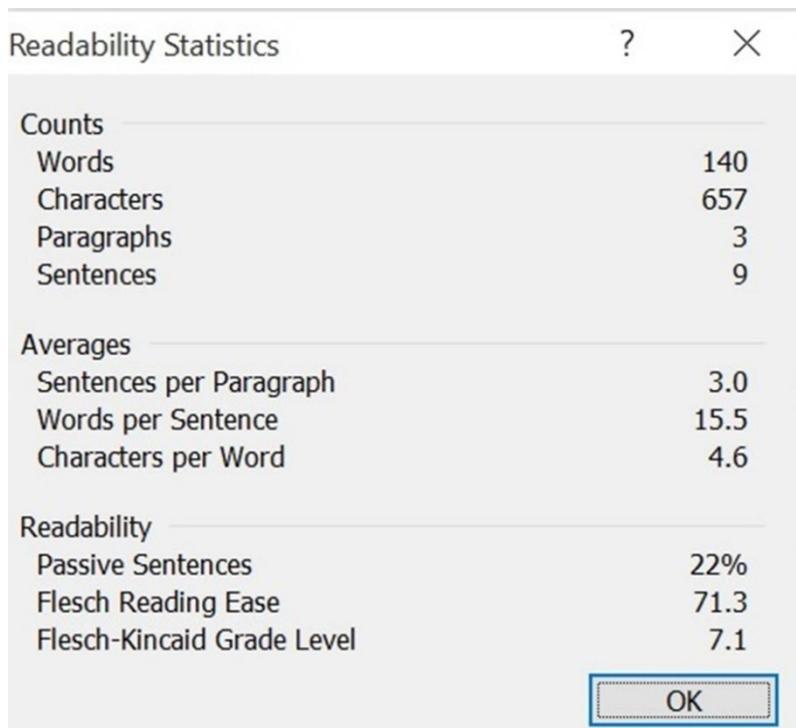
- Click the **File** tab, and then click **Options**.
- Click **Proofing**.
- Under **When correcting spelling and grammar in Word**, make sure the **Check grammar with spelling check box** is selected.
- Select **Show readability statistics**.

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After you enable this feature, open a file that you want to check, and check the spelling by pressing F7 or going to **Review > Spelling &**

Grammar. When Word finishes checking the spelling and grammar, it displays information about the reading level of the document.

Chart 1. Data table from Microsoft Word.



Readability Statistics	
Counts	
Words	140
Characters	657
Paragraphs	3
Sentences	9
Averages	
Sentences per Paragraph	3.0
Words per Sentence	15.5
Characters per Word	4.6
Readability	
Passive Sentences	22%
Flesch Reading Ease	71.3
Flesch-Kincaid Grade Level	7.1

Writing to inform, to persuade, to entertain, etc., requires the writer to use talent and skill to make his or her point. Yet, no readability formula can predict the impact the text will have on the reader. A readability formula's true purpose is only to give the writer an estimate of the reading difficulty of text with reference to a general audience (My Byline Media, 2019). The present authors are part of a collaborative team investigating applied knowledge in students and professionals through a scholarship of teaching and learning perspective. One of our goals is to identify ways of developing and strengthening the academic skills (reading, writing, critical thinking, etc.) of communication sciences and disorders students to assure their success as undergraduates, enhance their prospects of admission to graduate school, and prepare them for the world of professional practice.

The purpose of this study was to find writing samples that could serve as exemplars for CSD students to model when trying to improve their

scholarly/professional (e.g., academic and clinical) writing skills. Articles appearing in discipline-related, refereed journals were targeted because they would have gone through a rigorous peer-review process to assure their suitability for a targeted professional audience.

METHODS

A decision was made to assess the readability (e.g., reading ease and equivalent grade level) of journal article abstracts rather than the entire articles themselves. This was based on research conducted by Hartley and Benjamin (1998) and Hartley (2003), where they found that abstracts for scientific manuscripts are repeatedly rewritten during the submission process to improve their readability to the "academics" who subscribe to the journals. As such, the abstracts, or better yet, their readability ratings should be able to be modeled by students trying to improve their scholarly/professional writing performance.

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First, a readability analysis was conducted of 50 abstracts selected from articles appearing in five peer-reviewed journals in communication sciences and disorders (10 abstracts each). Each journal had an online publication presence. Three of the journals represented Speech-Language Pathology and two represent Audiology. They included the following:

- *Language, Speech and Hearing Services in the Schools (LSHSS)*
- *The Journal of the National Black Association for Speech, Language and Hearing (JNBASLH)*
- *Journal of Speech, Language, Hearing Research (JSLHR)*
- *American Journal of Audiology (AJA)*
- *The Journal of the American Academy of Audiology (JAAA)*

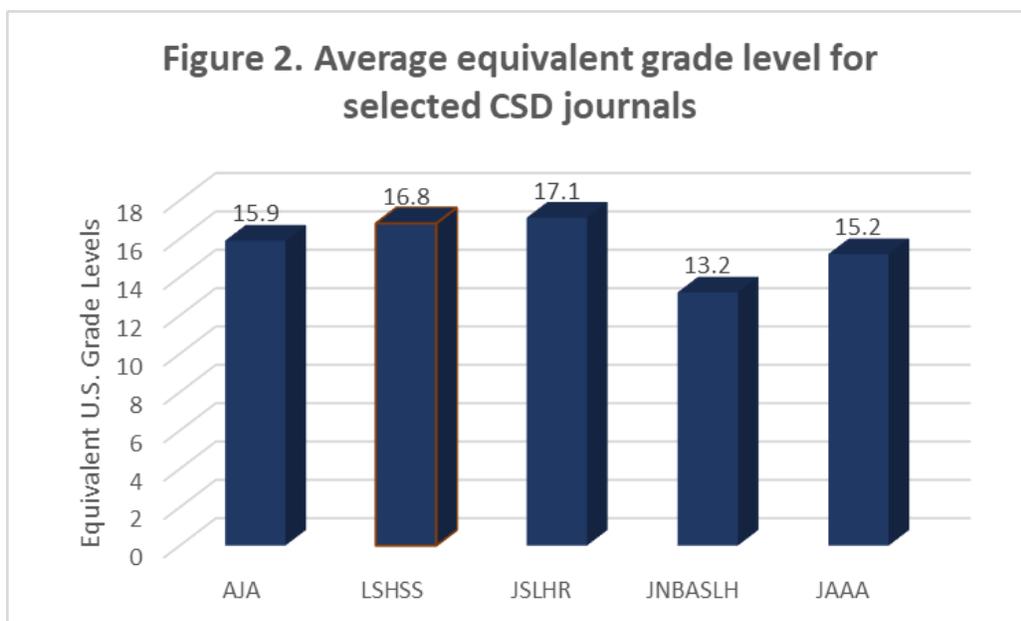
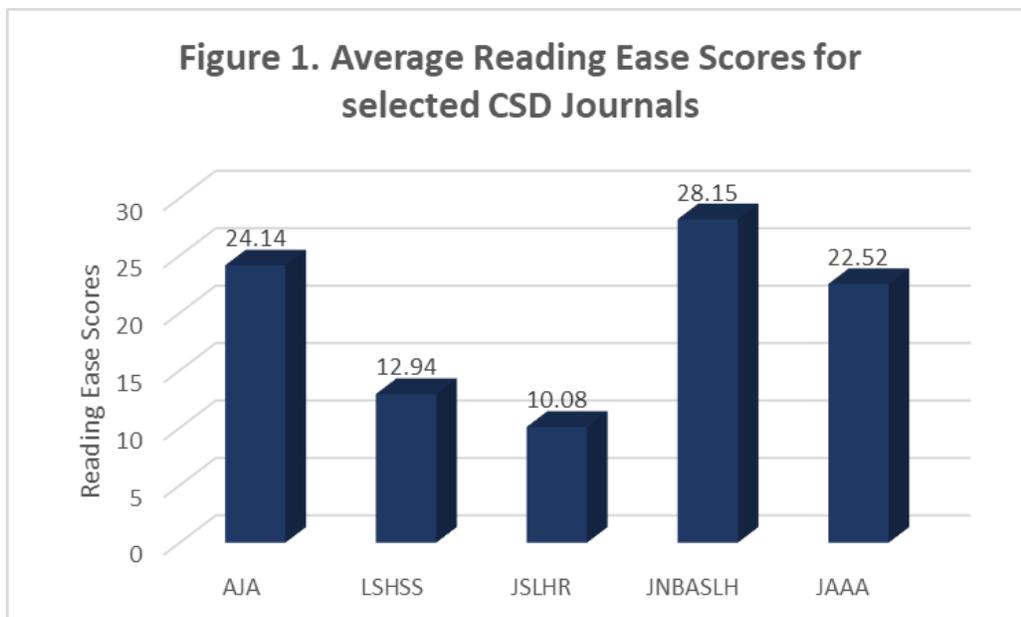
Articles along with their abstracts, were randomly selected from current or recent online issues (i.e., January 2016 to July 2017) of the five journals. Articles with abstracts less than 300 words in length were excluded. The abstracts that were selected were digitally copied, converted into a Word document, and subjected to the onboard *Flesch-Kincaid Readability Scale* analysis (e.g., counts, averages, readability) program. Only the F-K scores for *reading ease* and *grade level* were tabulated and averaged.

The Flesch-Kincaid Scale was also used to assess samples of students' writing. This was done for the purpose of determining just how close the readability scores of student essays aligned with those of the journal article abstracts (postulated to be able to serve as targeted writing standards).

The writing samples were digital essays (300+ words) solicited from two groups of students. The first group consisted of 66 college freshmen who were enrolled in an *Introduction to Communications* course taught at a local state college. The students had been required to write a series of short essays in response to *TED Talk* video presentations on various communication-related topics. Those who participated were given bonus points in the course for volunteering the submission of their best or highest graded essay (with a minimum 300-word count). No effort was made to randomize the samples. The second group consisted of 65, 2nd year graduate students enrolled in a Communication Sciences and Disorders program at a state university. These students had completed a digital essay assignment (minimum 300-word count) for their capstone course. They also received bonus points for volunteering their submissions. Again, no effort was made to randomize the samples. All students received a copy of their *Flesch-Kincaid Readability* results and information on how to improve their writing performance. Although, syllable/word counts, sentence length, and passivity ratings were also calculated, only the reading ease and equivalent grade level scores for each group's samples were averaged and reported in this study.

RESULTS

The data obtained were subjected to descriptive analyses. Figures 1 and 2 show the *reading ease* and *equivalent grade level* averages, respectively, for 50 abstracts randomly selected (10 each) from five refereed and peer-reviewed CSD journals.



The data in Figure 1 show a range of averages for reading ease for abstracts from the selected CSD journals. Reading ease scores for the *American Journal of Audiology (AJA)*, the *Journal of the National Black Association for Speech, Language and Hearing (JNBASLH)*, and the *Journal of the American Academy of Audiology (JAAA)*, 24.1, 28.1, and 22.5, respectively, were notably higher, than the reading ease averages for abstracts from

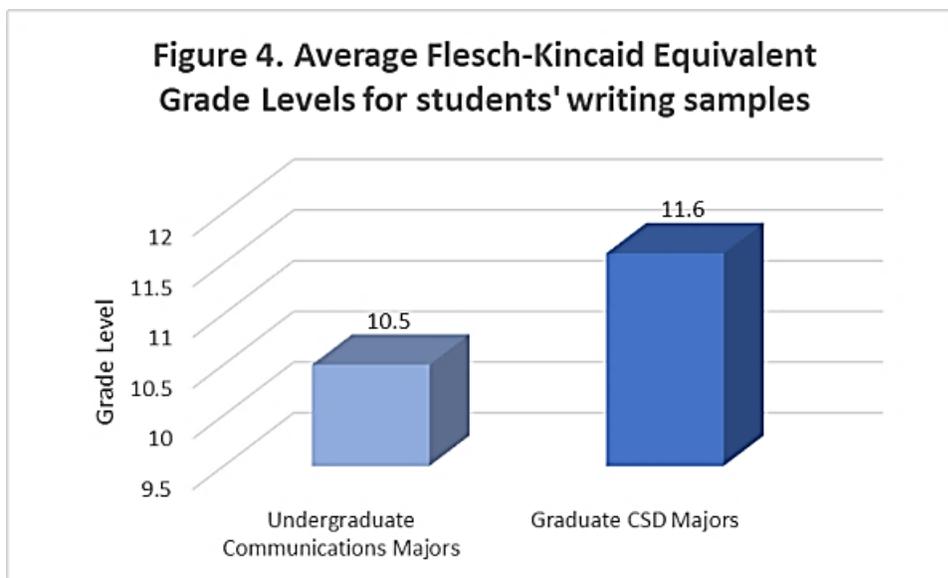
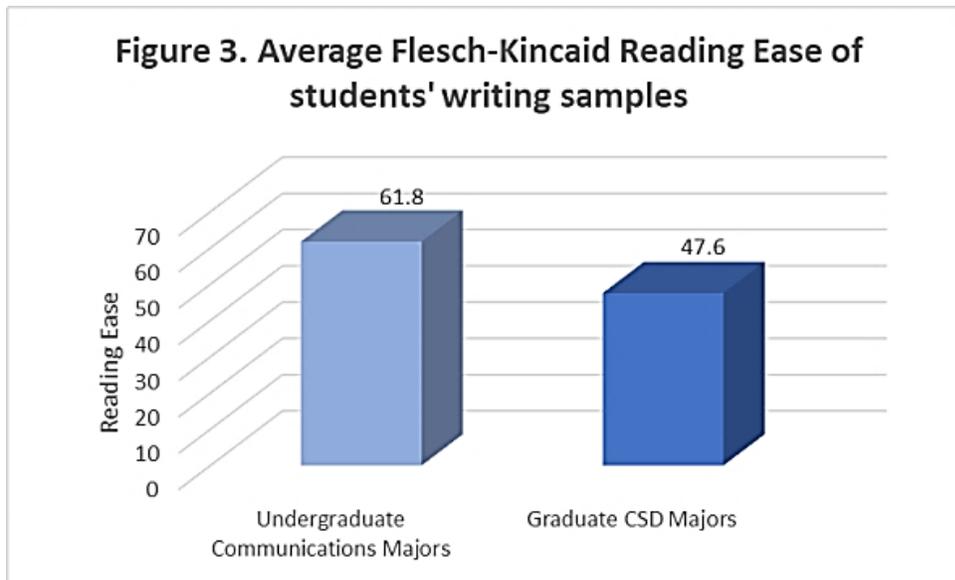
Language, Speech and Hearing Services in the Schools (LSHSS), and the *Journal of Speech, Language, Hearing Research (JSLHR)*, which were 12.9 and 10.8, respectively. According to the information shown in Table 1 (above), the average reading ease scores for each of the targeted journals fell within the “Very Difficult” to read category, identifying them as being suitable for a college-level audience.

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The data in Figure 2 show the average equivalent U.S. grade level for each of the selected CSD journals. The Equivalent grade level averages ranged from 13.2 for the *Journal of the National Black Association for Speech, Language and Hearing (JNBASLH)* to a grade level of 17.1 for the *Journal of Speech, Language, Hearing Research (JSLHR)*. The equivalent grade level averages for the other journals fell within this range. According to the

information shown in Table 2, these averages show each of the journals' articles (abstracts) to be suited for a college population.

Figures 3 and 4 show the reading ease and equivalent grade level averages, respectively, of writing samples from two groups of students---66 Freshmen communications students and 65 graduate CSD majors.



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The data in Figure 3 show different findings for the reading ease of undergraduate and graduate students' writing samples. Undergraduate students' average reading ease score was 61.8 points, while the graduate's reading ease average was 47.6 points. This means that the reading ease score for undergraduate writing samples fell within the "Standard" category shown in Table 1, identifying the samples as being suitable for a 13-15 year-old audience. The reading ease score for graduate students' writing samples fell within the "Difficult" category, as shown on Table 1 and identified them as being suitable for a college-level audience.

The data for equivalent grade level (Figure 4) reveal that freshmen student's average grade level was 10.5, and the graduate students' average grade level was 11.6. According to the information shown on Table 2, these grade level scores characterize the students' writing performance as that suitable for sophomore and junior high school students, respectively.

Figures 5 and 6 show the reading ease averages and average equivalent grade levels, respectively, for the freshmen and graduate students' writing samples compared to the readability averages of the selected CSD journals.

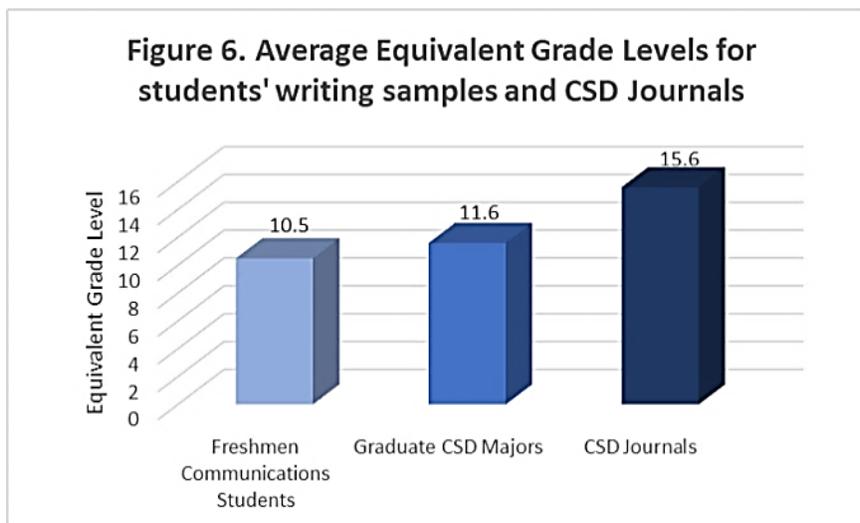
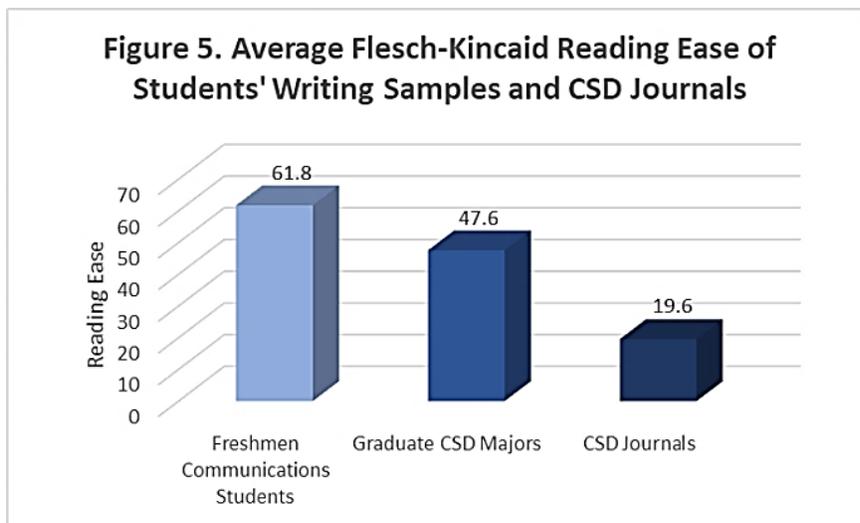


Figure 5 shows the reading ease averages for freshmen communications students (61.8) to be notably higher than that of the graduate CSD majors (47.6), with both being quite disparate with the reading ease average of the CSD journals (19.6). According to the information provided in Table 1 these findings suggest the reading ease of the CSD journals is “very difficult” to read but suitable for college graduates, with the reading ease of writing samples from the graduate CSD students (47.6) characterized as “difficult” to read by college students. Table 1 information suggests, further, that the reading ease of the freshmen students writing samples (61.8) is at a “standard” level of difficulty, but suitable for a 13-15 year old (7th - 9th grade) reading level.

Figure 6 shows the average equivalent grade level for students’ (e.g., Freshmen communications students (10.5) and graduate CSD majors (11.5)) writing samples to be comparatively lower than the average grade level measure for the selected CSD journals (15.6). According to the information posted on Table 2, the equivalent grade level scores for writing samples from both cohorts of students (freshmen communications students and graduate CSD majors), rate the samples as fairly difficult to read for high school sophomore and junior students, respectively. However, the average equivalent grade level for the CSD journals, 15.6, exceeds the limits of the information shown in Table 2. This suggests that the CSD journal’s grade level performance is beyond the college sophomore grade level.

DISCUSSION

The purpose of this study was to determine if abstracts from articles appearing in professional CSD journals could serve as examples for students to model when trying to improve their academic and/or clinical writing skills. It was postulated that because such articles routinely go through a “peer-review” or refereed process, which subjects them to a rigorous examination of their content and professional writing quality, that they could serve as exemplars for students to emulate when trying to improve their writing performance. The results of this study show that journal abstracts can be easily evaluated for their

“reading ease” and “equivalent grade level” using a readability scale like the *Flesch-Kincaid*.

The finding that each of the journals used in this study was suitable for a college-level audience was not surprising. The audience targeted by the journals are graduate and post graduate career professionals. But, that some variability was shown for the average *reading ease* scores (e.g., between 10.8 to 28.15) suggests that some articles in some journals are more difficult to read than articles in other journals. The differences are likely contributed to by the different research orientations of the respective journals (e.g., applied or empirical research vs. descriptive analytical research vs. case-study or narrative reporting). Knowing that there are differences in reading ease, and for that matter, *equivalent grade level* can be important, particularly, when authors are considering which journals to submit their manuscripts.

What was surprising were the readability results of the students’ writing samples, specifically, the equivalent grade level findings. Grade levels for undergraduate students’ writing samples, would be expected to be at least at the 13th grade level (college freshman). Instead, the undergraduate equivalent grade level was at the 10th grade; a relatively low performance. Graduate student writing samples fared little better, with an average at the 11th grade; well below an expected 15th-16th grade level. This raises the issue, that if undergraduate and graduate students are expected to become familiar with the scholarly literature and then be able to communicate their knowledge of the profession in an intelligent and effective manner; then how can they when their writing performance, as represented by these results, is as deficient as it appears to be?

With regard to the reading ease averages for the two groups of students---Freshmen (61.8) and graduates (41.6)), they differed substantially, and proportionally more so, from the average for the CSD journals (19.6). Arguably, writing for the reading ease of a targeted audience is more of an art than a science. There are variables such as using familiar technical terms, conventional phrasing, formulas, etc., which can lengthen words and sentences that impact reading ease.

Learning how to incorporate these and other features for scholarly or professional writing may require training. There is evidence here that such training is warranted and should be incorporated into the undergraduate curriculum, well before students pursue graduate education.

Limitations

This study examined a limited number of writing samples (50 journal abstracts and 131 essays). The essays were solicited from two relatively small student populations (e.g., 66 freshmen communications students and 65 graduate CSD students). Additionally, inferential statistical

Recommendations

First reading...

In his book "The pleasures of reading in an age of distractions" Alan Jacobs (2011) explains that many students approach required reading filled with a sense of reluctance. For them, reading is something they "endure" in order to achieve a desired grade for a class or assignment. To be expedient, they memorize what they read instead of trying to learn the information for future application(s). Jacobs goes on to say that such students may be willing to read one or perhaps two textbooks for a course; but, in the instance that a professor requires multiple texts to be read, those most reluctant will likely drop the course rather than devote the amount of time they will need to increase their capacity to read, much less to learn to read well.

Students entering graduate or professional programs are presumed to have progressed beyond this reluctant or immature approach to reading. Mere memorization of facts is not sufficient. Their reading must take be more detailed or critical. They not only must be able to understand what was read, they must also be able to convey their knowledge to others. This is referred to as *conversancy*.

In their book *How to Read a Book*, Adler and Van Doren (1972) link the process of reading (for understanding) with an intention to develop conversancy (i.e., speaking and writing about a subject). Accordingly, students, particularly,

analysis was not performed which limited us to describing observed differences between the groups as opposed to delineating differences of a statistically significant nature. At best, the study can be considered a preliminary approach to finding methods for helping to improve students' scholarly/professional writing performance. The study does provide a starting point, though, for course instructors and students to initiate a writing training program. A more robust examination of the subject, to include other readability programs, might prove more effective. So too a more critical analysis of the writing samples, to include subjective measures.

graduate students must move well beyond strict memorization and develop the habit of reading to become more conversant in an area of scholarly inquiry, as well as to increase their knowledge base.

To approach required reading with the intention to develop conversancy, the authors suggest the following:

- Read the text or article as if it is a prescription for actual professional practice. That is, what is the literature telling you to do in actual practice?
- Decide whether the text or article is theoretical or practical in its intent. That is, what is the author's intent? To theorize? To prescribe?
- Classify the text or article according to the major strands of intellectual history. That is, does the literature give primary emphasis to general ideas that authors argue about?
- Decide whether the text or article is about general issues or about more specific problems. That is, does the literature have as its objective to orient the reader and the reader's subsequent practice to deal with global issues or to provide tools to solve specific problems?
- Identify the author's perspective. That is, what is the implicit philosophy embedded in the text or article?

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- Specify what the text or article advocates you to do. That is, ask yourself, “What does the author want me to do?”
- Identify the purpose for which this is to be done. That is, ask yourself, “Why does the author want me to do this?”
- Make an informed judgment about the validity of these matters for actual practice. That is, ask yourself, “Do I believe that what the text or article suggests is a good thing? Is this better than what I am doing at present?”

Then writing...

There is a wealth of information on the Web that explains how to improve writing performance or the readability of text. It is the opinion of these writers that the information provided by My Byline Media (2019) at Readabilityformulas.com and Perles, (2009) at Brighthubeducation.com are excellent starting points. That information has been summarized and is presented below (with permission):

“How to Improve the Readability of Anything You Write.”

Suggestion #1:

- Use one and two syllable words if and when appropriate.
- Avoid using too many 3-syllable words, unless that word is familiar to your readers.

Suggestion #2:

- When possible, write short, simple sentences.
- Introduce one idea in a sentence.
- Restrict the number of new ideas on a page.
- State the main idea at the beginning of each paragraph so the reader immediately knows the idea.

Suggestion #3:

- Use connective words (‘firstly,’ ‘initially,’ ‘lastly,’ ‘however,’ ‘therefore,’ etc.) to help guide the reader through sentences and paragraphs.

Suggestion #4:

- Use the active voice. Active voice makes your writing style and voice more concise and succinct.
- Too many instances of passive voice will trouble poor readers and make sentences longer.

Suggestion #5:

- Define difficult words by context clues, such as using parentheses to elaborate on a word, or using a footnote or citation to further explain the word.

Suggestion #6:

- Summarize important points in short paragraphs, perhaps with subheadings to break up bulky paragraphs.
- This helps the reader skim the material or to refer back to a specific paragraph.

Suggestion #7:

- Illustrations, speech bubbles, bullets, photos, graphs and different typefaces can add appeal to your material and increase reader retention.

Suggestion #8:

- Readers like “lists” because they can easily read sequential information or a series of events or ideas in narrative form.
- Good writers lead readers from point A to point B to point C and so on, without skipping around or zig-zagging around multiple ideas.
- Readers will quickly lose interest if you have them jumping around trying to make sense of things.

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Suggestion #9:

- Choose a writing style that is easy to follow.
- Two popular writing styles include: 1) the “question-answer” style in which the author asks a question and then answers it in detail; and 2) the “sharing-experience” style in which the author describes an experience in personal terms.
- You can also use the “list” style (as mentioned above) to emphasize main ideas in sequential order.

Suggestion #10:

- Print size and style affect both readability and reader retention.
- Select typeface and paper that attracts readers and works in harmony with the purpose and tone of your message.

Suggestion #11:

- Add greater interest to your writing by using personal words, pronouns, names of people, etc.
- You can further connect with your readers by using personal sentences, such as quoted dialogue, spoken sentences, questions, commands, requests, exclamations, etc.

Suggestion #12:

- Depending on what you are writing and for what reason, it may be suitable to use a short slogan to convey information in a memorable way.
- The former statement also uses “basic sight words” and can be read by anyone with a primary-grade reading ability.

Suggestion #13:

- Break up long stretches of narrative passages with bold or italicized subtitles and/or captions.

- Captions and subtitles allow the reader to comprehend major points and digest your material more easily.

Suggestion #14:

- Highlight important ideas and terms with boldface type, italics or sentence indentions.

Suggestion #15:

- Leaving plenty of white space around black text is inviting.
- Crowding a page with blocks of text makes it look more confusing to a low-level reader.

Suggestion #16:

- Make technical terms look easier to read.
- You can do this by adding a phonetic pronunciation or a similar-sounding word in parentheses to help the reader familiarize himself with the word.

Using Flesch Kincaid Grade Level in Microsoft Word to Help You Write at an Appropriate Grade Level:

- Try to combine sentences whenever possible, using commas and conjunctions or other methods. Remember that Flesch Kincaid Grade Level is partially based on sentence length, so this is one of the easiest ways to raise the grade level.
- Do not waste your time combining sentences by inserting semicolons. Flesch Kincaid treats semicolons as breaks between sentences, just like periods.
- Try to insert as many longer words as possible, especially words with three or more syllables. Keep in mind, however, that Flesch Kincaid does not take the suffix –ed into account when calculating syllables, so the word “corrected,” for

example, would only count as a two-syllable word.

- Remove long strings of one syllable words whenever possible. For example, if you have a sentence that reads “The squirrel scurried up the tree, searching here and there for more nuts to fill his cheeks with” in your text, try shortening the text to read “The squirrel scurried up the tree, searching for more nuts.” This

will remove some of the one-syllable words, which will lower your Flesch Kincaid score.

- To lower the grade level of your text, do the opposite of each bullet above. Break sentences into two whenever possible, replace longer words with shorter ones, and insert additional one syllable word strings.

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**THE IMPACT OF AFRICAN AMERICAN ENGLISH ON LANGUAGE PROFICIENCY IN
ADOLESCENT SPEAKERS**

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ABSTRACT

To examine previous findings that AAE use is related to complex syntax in spoken language, this study examined the relationship between AAE, complex syntax, and lexical diversity in adolescent African American English-speaking students in spoken and written language. There were no significant differences in syntactic complexity, type token ratio, and vocabulary use as a function of AAE use. The only significant correlations between AAE use and these measures were in the low moderate range ($r = .32-.36$). The findings of this study were thus inconsistent with previous studies by Craig and Washington (1994, 1995), but were consistent with the more recent study by Jackson and Roberts (2001). Future studies should continue to examine how AAE changes over time and how AAE use may influence syntactic and lexical aspects of language.

KEY WORDS: African American English, complex syntax, lexical diversity, adolescents

INTRODUCTION

Despite the efforts of educators across the United States to narrow a persistent academic gap between African American and non-minority students, African American (AA) children continue to perform poorly on standardized tests of academic achievement (National Assessment of Educational Progress, 2012) and are over-represented on the nation's special education caseloads. African American children's performance in reading and math (NAEP, 2012) is significantly lower than non-minority students and even though the gap narrowed between 1992-2007 for fourth and eighth grade students, it continues to exist leaving many students at risk for academic failure. One factor contributing to the academic achievement gap is the language skills that African American children bring to classrooms (Craig & Washington, 2002). Studies have shown that many African American children show consistently lower levels of performance on measures of vocabulary (NAEP, 2012) and complex syntax (Baratz, 1970; Fasold & Wolfram, 1970; Labov, 1971). The importance of vocabulary for reading has been well documented (National Reading Panel, 2000; Beck, McKeown, & Kucan, 2013). The role that complex syntax plays in reading and academic performance is less obvious, but recent studies have shown that productivity measures of complex syntax are strongly related to academic performance (Arndt & Schuele, 2013). The children studied ranged in age from 4.0-5.5.

The deficiency view of dialect, which was prevalent nearly five decades ago (Baratz, 1970; Dillard, 1972; Wolfram & Fasold, 1974), predicted that high dialect users would produce fewer complex sentences than low dialect users. Surprisingly, the high African American English (AAE) users produced significantly more complex sentences than the low AAE users (Craig & Washington, 1994). These findings were confirmed in a subsequent study by Craig and Washington (1995) that examined simple and complex prepositional phrases. The high AAE users produced significantly more complex prepositional phrases than low AAE users. Puzzled by these findings, Craig and Washington (1995) suggested that perhaps high

AAE is an indication of more advanced language ability because it is associated with an increase in the number of types of structures used not just the repetitive use of a small set of forms. This would mean that high AAE usage would be associated with increased lexical diversity throughout the language system. Increased lexical diversity would be reflected in higher Type Token Ratios (TTR), more literate (Type 2, 3) vocabulary in spoken and written language.

These findings and claims have not been supported in subsequent studies by Craig and Washington (1998) and Jackson and Roberts (2001). In addition, no study has examined the relationship between complex syntax, lexical diversity and AAE in older school-age children nor has any study investigated these relationships in written language. The present study was designed to test this claim by comparing complex syntax, lexical diversity and AAE usage of spoken and written samples of language in typically developing 7th grade African American students.

Language Development in Older School-Age Children

Syntax is an aspect of language that is characterized by gradual linguistic growth in the adolescent population. Syntactic development during adolescence is a time for increased proficiency, not a time for developing new grammatical structures (Nippold, Ward-Lonergan, & Fanning, 2005; Nippold et al., 2005). During this period, adolescents develop an awareness of how to use pre-established grammatical structures more efficiently. These structures result in production of more complex communication (Nippold, et al., 2005). Sentences gradually increase in length, complexity, and so does informational density. Spoken sentence length matches chronological age until around age 9 years at which time the growth curve slows. Adolescents' conversational utterances average 10-12 words by the later secondary years.

Written sentence length increases from 7-14 words between 3rd and 12th grade (Scott & Stokes, 1995). The use of noun phrases increases

through the use of appositives, elaborated subjects, nonfinite verbs, and relative clauses (Scott & Stokes, 1995). For example, the following is a noun phrase expansion using appositives: *Margaret the corporate attorney bought a town house*. Verb phrases increase through the use of modal auxiliary verbs, the perfect aspect, and the passive voice. For example, the following is an example of a verb phrase through the use of perfect aspect: *She had been working all day*. Clausal density gradually increases during the school-age and adolescent years (Scott & Stokes, 1995) just as sentence length does. The use of subordinate clauses, center-embedded and object relative clauses, past perfect marking, modal auxiliaries, and low frequency adverbial conjunctions increase. The mean subordination index for grade 3 is 1.22, grade 5 is 1.29, grade 8 is 1.39 and for grade 11 is 1.52 according to Scott (1988). The use and understanding of linguistic devices such as adverbial conjuncts (e.g. moreover, consequently, and furthermore) are used more often to join sentences and to produce cohesive discourse (Nippold, Hesketh, Duthie, & Mansfield, 2005). The use and understanding of adverbial conjuncts steadily improve during adolescence in written communication (Scott, 1984). Concordant (e.g. similarly, moreover, and consequently) and discordant (e.g. contrastively, rather, nevertheless) adverbial conjuncts have been found to be equally difficult for students. Overall findings regarding syntax in adolescents indicate that its development is gradual and characterized by improved proficiency in using more complex structures including increased sentence length, complexity, informational density, and cohesive devices such as adverbial conjuncts.

Semantics is another aspect of language that develops gradually in the adolescent population. According to Nippold (1993), lexical diversity and figurative expressions are two important features of semantics that are potential markers of academic success in the adolescent population. Rapid growth in vocabulary size occurs during adolescence, especially between the ages of 11 and 14 years and by the time that students graduate from high school, they know approximately 80,000 words (Miller & Gildea, 1987). In addition to the quantitative growth in

size of the lexicon, there is a continuing refinement in lexical knowledge of adolescents (Nippold, 1998). More words with abstract meanings are acquired by teenagers than what is generally seen in younger children. The literate lexicon is increased and teens are better able to use words in many contexts. Adolescents increase the use of words like *interpret*, *concede*, and *predict* which often occur in textbooks, lectures, and seminars. Nippold (2007) found that adolescents are better able to learn words and their meanings by picking up on cues that morphological markers provide and using context to decipher meanings of unfamiliar words. Semantic growth also involves increased use of verbal humor, idioms, metaphors, similes, slang, and proverbs as well as the ability to complete verbal analogies, and the ability to detect/decipher ambiguous statements.

AAE Use and Complex Syntax

The first study to examine the relationship between AAE usage and complex syntax was Craig and Washington (1994). The participants were 45 low-income, urban, AAE-speaking children (21 boys and 24 girls) between the ages of 4 and 5.5. Two language samples were obtained from each child: one 20-minute sample of children engaged in free play and the other a 10-minute sample taken while children described a set of 10 action pictures. The Peabody Picture Vocabulary Test-R (PPVT-R) was also administered. The samples were analyzed for AAE and complex syntax usage. Children were considered high AAE users if AAE forms occurred in more than 24% of their utterances. In contrast, children were considered low AAE users if AAE forms occurred in less than 11% of utterances. Zero copula/auxiliary and lack of subject-verb agreement were the most frequent AAE forms used by high and low AAE users.

The amount of complex syntax was found to vary across children from 0 to 25%. The mean percentage of utterances containing one or more instances of complex syntax was 8.2 (SD = 5.4). Variables that did not account for these individual differences because they were controlled in the study included (a) socioeconomic status, (b) prior school

experience, (c) prior formal experiences with standard American English, and (d) developmental history. In addition, age and gender were not significantly related to complex syntax usage. Two variables were significantly related to individual variations in complex syntax usage. The number of different types of complex syntax correlated positively with the percentage frequencies of occurrence of utterances containing complex syntax. This finding indicated that increased percentage of complex syntax use reflected a corresponding increase in the types of complex syntax used. The most widely used types of complex syntax were (a) two of the three types of infinitives that were marked with *to*, (b) the conjunction *and* to link two independent clauses, (c) noninfinitive *wh-clauses*, (d) noun phrase complements, and (e) *lets/lemme*. The action and play focus of the language sampling context may have contributed to the increased use of some of these types. The other variable that correlated positively to complex syntax usage was frequency of sentences containing AAE forms ($r=.44$).

The children who had the highest number of utterances with an AAE form produced significantly more utterances with complex syntax than children who were low AAE users. There was nothing in the previous literature that would suggest this finding. Craig and Washington (1994) note that the much of the early research on AAE was conducted primarily to refute prevailing assumptions that AAE was a deficient language (Baratz, 1969, 1970; Fasold & Wolfram, 1970; Labov, 1971). Clearly, the positive relationship between complex syntax and AAE use needed to be pursued in future investigations.

Toward this end, Craig and Washington (1995) further analyzed the data from their 1994 study to examine the relationship between AAE and the production of the production of simple and complex prepositional phrases. Nonsignificant correlations were found between amounts of AAE and simpler prepositional phrases scored as identifications ($r = -.16$, $p > .05$) and movements ($r = -.26$, $p > .05$). Consistent with the previous study, however, a moderately strong, statistically significant, positive correlation ($r = .46$, $p < .016$) was found

between amounts of AAE and prepositional phrases expressing more complex relative relationships.

Taken together, Craig and Washington (1994; 1995) suggest that the findings from their two studies suggest “that increased amounts of AAE, complex sentences, and semantic relations for prepositions all reflected an increase in the number of types used by the child, not simply the repetitive use of a small set.” The expanded diversity of language forms in children using higher levels of AAE indicates a higher level of linguistic proficiency overall for these children.

A study by Jackson and Roberts (2001) is the only other one that has directly examined the relationship of AAE usage and complex syntax. Participants were 85 low SES 3- and 4-year-old children. Fifteen-minute language samples were collected from each child during free play. The role of child factors including AAE, gender, and age were examined in the production of complex syntax. Family factors including home environment were also examined. At age 3 and 4 years, language samples were collected from each participant. Utterances were examined for the presence of one or more of the following types of complex syntax: single infinitives, simple non-infinitive *wh-clauses*, noun phrase complements, *let(s)/lemme*, relative clauses, infinitives with a different subject, unmarked infinitives, *wh-infinitive clauses*, tag questions, and clauses joined by conjunctions. Jackson and Roberts’ (2011) findings revealed that boys produced fewer complex syntax forms than did girls. The number of complex syntax forms that the children used correlated positively with the number of different types of complex syntax forms used at age 3 ($r=.83$) and ($r=.84$) at age 4. The total number of complex syntax forms correlated positively with mean length of utterance-words ($r=.39$) at age 3 and ($r=.70$) at 4 years of age. A positive relationship was shown between the amount of complex syntax and different types of complex syntax which is consistent with the findings of Craig and Washington (1994). The findings showed that the amount of complex syntax was unrelated to AAE, however. At age three, the correlation between complex syntax and AAE was .09 and .11 at age four.

Craig and Washington (1998) indirectly examined the relationship between complex syntax and AAE use in their study of C-unit lengths in the discourse of African American children. Communication units (C-units), defined by Loban (1976) as independent clauses plus their modifiers, offer some important advantages over other potential segmentation units like the T-unit. One purpose of the study was to determine whether there were systematic variations in the average C-unit length relative to syntactic complexity and AAE use. Study participants included 95 African American children from low income homes who ranged in age from 4 to 6 ½. Speech samples were elicited during free play. AAE frequencies were averaged across words. Results showed that complex syntax better explained mean length of communication unit-words (MLCU-w) than did AAE use. Mean length of communication unit-morphemes (MLCU-m) was not significantly related to the children's dialect use ($r = .15$) while MLCU-w correlated significantly with amounts of dialect, but the relationship was very weak ($r = .22$). In sum, the first two studies by Craig and Washington (1994, 1995) found a significant moderate relationship between complex syntax and AAE use. Two subsequent studies did not support the findings in these early studies. In addition, no study has examined the relationship of complex syntax and AAE in older school-age children nor has any study investigated these relationships in written language.

AAE and Writing

Earlier studies (Wolfram & Schilling-Estes, 1998) identified AAE features in the writing of AA children and included the absence of the *-s* marker (e.g. she go ___), absence of plural *-s* marker (e.g. four mile_), the absence of possessive *-s* (e.g. John hat), and the absence of *-ed* (e.g. Yesterday they miss___). Other features that occurred in the spoken language of AAE speakers included multiple negation, the use of *ain't*, and the use of habitual *be*, but were found to occur infrequently. Recent studies (Thompson, Craig, & Washington, 2004; Craig, Zhang, Hensel, & Quinn, 2009; Ivey & Masterson, 2011) have revealed that dialect shifting is evident in African American student

writing with noted decreases in the use of AAE. AAE use in written and oral language of African American adolescents was examined by Horton-Ikard and Pittman (2010). Language samples were collected from 11 twenty-two African American students in the 10th grade. Four patterns were evident in both written and oral samples: copula variability, subject-verb agreement, cluster reduction, and vowel pronunciation differences. Horton-Ikard and Pittman (2010) used these findings to suggest that dialectal differences continue to play a role in the error types that AAE speakers produce when writing.

There is a paucity of research on AAE use in written language; however, the overall findings of existing studies show that features of AAE are evident in the written language output of those African Americans who use African American English (Thomas-Tate et al., 2006; Craig et al., 2009; Horton-Ikard, & Pittman, 2010; Ivy, L. & Masterson, 2011; Rodriguez & Washington, 2013). The studies that have focused on writing in African American adolescents have shown that AAE use in oral language is more diverse and occurs more often than it does in written language production suggesting that a written language context will encourage less use of AAE.

Craig and Washington (1995) have suggested that high AAE usage may be an indication of more advanced language ability because it was associated with an increase in the number of types of structures used not just the repetitive use of a small set of forms. This would mean that high AAE usage would be associated with increased lexical diversity throughout the language system. Increased lexical diversity would be reflected in higher Type Token Ratios, and a more literate (Type 2, 3) vocabulary in spoken and written language.

Research Questions

The aim of this study was to examine spoken and written language samples in young adolescent students (7th graders) to test this claim using the following research questions:

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- 1.) Are there significant differences in complex syntax, TTR, and Tier 2/3 words in spoken and written samples of low, moderate, and high AAE users?
- 2.) Is AAE usage significantly related to the use of complex syntax, TTR, and Tier 2/3 words in spoken and written samples?
- 3.) What are the most frequent AAE forms and complex syntactic structures used by middle school students?

METHOD

Participants

Participants were 32 African American (16 boys and 16 girls) typically developing 12- and 13-year old 7th grade students (mean age=12.5 years). Students were recruited from a local public school system in the Central Piedmont region of North Carolina. Recruitment letters and consent forms were given to middle school students who met the inclusionary criteria. All participants were required to be on grade level in reading and language arts classes based on teacher reports. Participants were also required to have passed their most recent End-of-Grade (EOG) tests in reading with a passing score of 3 or 4. All participants spoke AAE. Low AAE users were defined as those who used AAE in 0-11% of their speech. Moderate AAE users were defined as those who used AAE in 12-19%, and high AAE use was identified when AAE forms occurred in 20-33 % of their utterances. Students with emotional disorders, hearing impairment, sensory or neurological impairments were not included. All participants spoke English as their primary language. None of the participants were enrolled in special education.

Data collection procedures

A modified version of the Favorite Game or Sport task (Nippold, 2005) was used to elicit spoken language samples. The task was designed to elicit detailed discussion of an adolescent's favorite movie, sport, television

show, or videogame. A minimum of 75 utterances was elicited from each of the 32 participants. The following script was read aloud to each participant:

I am hoping to learn what people of different ages know about certain topics. Tell me your favorite movie, sport, television show, or videogame as if you were talking to a friend. There are no incorrect answers.

- A. What is your favorite movie, sport, television show, or, videogame?
- B. Why is _____ your favorite movie, sport, television show, or, videogame?
- C. I'm not too familiar with the movie, sport, television show or the sport _____, so I would like for you to tell me about it. For example, tell me about what the goals are, and how many people may play a videogame. Also, tell me about the rules that players need to follow. Tell me everything you can think of about the game of _____ so that someone who has never played before will know how to play.
- D. Now I would like for you to tell what a player should do in order to win the videogame of _____. In other words, what are some key strategies that every good player should know?

Study participants were allowed as much time as needed to respond to each prompt. If participants failed to respond, questions were repeated. Questions were repeated if the adolescents asked for repetition. Samples were audio-recorded.

Writing samples were obtained from each participant's reading/ language arts teacher. Written samples contained a minimum of 10 sentences and were representative of each participant's best work as determined by the student's teacher.

Language Measures

AAE Types/Frequency of Use. Oral and written language samples were analyzed for the

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presence, type, and frequency of occurrence of 16 features using Washington and Craig's (1994) descriptions of AAE. Examples of examined AAE features include: zero copula or auxiliary, subject verb agreement, fitna/sposeta/bouta, ain't, undifferentiated pronoun case, multiple negation, zero past tense, zero possessives, zero-ing, invariant be, zero to, zero plural, double modal, regularized reflexive, indefinite article, appositive pronoun, and remote past "been." (See examples of each AAE feature in Table 1.).

Complex Syntax. Washington and Craig's (1994) analysis of complex syntax was used. This analysis contained 11 categories of complex syntax: (a) simple infinitive with same subject, (b) simple noninfinitive wh-clause, (c) noun phrase complement, (d) relative clauses, (e) unmarked infinitives, (f) gerunds and participles, (g) clauses joined by conjunctions, (h) tag questions, (i) wh-infinitive clauses, (j) infinitive with different subjects, and (k) let(s)/lemme and infinitive. Examples are provided in Table 2. Following Arndt and Schuele (2013), complex syntax structures were also in dependent clauses because discourse often includes sentences that begin with conjunctions (e.g., because I needed a new pair of shoes). Refer to Table 3 for examples.

Type-Token Ratio. Type-token ratio (TTR) provided a measure of lexical diversity in oral and written language samples elicited from adolescent participants. The TTR was computed by dividing the number of different words by the total number of words in the samples. For example, in a sample containing a total of 87 words/tokens and 62 types, the TTR would be 71.3%.

Vocabulary. Beck, McKeown, & Kucan (2013) have distinguished between three tiers of vocabulary: Tier 1 words are basic words that generally appear during conversation and do not require formal instruction whereas tier 2 words occur infrequently during conversation and are less likely to be learned independently. Examples of Tier 2 words include: contradict, circumstances, precede, etc., Tier 3 words are used in specific topics and domains such as

science and social studies. These words are not produced frequently. Examples of tier 3 words include: epidermis, filibuster, pantheon, etc. For the purposes of this study, tier 2 and 3 words were measured for frequency of occurrence for each participant.

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Table 1. Morphological and Syntactic AAE Forms (Craig & Washington, 1994).

Zero copula or auxiliary <i>Is, are,</i> and modal auxiliaries: will, can, and do are variably included	“the bridge out” “how you do this”
Subject-verb agreement A subject and verb that differ in either number or person	“what do this mean?”
Fitna/sposeta/bouta Abbreviated forms of “fixing to,” “supposed to,” and “about to.”	Fitna: “She fitna backward flip” Sposeta: “when does it sposeta go” Bouta: “this one bouta go in the school”
Ain’t “ain’t” as a negative auxiliary	“why she ain’t comin?”
Undifferentiated pronoun case Nominative, objective, and demonstrative cases of pronouns occur interchangeably	“him did and him”
Multiple negation Two or more negative markers in one utterance	“I don’t got no brothers’
Zero possessive Possession coded by word order so that the possessive –s marker is deleted, or the nominative or objective case of pronouns is used rather than the possessive	“he hit the man car” “kids just goin’ to walk to they school”
Zero past tense -ed is not always used to denote regular past constructions, or the present tense form is used in place of the irregular past form	“and this car crash” “and then them fall”
Zero –ing Present progressive morpheme –ing is deleted	“and the lady is sleep”
Invariant <i>be</i> Infinitival <i>be</i> with a variety of subjects coding habitual actions	“and this one be flying up in the sky” “if he be drunk I’m taking him to jail”
Zero <i>to</i> Infinitive marker <i>to</i> is deleted	“now my turn shoot you”
Zero plural Variable inclusion of plural marker -s	“ghost are boys”
Double modal Two modal forms for a single verb form	“I’m is the last one ridin on”
Regularized reflexive Reflective pronouns “himself” and “themselves” are expressed by “hisself” and “theyself”	“he stands by hisself”
Indefinite article “a” regardless of vowel context	“Brenda had to play for a hour, didn’t he?”
Appositive pronoun Both a pronoun and a noun reference the same person or object	“the teacher she’s goin’ up here”
Remote past “been” “been” is used to mark action in the remote past	

Table 2. Scoring definitions and examples for complex syntax types (Craig & Washington, 1994).

Simple infinitive with same subject Utterances containing verb infinitives in which the subject is the same for both the main verb and the infinitive.	“he don’t need <i>to stand up</i> ’ “they was tryin’ <i>to get in</i> ”
Simple noninfinitive wh-clause The wh-clause is followed by a subject-verb, rather than an infinitive	“this <i>where they live at</i> ” “I don’t know <i>what it called</i> ”
Noun phrase complement Utterances in which a full subject and predicate clause replaces the noun phrase, usually in the object position of the main clause	“I told you <i>there’s a Whopper</i> ” “I think <i>this’ll work</i> ”
Let(s)/Lemme and infinitive Utterances in which <i>let</i> , <i>let’s</i> or <i>lemme</i> introduce the main clause	“ <i>lemme</i> do it” “ <i>let’s</i> share these”
Relative clause Utterances in which a noun or pronoun in the main clause is modified by another clause.	“that’s the noise <i>that</i> I like” “where the ghost you gotta put in”
Infinitive with a different subject Utterances containing verb infinitives in which the subject of the infinitive is different from the subject of the verb in the main clause.	“the bus driver told the kids <i>to stop</i> ” “why you don’t want nobody to put it too close to your mouth?”
Unmarked infinitive Utterances containing verb infinitive verbs with the <i>to</i> omitted in which the main verb lexically was <i>let</i> , <i>help</i> , <i>make</i> , or <i>watch</i> .	“I help (<i>to</i>) <i>braid</i> it sometimes” “are you gonna let her (<i>to</i>) <i>wear</i> these?”
Wh-infinitive clause Two clauses linked by a wh-pronoun such as <i>what</i> , <i>when</i> , <i>where</i> , or <i>how</i> in which an infinitive verb follows the wh-form.	“she know <i>how to do a flip</i> ”
Gerunds and Participles Utterances containing nouns formed from verbs + ing, or adjectives formed from verbs and ending in <i>ed</i> , <i>t</i> , <i>en</i> , etc., respectively.	“they saw <i>splashing</i> ” “it get <i>rainy</i> ”
Tag questions Clauses added to the end of the main clause that are all positive or that contrast positive and negative relationships between clauses.	“these the french fries, <i>ain’t it?</i> ” “she got new clothes, <i>don’t she?</i> ”
Clauses joined by conjunctions The combining of clauses using the listed coordinate and subordinate conjunctions to link co-referential nouns in subject or object sentence roles.	and: “this one happy and that one happy” but: “I like Michael Jordan but he ain’t playin’ on the team no more” so: “that go right there so it can shoot him” if: “nothing can stop me if I got this” because: “it ain’t gonna come out because it’s stuck.” since: “I’ll open the stuff for them since they don’t know how to do it.” before: “put him in there before he comes back out” when: “when you done with this you get to play with this one?” until: “I didn’t know it until my brother said it” while: “they could be here while we’s fixin’ it, can’t they?” like: “act like we already cook ours”

Table 3. Complex syntax types and examples (Arndt & Scheule, 2013).

Complex Syntax Type	Example
<i>Coordinate conjunction clauses</i>	<i>I went to the store and bought a new dress.</i>
<i>Subordinate conjunction clauses</i>	<i>I went to the store because I needed a new dress.</i>
<i>Reduced infinitives</i>	<i>I wanna go home.</i>
<i>Let's clauses</i>	<i>Let's go home; Let me have that.</i>
<i>Marked infinitives</i>	<i>He wanted to go to the store.</i>
<i>Unmarked infinitives</i>	<i>He made Mary leave.</i>
<i>wh-nonfinite complement clauses</i>	<i>He doesn't know where to go.</i>
<i>Full propositional complements</i>	<i>Mary knew the boys would leave at 4:00.</i>
<i>wh-finite complement clauses</i>	<i>I wondered where we were going on Saturday.</i>
<i>Relative clauses</i>	<i>The man who/that crashed the car is in jail.</i>
<i>Nominal or headless relative clauses</i>	<i>Whoever wants to leave needs to get in the car.</i>
<i>Participle clauses</i>	<i>He looked for her wandering around the store.</i>

Data Reduction

Participants in this study completed spoken and written language samples. Testing was completed on an individual basis. Spoken and written language samples were elicited during one visit. Complex syntactic structures, lexical diversity measurements, tier 2 and 3 vocabulary words were measured. Descriptions of sample measurement scoring procedures follow.

Spoken and written language samples were transcribed and checked for accuracy. Utterances were coded as complex syntax and assigned a unique code (i.e. [cs] for complex syntax if they contained at least one complex syntax token defined as any of the forms in Tables 2 and 3. Second, [cs] utterances were examined further and given another unique code (e.g., [sc] for subordinate clause, [si] for marked infinitive clauses). In the following example, the codes [cs] and [si] would be assigned: Jamia is

not going to the dance because when she wanted to get her dress, her mom had to go to work. Following the coding for types of complex syntax, a frequency of occurrence count was completed for use of complex syntactic structures in both the spoken and written samples.

Participants' spoken and written samples were calculated for type and frequency of use for AAE features. Each adolescent was classified as either a high or low AAE user based on Craig and Washington's (1994, 1995) definitions. Participants were considered as high AAE users when AAE features occurred in more than 24% of their utterances and as low AAE users when AAE features were identified in less than 11% of their utterances.

Lexical diversity was measured for each participant by calculating a TTR. The number of different words used was divided by the total

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number of words for spoken and written samples. A frequency count of vocabulary words was completed, and words were categorized as either tier 2 or tier 3 words based on Beck and McKeown (2002, 2013). A doctoral student in CSD was trained to score each language measure. Interrater reliability for each measure was calculated for 25% of the samples. Agreement was 95% or above for all measures. Disagreements were resolved through discussion.

Data Analyses

This study investigated the association between AAE and lexical diversity throughout the language system as measured by Type Token Ratios, and literate vocabulary in spoken and written language in young adolescent students. Spoken and written language samples were analyzed to determine prevalence of AAE use, the number of complex sentences used, TTR, and number of Tier 2/3 vocabulary words.

Analyses of Variance (ANOVA) were used to compare AAE users (high, moderate, low) use of complex syntax, lexical diversity, and Tier 2/3 words. Pearson correlation coefficients used to determine the relationship between AAE use and the language measures (clause density, TTR, Tier 2/3 use). Significance levels were set at .05.

RESULTS

Three research questions were addressed in this study. The first question considered the use of complex sentences for low, moderate, and high users of AAE. The 32 participants were assigned to the three usage groups following the guidelines set by Washington and Craig (1994). To ensure that the participants were evenly divided into three groups, the percent of usage of AAE varied slightly from the ones used by Washington and Craig. AAE use ranged from 3-33%. High use was defined as above 20%, moderate use 12-19%, and low use below 11%. These data are presented in Table 4.

Table 4. Mean (M) percentage frequencies and standard deviations (SD) of utterances containing AAE forms for each group and the combined groups.

	Groups			
	High (n=10)	Moderate (n=12)	Low (n=10)	Combined (n=32)
M	24.9	13.9	7.7	15.4
SD	3.8	2.2	2.6	7.5
Range	20-33	0-11	12-19	0-33

Tables 5 and 6 present the means and SDs for the language measures for the three groups of AAE users. As can be seen in these tables, AAE use was relatively comparable for the three

measures, clause density, TTR, and lexical usage. One-way ANOVAs confirmed that there were no significant group differences for these measures ($p > .10$) (Table 7).

Table 5. Means(M) and Standard Deviations (SD) for Clausal Density, Type-Token Ratio, Tier2/3 Words in Spoken Samples for High, Moderate, and Low AAE Users.

	Measures		
	Low	Moderate	High
Clause Density			
M	1.60	1.63	1.73
SD	0.18	0.12	0.20
TTR			
M	0.52	0.48	0.49
SD	0.07	0.03	0.05
Tier 2 Words			
M	5.63	5.80	9.00
SD	3.88	3.72	4.18
Tier 3 Words			
M	0.13	1.13	0.78
SD	0.35	1.72	1.39

Table 6. Means (M) and Standard Deviations (SD) for Clausal Density, Type-Token Ratio, Tier 2/3 Words in Written Samples for High, Moderate, and Low AAE Users.

	Measures		
	Low	Moderate	High
Clause Density			
M	1.62	1.73	1.58
SD	0.39	0.34	0.23
TTR			
M	0.46	0.46	0.47
SD	0.08	0.05	0.04
Tier 2 Words			
M	4.00	3.41	1.90
SD	5.07	3.28	2.23

Table 7. One-Way Analysis of Variance for AAE, Clausal Density, TTR, Tier 2 and Tier 3 Words.

Source	df	SS	MS	F	p
Between Groups					
Clausal Density (Spoken)	2	0.057	0.057	2.097	0.141
Clausal Density (Written)	2	0.141	0.071	0.633	0.538
TTR (Spoken)	2	0.012	0.006	2.385	0.11
TTR (Written)	2	0.0	0.0	0.069	0.934
Tier 2 Words (Spoken)	2	45.5	22.75	1.423	0.257
Tier 2 Words (Written)	2	23.7	11.84	0.868	0.431
Tier 3 Words (Spoken)	2	1.609	1.609	0.775	0.47

Table 8 presents the correlational analyses between AAE use and the four language measures for the spoken and written samples. As can be seen in this table, 23 significant low-

moderate relationships were found for clause density and Tier 2 words for the spoken samples and TTR for the written samples.

Table 8. Pearson Product-Moment Correlations between AAE, Clausal Density, TTR, Tier 2 Words, and Tier 3 Words.

Measure	Spoken Language	Written Language
Clausal Density	.36*	-.18
TTR	-0.26	.32*
Tier 2 Words	.34*	-.22
Tier 3 words	.13	

n=32

*p < 0.05 (two-tailed).

In the spoken samples, the most AAE frequent structures were appositive pronouns (81 %), “fitna/sposeda/bouta” and subject-verb agreement errors (78%). More than half (56 %) of the students used zero past tense forms. AAE structures were used much less frequently in the written samples. Subject-verb agreement errors were found in 28% of the student writing

samples whereas appositive pronouns occurred in 22% of the samples. The remaining forms were used less often.

Of the 17 AAE forms included in this study, 13 appeared at least twice during elicitation of the spoken samples: multiple negations, “fitna/sposeda/bout”a, subject-verb agreement,

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zero copula/auxiliary, zero past tense, regularized reflexives, zero plural, appositive pronouns, undifferentiated pronouns, invariant “be”, double modal, indefinite article “a”, and remote past “been.” Those AAE forms not used in the spoken samples included “ain’t,” zero cop?, “to,” zero “ing”, and remote past “been.” In the written samples, 8 of the 17 AAE forms were used at least twice: multiple negation, “fitna/sposeda/bouta”, subject-verb agreement, zero copula/auxiliary, zero past tense, regularized reflexives, zero plurals, appositive pronouns, zero “ing,” undifferentiated pronouns,

and indefinite article “a.” The remaining forms were not included in the written samples. These data are presented in Tables 9 and 10.

Tables 11 and 12 present the frequency of complex syntax forms found in spoken and written utterances. Conjunctions, noun phrase complements, simple infinitives, and relative clauses were used by all 32 students in spoken samples in this study. Clauses joined by conjunctions were used by all 32 participants in written samples.

Table 9. Frequency of AAE Use (Spoken Utterances).

AAE	
Types	Number of Participants
Appositive Pronouns	26
Subject-verb Agreement	25
Fitna/sposeda/fitna	25
Zero past tense	18
Zero copula/auxiliary	17
Undifferentiated pronoun case	13
Multiple negation	11
Zero plural	10
Indefinite article "a"	8
Zero possessive	8
Invariant "be"	6
Double modal	3
Regularized reflexive	2

Table 10. Frequency of AAE use (Written Utterances).

AAE	
Types	Number of Participants
Zero past tense	9
Subject verb agreement	9
Appositive pronoun	7
Multiple negation	5
Zero copula/auxiliary	5
Zero plural	3
Indefinite article "a"	3
Undifferentiated pronoun case	2

Table 11. Frequency of Complex Syntax Forms (Spoken Utterances).

Complex Syntax	
Types	Number of Participants
Clauses joined by Conjunctions	32
Noun Phrase Complements	32
Simple Infinitives Same Subject	32
Relative Clauses	32
Noninfinitive Wh- Clauses	30
Infinitive Different Subjects	27
Gerunds/Participles	20
Wh- Infinitives	7
Tag Questions	6
Unmarked Infinitives	2

Table 12. Frequency of Complex Syntax Forms (Written Utterances)

Complex Syntax Types	
Types	Number of Participants
Clauses joined by Conjunctions	32
Simple Infinitives Same Subject	25
Noun Phrase Complements	20
Noninfinitive wh- clauses	13
Infinitive Different Subject	10

DISCUSSION

The purpose of the current research was to investigate the relationship between AAE, complex syntax, and lexical diversity in adolescent African American English-speaking students. Three research questions were posed. The first one questioned whether there was a significant difference in AAE use and complex syntax, TTR, and Tier 2/3 words in low, moderate, and high users of AAE. No significant group differences were found with any of these measures. AAE use was not significantly related to the prevalence of complex syntactic structures between groups. Recall that Craig and Washington (1994) found that high users of AAE used more complex sentences than moderate and low AAE users. The different ages of the students in the both studies may be one explanation for the discrepant findings. Children in the Craig and Washington studies were 4- and 5-year-old preschoolers whereas in the present study, students were 12-13-year-old middle schoolers. Although the range of AAE was

comparable in the studies, younger children were in a stage of language development when complex syntax is still developing and variable. By the time children reach middle school, there is much less variability in the use of complex syntax. All 32 students in the present study used the four most common complex syntactic structures (conjunctions, noun phrase complements, simple infinitives, relative clauses). Complex syntax thus might be related to AAE when aspects of language are still developing, but this relationship disappears as children's language proficiency increases.

The second research question considered the relationship between AAE use and complex syntax, TTR, and Tier 2/3 words in low, moderate, and high users of AAE. Significant low-moderate correlations were found between AAE use and complex syntax ($r=.36$), and Tier 2 words ($r=.34$) for spoken samples and TTR ($r=.32$) for the written samples. Craig and Washington (1994) found a positive relationship ($r=.44$) between the amount of complex syntax

and the amount of AAE children used. They suggested that high AAE use may be an indication of more advanced language ability. If true, high AAE users would be expected to use more Tier 2 and Tier 3 words. Although the overall relationship between Tier 2 words and AAE use was in the low-moderate range, when divided into low, moderate, and high user groups, there were no significant differences in either spoken or written sentences.

The absence of any significant relationship between AAE use and vocabulary use may reflect the topics students were asked to talk and write about. Students typically talked about and wrote about movies, television shows, and videogames. Perhaps if students were tasked to talk or write about academic subjects (e.g. history or science), word use would have been different. As with the previous findings for complex sentences, it may be that AAE use does not impact vocabulary use to the degree that has been suggested by the Craig and Washington studies.

The third research question addressed the prevalence of particular AAE forms and complex syntactic structures used by middle school students. Craig and Washington (1994) found that zero copula/auxiliary and subject-verb errors were used by all the children in the high and moderate AAE user groups and by over 75% of the low AAE users. Jackson and Roberts (2001) found that zero copula/auxiliary was used by over 95% of the children and subject-verb agreement errors were produced by over 60% of the children in their study. In the present study, frequently used AAE types included appositive pronouns (81%), subject-verb agreement errors (78%), *fitna/sposeda/bouta* (78%), zero past tense forms (56%), and zero copula (53%) in spoken sentences. The use of zero copula and subject-verb agreement appears to be frequently found in users of AAE; however, the frequency of occurrence was higher in younger children than in the adolescents in this study. As children mature, they code-switch and the frequency of occurrence for these forms diminishes.

The types of complex syntax forms found in this study were consistent with findings from previous studies (Craig & Washington, 1994; Jackson & Roberts, 2001). Craig and Washington found frequent use of simple

infinitives (64%) and noun phrase complements (44%), whereas Jackson and Roberts found frequent use of simple infinitives (63% for 3-year olds and 66% for 4-year olds) and conjoined clauses (35% for 3-year olds and 51% for 4-year olds). Not surprisingly, preschool children produced fewer relative clauses than the older students in the present study. Conjunctions, noun phrase complements, simple infinitives, and relative clauses were used by all 32 students in this study.

Limitations and Future Research

The current study had a number of limitations. First, it was conducted on 7th grade students and did not include other age groups. Second, the number of written sentences was limited which may have impacted the number of exemplars for complex syntax, vocabulary, and AAE use. Third, participant responses may have also been influenced by characteristics of the evaluator. In addition, subjects were assessed during one visit in one situational context. This study was also limited to examining the relationship between AAE, complex syntax, and lexical diversity. Future studies should consider including varied age groups, providing increased opportunities for production of linguistic structures, including familiar same age peers, and assessing participants in more than one speaking context during more than one visit. Future studies should also examine how AAE changes overtime and continue to search for solutions for closing the educational gap between African American and mainstream children.

Second, the number of written sentences was limited in this study. This may have impacted the number of exemplars for complex syntax, vocabulary, and AAE use. Written samples containing a minimum of ten sentences were collected from each student's language arts teachers. Additional sentences would have provided the opportunity for more use of varying types of complex syntax, vocabulary types, and AAE features.

Third, spoken samples were collected by an adult during one visit. Studies have shown that the context within which samples of language are obtained can result in considerable variation

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in the language of young children (Gallagher, 1983). Context may also be a consideration for older children as well. Familiarity with the evaluator may also impact performance. In this study, spoken samples were collected during one visit with an unfamiliar adult in the school setting. This may have influenced the participant's spoken productions. Involving same age peers may have resulted in increased amounts and types of AAE, complex syntax, and vocabulary. Future studies should consider collecting language samples in a variety of contexts in more than one visit to provide increased opportunities for use of AAE, complex syntax, and diverse vocabulary. Including same age peers to communicate with the participants may have resulted in increased amounts and types of AAE, complex syntax, and vocabulary.

CONCLUSIONS

The purpose of the current research was to examine language proficiency in adolescents who use AAE. Three research questions were posed that considered the influence of AAE use on complex syntax and lexical diversity in low, moderate, and high AAE users. There were no significant differences in syntactic complexity, TTR, and vocabulary use as a function of AAE use. The only significant correlations between AAE use and these measures were in the low moderate range ($r = .32-.36$). The findings of this study were thus inconsistent with previous studies by Craig and Washington (1994, 1995), but were consistent with the more recent study by Jackson and Roberts (2001). Future studies should continue to examine how AAE changes over time and how AAE use may influence syntactic and lexical aspects of language.

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CULTURALLY RESPONSIVE EVALUATION PRACTICES OF NORTH CAROLINA SPEECH-LANGUAGE PATHOLOGISTS

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ABSTRACT

Social, behavioral, and educational research has begun to examine the evaluation of diverse individuals and programs using culturally responsive evaluation (CRE) theoretical framework. A survey of North Carolina speech-language pathologists (SLPs) was conducted to examine their assessment practices with English language learners (ELLs) in the context of CRE theory as well as their confidence assessing ELLs and their academic experiences. Findings indicate that NC SLPs are using more mixed-method evaluation approaches with ELLs, however, they are not using culturally responsive assessment procedures consistently with non-native English-speaking students. Further, the majority of respondents report not feeling confident in assessing ELLs, nor do they feel that their academic experiences prepared them to assess ELLs.

KEY WORDS: Culturally responsive, evaluation, English learners, assessment practices

INTRODUCTION

As members of special education teams, with unique insight into the second language learning process, speech-language pathologists (SLPs) must be aware that English Language Learners (ELLs) and students of color (e.g. African American) are disproportionately represented in special education (Fish 2017; Hosp & Reschly, 2003; Klingner et al., 2005; Klingner & Artiles, 2003); further, ELLs are underrepresented in academically gifted programs (Fish, 2017; Office of Civil Rights Data Collection, n.d.). Disproportionality includes both the under and over representation in special education relative to the size of the cultural and/or linguistic representation of a student population (e.g. Latino/Spanish speaking).

Beyond special education, disproportionality exists amongst ELLs and students of color in access to higher-level academic experiences and suspensions/expulsions. For example, only 19% of ELLs entered college in 2006, in comparison to 45% of monolingual English-speaking students (Kanno & Kangas, 2014) and African American students are twice as likely to be suspended from school than their white counterparts (Hinojosa, 2008). The issue of disproportionality in special education has been at the forefront of educational research and legislation for decades (Albrecht, Skiba, Losen, Chung, & Middleberg, 2012). Understanding the academic landscape ELLs are navigating is a necessary first step in closing what can be perceived as an equity gap in American public schools.

In recent years, there has been a growing body of research to understand, explain, and alleviate this equity gap. First, the academic system itself is fraught with systematic institutional mechanisms that put ELLs at a persistent educational disadvantage (Schissel & Kangas, 2018). An example of this is academic tracking, a system in which students are grouped exclusively in classes, or tracks, based on testing performance. Using tracking, ELL students are often grouped into low-performing tracks in which they are not challenged academically, widening the equity gap further (Kanno & Kangas, 2014). For example, classes for low-

track students are “limited to decoding [the words in the] textbook and finding keywords or sentences in short texts” (Kanno & Kangas, 2014, p.852). Meanwhile, students in high-performance tracks engage in higher-level abstraction skills such as holding a discussion about a text they have read.

Second, implicit and explicit bias play a role in which students are referred (or not) to specialized education programs, including academically gifted programs (Fish, 2017; Blanchett, 2006; Hosp & Reschly, 2003; Coutinho & Oswald, 2000). In summary, culturally and linguistically diverse students (e.g. African-American or Latino students) are disproportionately referred and, subsequently, placed in special education programs. Of notable interest was a study conducted by Fish (2017) in which she questioned 70 elementary school teachers on whether or not they would refer the student for exceptionality testing (special education and academically gifted) using fictional scenarios in which race, ethnicity, ELL status, and exceptionality were experimentally manipulated.

Fish’s findings suggest that race and ethnicity *do* play a role in which students are referred for testing: When the hypothetical White student was depicted as struggling exhibited academically, teachers perceived these difficulties as problems that could be fixed (e.g., remediated through special education). However, these same difficulties were perceived as “normal” in the African American student. Moreover, skills related to academic giftedness were reported more often for the White student than when the African-American or Latino/ELL student exhibited the same skills. Finally, White ELL students were perceived as having less behavioral issues than their non-White ELL counterpart. Similarly, Irizarry (2015) investigated teacher’s perceptions of literacy ability in a diverse range of students and found a racially significant gap in teacher perception of student ability.

Third, and a large focus of the present study, is lack of knowledge and preparedness of SLPs to accurately differentiate between a language difference and language disorder in ELL

students. One reason for the disparate overrepresentation of ELLS in special education may be due to the similar language learning errors made between students who are acquiring a second language and students with learning disabilities such as difficulty following directions and decreased vocabulary knowledge. Knowledge of the typical errors made by ELLs can decrease incorrect identification and placement of these students in special education (Derr, 2003; Roninson, 2003). The need for further education on implementing dynamic assessment and other less-biased assessment practices has been well-documented within the literature (Caesar & Kohler, 2007; Hammar, Detwiler, Detwiler, Blood, & Dean, 2007; Kritikos, 2003; Roseberry-McKibben & O'Hanlon, 2005;).

Assessing students from culturally and linguistically diverse (CLD) backgrounds is challenging for many reasons. Standardized assessments in and outside the field of specialized education are almost uniformly not normed on diverse populations and are often culturally and/or linguistically biased (Altshuler & Schmutz, 2006; Au, 2016; Klingner & Artiles, 2003; Klingner, 2005; Knoester & Au, 2017; Menken, 2008; Solorzano, 2008). These tests often appear to make assumptions about the lived experiences of all students, assuming that everyone has had the same experiences and opportunities regardless of cultural, linguistic, or socio-economic background. Even when a test is in the student's native language, such as the Clinical Evaluation of Language Fundamentals IV in Spanish (CELF-4S), it may not be reflective of a ELL's true language abilities. For example, Barragan and colleagues (2018) investigated the utility of the CELF-4S on a group ELL students ($n=656$) between the ages of five and seven from low-income and low-parental education backgrounds. Their findings indicated that over 50% of the students scored more than one standard deviation below the mean on the core language component of the assessment, suggesting that the CELF-4S over identified low-income Spanish speaking ELL

students. This over-identification in large part is due to the small norming sample that the creators of the CELF-4S used when determining norms for the assessment, suggesting the need for a separate set of norms for low-income ELL students.

Assessment Practices of Speech-Language Pathologists

In the last 15 years, the educational experiences, beliefs, and assessment practices of SLPs have been researched (Arias & Friberg, 2017; Caesar & Koehler, 2007; Hammer et al., 2004; Kritikos, 2003; Roseberry-McKibben, Brice, & O'Hanlon, 2005;). The SLPs surveyed in these studies were diverse (e.g. urban-rural SLPs, mono-bilingual, and years of experience), but reported similar findings: (a) a gap between best practice and actual assessment practices (Arias & Friberg, 2017; Caesar & Koehler, 2007), (b) varied educational experiences regarding CLD assessment (Hammer et al. 2004; Roseberry-McKibben et al. 2005), and (c) decreased confidence and efficacy assessing ELL students (Hammer et al., 2004; Kritikos, 2003). These studies are summarized in Table 1.

Table 1. Summary of Studies Examining the Assessment Practices of Speech-Language Pathologists.

Previous Studies	Number of Participants	Findings
Arias & Friberg (2017) (replication study of Caesar & Koehler, 2007)	166 SLPs	SLPs have improved their assessment practices to be more compliant with ASHA and IDEA guidelines in comparison to previous research (Caesar & Koehler, 2007). However, areas of improvement continue to exist in regard to training, including: utilizing interpreters during assessment, selecting assessment measures, and increasing use of a child's native language.
Betz et al. (2013) *Study focus was not on ELLs	364 SLPs	SLPs most often used standardized measures to diagnose school-age children with suspected language impairment. When determining which standardized measure to use, SLPs mostly focused on publication year of the assessment, not factors such as psychometric properties.
Fullcher-Rood et al. (2018) *Study focus was not on ELLs	39 SLPs	SLPs use both standardized and informal testing (e.g. language sample analysis) when assessing students with suspected language impairment. However, standardized testing plays a larger role in determining eligibility and severity of the disorder. Informal assessment measures were used to obtain information about the child's use in daily life, but did not appear to play as large of a role in diagnostic decision making as standardized assessments.
Roseberry-McKibben et al. (2005)	1,736 SLPs	SLPs had varying educational experiences related to ELLs across the United States, with SLPs from the Western part of the country having the largest amount of coursework in this area. This highlights a need for further education in this area. SLPs reported a lack in appropriate and least-biased assessments for ELL students.
Caesar & Koehler, (2007)	130 SLPs	SLPs reported assessing bilingual students using formal (e.g. standardized) measures more often than informal measures. This study further highlights the need for training in the academic setting and beyond on assessment of ELL students.
Hammer et al. (2004)	213 SLPs	One-third of SLPs reported that they did not receive any training related to CLD issues at the undergraduate or graduate level. SLPs also reported low confidence when assessing bilingual students whose primary language was Spanish, not English.
Kritikos (2003)	811 mono- and bilingual SLPs	SLPs reported low personal and professional efficacy in bilingual language assessment, with bilingual SLPs who learned a second language within a cultural context reporting more personal efficacy. Bilingual SLPs who learned a second language in an academic setting reported more efficacy than monolingual SLPs, but not as much as cultural context SLPs.

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In summary, these findings indicate the need for more education and application on multicultural and multilingual issues within the field of speech-language pathology including culturally responsive assessment practices for CLD students.

Graduate Education

In the area of cultural competency, the Council on Academic Accreditation (CAA, 2017) currently outline the following standards:

- “Understand the impact of his or her own set of cultural and linguistic variables on delivery of effective care. These include, but are not limited to, variables such as age, ethnicity, linguistic background, national origin, race, religion, gender, and sexual orientation.
- Understand the impact of the cultural and linguistic variables of the individuals served on delivery of care. These include but are not limited to variables such as age, ethnicity, linguistic background, national origin, race, religion, gender, and sexual orientation.
- Understand the interaction of cultural and linguistic variables between the caregivers and the individuals served in order to maximize service delivery.
- Understand the characteristics of the individuals served (e.g., age, demographics, cultural and linguistic diversity, educational history and status, medical history and status, cognitive status, and physical and sensory abilities) and how these characteristics relate to clinical services.” (CAA, 2017, p.20)

Essentially, these standards focus on understanding the influence of SLP cultural location on services; understanding how a client’s cultural location influences services provided; understanding the relationship between language and culture; and understanding the specific cultural profile of clients (e.g. age, educational history) and how it

impacts services. Finally, the CAA recommends that clinical issues related to diversity are infused throughout the curriculum in addition to a stand-alone multicultural course (American Speech-Language-Hearing Association, 2011). However, despite these standards and recommendations, there are documented differences in the educational experiences of SLPs in the area of cultural competency (Hammer et al., 2007; Roseberry-McKibbin et al., 2005).

Culturally Responsive Evaluation (CRE)

Given the documented inconsistency in the implementation of least-biased assessments (e.g., dynamic assessment) varied educational experiences of SLPs in the area of cultural competency, and the documented rise of ELLs in the public school system (National Center for Education Statistics, 2016) there is a need to investigate the educational backgrounds and subsequent assessment practices of SLPs. In recent years, social, behavioral, and educational research have begun to examine the evaluation of programs using a culturally responsive evaluation (CRE) theoretical framework. Culture, as defined by CRE, is “a cumulative body of learned and shared behavior, values, customs and beliefs common to a particular group or society” (Hood et al. 2015). Responsive is defined as “attend[ing] substantively and politically to issues of culture and race in evaluation practice.” CRE is based in both theory and practice, making it unique in the field of program evaluation (Hood et al., 2015). The central tenets of CRE include putting culture at the center of the evaluation, refuting the belief of culture-free evaluation, and acknowledging that values and beliefs, as they are defined by culture, are the basis of an evaluation. Though CRE refers to evaluation in the context of programs, in the opinion of the present authors, the CRE framework can be modified to apply to SLP assessment of ELL students and is a logical and appropriate lens through which to examine SLP assessment practices.

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CRE has evolved and expanded in the last 20 years; exploring constructs such as understanding lived experiences, negotiating power differentials, and acknowledging white privilege. These constructs, or principles, among others are necessary for administering culturally responsive assessments to CLD students, especially ELLs. As SLPs, we are acutely aware of the power of language: “Communication is not merely an exchange of information but an act of *power*” (Kanno & Kangas, 2014, p. 853). Similarly, ELLs need to position themselves as powerful communicators (Cummins, Markus, & Montero, 2015). This type of focus on positionality and power is well documented within the field of Teaching English as a Second Language (Kangas, 2014; Kanno & Kangas, 2014; Cummins et al, 2015; Lopez-Gopar, Nunez-Mendez, Sughrua, & Clemente, 2013; Shohamy, 2011). However, there is little to no research on understanding or acknowledging power differentials in the assessment of ELLs in the field of speech-language pathology.

Acknowledging white privilege, another principle of CRE, is paramount in the assessment process for two reasons. First, The American Speech-Language-Hearing Association’s Member and Affiliate Count for 2016 indicates that 92% of members are white (American Speech-Language-Hearing Association, 2016). Further; speech-language pathology is the fourth whitest profession in the United States (Thompson, 2013). Second, the students receiving special education services under the Individuals with Disabilities Education Act are diverse (e.g. Indian/Alaska Native, Black, White, Hispanic, Pacific Islander, and Asian) (National Center for Educational Statistics, 2016). It is important to note that the authors are not stating that White SLPs cannot provide culturally responsive services to a diverse group of students. We are only highlighting the need for culturally responsive assessment practices for culturally and linguistically diverse students in the field of speech-language pathology at large. See Table 2 for a summary of studies examining CRE.

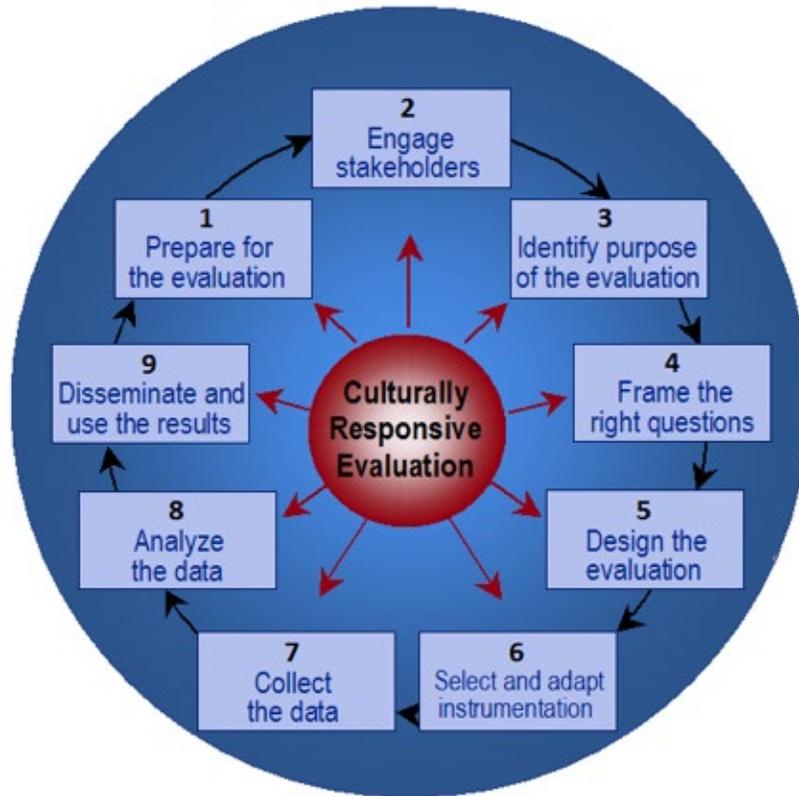
Table 2. Principles of CRE Theory From The Last 20 Years (After Hood et al. 2015).

Authors	CRE Principles
Hood, 1998	Acknowledging the importance of shared lived experiences
Hood, 2001	Focusing direct attention to race and culture as political entities Expanding data analysis to qualitative data as well (mixed methods)
Hood, 2009	Addressing positionality and identifying power differentials which requires long-term investment*, Using a cultural liaison or interpreters as needed.
Hopson, 2009	Directly identifying white privilege Focusing on strengths
Askew, Beverly, & Jay, 2012	Strategically creating an evaluation team Establishing a rapport/dialog in order to address issues such as power, race, and privilege
Frazier-Anderson, Hood, & Hopson, 2012	Decreasing cultural centrism Explicitly differentiates race and culture from one another

What makes an evaluation culturally responsive? Hood et al. (2015) provide the following as an answer: “an evaluation is culturally responsive if it fully takes into account the culture of the *program* that is being evaluated” (Frierson, Hood, and Hughes, 2002, p. 63)” (Hood et al., 2015, p. 284). SLPs aiming to implement

culturally responsive assessments should replace *program* with *student*. CRE also focuses on historically marginalized groups and is rooted in social justice and equity; as we know students described as CLD have been historically marginalized in the American public schools (Hood et al., 2015; Tupas, 2015).

Figure 1. Culturally Responsive Evaluation Framework.



Culturally Responsive Evaluation Framework

In 2015, Hood and colleagues created a framework of nine steps, or guidelines, for culturally responsive evaluation. An illustration of the CRE framework is shown in Figure 1 and a summary of the framework, as it relates to the assessment of ELL students is provided in Table 3 below.

Table 3. A Framework for Culturally Responsive Evaluation (Hood et al. 2015).

CRE Component	Relation to Assessment of ELLs
1. Prepare for the Evaluation	<p>SLPs are responsible for arming themselves with knowledge about their students. This includes their: history, cultural/linguistic background, and experiences. SLPs should ask themselves:</p> <ul style="list-style-type: none"> ● What is the student’s story? ● “How can I respectfully enter this community?” (Hood et al., 2015, p. 291) ● How is power distributed? ● Which relationships are “valued or privileged” and which relationships are “discouraged or forbidden?” (Hood et al., 2015, p.291). <p>Further, SLPs should prepare <i>themselves</i> for the evaluation by acknowledging their own biases, assumptions, and power, or privilege, as the evaluator. For the purposes of this study, we, largely, focused on how SLPs prepared themselves prior to assessing an ELL student.</p>
2. Engage Stakeholders	<p>Stakeholders are defined as. “Persons who are invested in a program or its evaluation by virtue of their roles, values, or perceived gains or losses” (Hood et al., p.292).</p> <p>CRE aims to create a diverse group of stakeholders who have varying levels of power, resources, and investment. What is one stakeholder’s loss may be another’s gain. For the purposes of this study, stakeholders were defined as: the student, parents, SLPs, Special and Regular Education teachers, psychologists, the student, English as a Second Language (ESL) Teachers, community liaison, and physical/occupational therapists.</p> <p>In a school based setting, any of these individual members may serve as part of the special education team. Diverse teams are an important asset in the pursuit of a culturally responsive assessment. Certain stakeholders such as parents or community liaisons can provide unique insights about a student’s history and their cultural/linguistic background.</p>
3. Identify the Purpose of the Evaluation*	<p>In terms of English language learners, SLPs are differentiating between the presence of a language difference and language disorder in order to determine if special education services are warranted.</p>

Table 3. A Framework for Culturally Responsive Evaluation (Hood et al. 2015).

CRE Component	Relation to Assessment of ELLs
4. Frame the Right Questions*	<p>Per the NC Department of Public Instruction requirements (2018), NC SLPs and other members of the special education team will ask the following questions:</p> <ul style="list-style-type: none">• Does the student meet criteria for one or more of the 14 disabling conditions consistent with the definitions described in NC Policies? Does the student have a disability?• Does it require specially designed instruction? <p>Further, special education teams need to also determine if the determination is a result of limited English proficiency. If the answer is “yes,” the student should <i>not</i> be placed in special education.</p>
5. Design the Evaluation	<p>Given the documented need for least-biased assessment practices (e.g. Arias & Friberg, 2018) and the rise of ELL students in the U.S. (North Carolina Center for Education Statistics, 2016), SLPs should determine which measures to use including: dynamic assessment, language samples, standardized tests, and/or language samples. Recent research indicates that SLPs often use both formal and informal methods when assessing monolingual students with a suspected language impairment (Betz et al., 2018; Fullcher-Rood et al. 2018). However, SLPs relied more heavily on formal assessments for eligibility purposes than informal measures (Fullcher-Rood et al. 2018). In designing the evaluation, CRE Theory recommends a mixed methods approach. In a clinical setting this may appear as combining standardized assessments with a language sample as Ebert and Pham (2018) implemented, with positive and accurate results.</p>
6. Select and Adapt Instrumentation	<p>A brief review of the literature regarding assessment of CLD students indicates that standardized assessments misrepresent the abilities of these students (Altshuler & Schmutz, 2006; Au, 2016; Klingner & Artiles, 2003; Klingner, 2005; Knoester & Au, 2017; Menken, 2008; Solorzano, 2008). In regards to assessments, CRE theory requires that “when selecting instruments for use in CRE, existing tools must be</p> <p>closely scrutinized for cultural bias in both language and content. Norms based on other populations and locations may be of little value in interpreting local scores. Instruments must be validated for use in culturally-specific contexts. When translation is used, it should follow best practices, addressing both semantic and content equivalence” (Hood et al., 2015, p 295).</p>

Table 3. A Framework for Culturally Responsive Evaluation (Hood et al. 2015).

CRE Component	Relation to Assessment of ELLs
7. Collect the Data	Much of the research related to the assessment of CLD students in the field of speech-language pathology has centered around the instrumentation (e.g. dynamic assessment or other testing materials). However, CRE theory posits that the procedure in which these assessments are implemented are important as well. Therefore, SLPs should understand how implicit and/or explicit bias can impact what they see and hear, subsequently impact their data collection. SLPs also need to be confident in the efficacy of their assessment procedure and subsequent results.
8. Analyze the Data	Hood et al. poignantly state, “Data do not speak for themselves; they are given voice by those who interpret them” (Hood et al., 2015, p.296). SLPs should understand that their voice is not absent from the report; essentially reports are not entirely objective. This demonstrates an underlying need for accurate data interpretation, as well as the importance of engaging with stakeholders who can explain nuances within the data.
9. Disseminate and Use the Results*	This step is self-explanatory; SLPs will share assessment findings with stakeholders to determine special education eligibility.

*These steps were not used in the present study.

Present Study

The purpose of the present study was to examine how the language assessment practices of North Carolina (NC) SLPs fit into the CRE framework outlined by Hood et al. (2015). There was also interest in determining if life experiences, such as learning a second language, influenced SLP assessment practice as well as their reported confidence. To do so, the following questions were addressed in this study:

1. Do NC SLP demographics (e.g. years of experience, language status) influence assessment practice, as described by CRE Theory?
 - a. Confidence in assessing ELLs?
2. How are NC SLPs modifying their evaluation practices when assessing ELL students?
 - a. Do these assessment practices fit into the CRE framework outlined by Hood, Hopson, and Kirkhart (2015)?

3. What are the educational experiences (e.g. coursework) of NC SLPs in regards to bilingual language development, bilingual assessment, and multicultural issues?
 - a. Do SLPs feel that their graduate education prepared them to assess ELLs?

For the purposes of this study, we defined ELLs as students: a) whose native language is anything other than English, b) receive English as a Second Language (ESL) Services, and c) receive services from a speech-language pathologist. Though the latter is not part of the traditional definition, our focus was on students on SLP’s caseload.

North Carolina and ELLs

North Carolina is a southeastern state that borders Virginia, South Carolina, Tennessee, and Georgia. There are 115 schools districts

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which include over 2,500 public schools, 148 charter schools, as well as three residential schools for students with visual and hearing impairments (North Carolina State Government, 2019). North Carolina is a World-Class Instructional Design and Assessment (WIDA) Consortium member since 2008 (Colorin Colorado, 2019). WIDA is an organization of states devoted to providing equitable and high standard instruction for ELL students by providing a system of identifying and assessing ELL's language growth annually (Colorin Colorado, 2019). North Carolina contains rural, urban, and suburban schools districts with a moderate number of ELLs across the state (i.e., 6 to <10%), according to The National Center for Education Statistics (2016). The Migration Policy Institute states that, North Carolina was among the top eight states with the highest representation of ELLs, with 102,311 such students accounted for in the 2012-2013 school year (Ruiz, Ariel, Hooker, & Batalova, 2015a).

North Carolina is a diverse state with at least 10 documented languages spoken by its ELL students (Ruiz, Ariel, Hooker, & Batalova, 2015b). Spanish is the most common language (71%), followed by Chinese (4%), Vietnamese (3%), Arabic (2%), French/Haitian Creole (2%), Yiddish (1%), Korean (1%), Tagalog (1%), German (1%), and Hmong (1%) (Ruiz, Ariel, Hooker, & Batalova, 2015b). Within the largest school districts in the state reporting such data, over 142 cultural groups are represented (Charlotte-Mecklenburg County Schools, 2017; Guilford County Schools, 2019). Given the diversity of ELL demographics in NC, reviewing the assessment practices, educational experiences, and SLP self-reported confidence when assessing ELLs is a necessary task in order to improve the efficacy of SLP assessment.

METHOD

Survey Instrument

A 49-item questionnaire was created to investigate the CRE practices of SLPs when assessing ELLs. The questionnaire consisted of questions from previous studies investigating SLPs assessment practices (i.e., Kritikos, 2003, McKibben, Brice, & O'Hanlon, 2005; Caesar &

Koehler, 2007) as well as questions developed by the research team that were based on the CRE framework outlined by Hood et al. (2015). Demographic information such as linguistic background and years of professional work experience were also obtained. Questions were in the following formats: yes/no, multiple-choice, Likert-type responses, and free-response. In addition to these questions, survey respondents were provided with the option of participating in a short 10-15 minute phone interview following completion of the questionnaire. The optional interview questions offered SLPs the opportunity to answer questions in greater depth.

The questions were reviewed by the research team and entered into Qualtrics, an online survey platform. A feature within Qualtrics analyzed the question types/formats and reported that the questions earned a score of "good," indicating that the question and answer formats were consistent and appropriate for the information being obtained. Once the questionnaire was completed, it was distributed to all school-based SLPs on the North Carolina Department of Public Instruction listserv by Mr. Perry Flynn, Consultant to the North Carolina Department of Public Instruction in the Area of Speech-Language Pathology.

The "Magic Number" method, outlined by Blair and Blair (2015), was used to address sample size. An interview was conducted with Mr. Flynn to determine the typical response rate of web-based surveys of NC SLPs. Flynn indicated a typical response rate of between 200-300 when surveys are sent out to *all* school-based SLPs (N=4,000) (P. Flynn, personal communication, March 1, 2018). Therefore, in this study our sample size was n=200, which was consistent with his experience in distributing web-based surveys to NC SLPs.

Interview Format

The interview questionnaire consisted of four base questions with follow-up probes to collect more information. SLPs that responded to the survey had the option of indicating interest in participating in a 10-15 minute phone interview. A total of five interviews were conducted. The interviews were audio-recorded and played back to determine themes across interviewee responses.

Participants

200 NC SLPs responded to the survey. All respondents had at least a master's degree in speech-language pathology, a North Carolina Speech-Language Pathology license, and the Certificate of Clinical Competence in Speech-Language Pathology from ASHA. The majority of respondents worked in the pre-k/elementary setting (67.11%). 30.94% worked in upper grades (e.g. middle and high school). Finally, a small percentage (2.46%) worked in separate special schools (e.g. a school for children with autism). Further demographic information of the respondents as well as caseload demographics are indicated below:

Table 4. NC SLP Demographics.

SLP Reported Race	Percentage (%)	School Work Setting	Percentage (%)	Years of Experience	Percentage (%)
White	88.9	Pre-K	28.26	1-9 years	17
African American	7	Elementary	38.85	10 or more years	83
American Indian/Native Alaskan	1	Middle	17.39		
Asian	0.0	High	13.04		
Native Hawaiian/Pacific Islander	.5	Special Separate	2.46		
Other	2.6				

Table 5. Language Status.

Second Language Proficiency	Percentage (%)
No	95
Yes	5
Language	Percentage (%)
Spanish	98
Other	2

Table 6. ELL Caseload Demographics.

Ethnicity	Percentage (%)	Ages	Percentage (%)	Socio-Economic Status	Percentage (%)
Latino	44.41	3-5	32.1	High	2.75
Chinese	8.98	6-10	37.11	Middle	25.79
Arab	8.69	11-14	21.87	Low	71.46
Indian	2.39	15-21	8.93		
Pakistani	6.59				
Sub-Saharan African	8.88				
Vietnamese	1.81				
Korean	9.84				

DATA ANALYSIS AND RESULTS

RQ1

Our first research question asked if SLP demographics (e.g. years of experience and language status) influenced ELL assessment practices, described by CRE Theory. Further, we questioned if SLP demographics influenced confidence in assessing ELLs. To answer this, a chi square analysis was performed which revealed no significant relationship between years of experience and any components of the CRE framework. Similarly, years of experience was not significantly correlated with SLP confidence in assessing, the findings, or diagnosing ELLs. However, second language status (e.g. bilingual) was correlated with acknowledging power differentials and understanding the spectrum of stakeholder investment, though both associations were weak ($\phi > .30$). Further, language status was mildly correlated ($\phi = .31$) with confidence in assessing

ELLs. As a whole, a little over half (63.9%) reported feeling “not confident” or “somewhat confident” in assessing ELL students. This finding of decreased confidence in assessing ELLs was also noted in Kritikos’ (2003) survey study of mono- and bilingual SLPs.

RQ2

Our second research question examined how NC SLP assessment practices fit into the CRE framework outlined by Hood, Hopson, and Kirkhart (2015). The research team was specifically interested in whether the current practices of these professionals aligned with CRE theory. Below is a table outlining current SLP practice and its relation to CRE theory. Not all components of CRE (e.g. Step 9) were used, as certain assessment procedures are guided by federal and state law. The findings are reported below in Table 7.

Table 7. NC SLP Assessment Practices in Concordance with CRE.

Preparing for the Evaluation	In terms of preparing themselves for an evaluation, less than a fourth (13.2%) of NC SLPs reported consistently acknowledging their positionality. In preparing for to assess an ELL student, the majority of SLPs (81.5%) reported looking up information about the student’s native language. A little over half (53.8%) reported looking up information about the student’s native country. 39.5% of SLPs reported completing an ethnographic interview (e.g. immersive observation and one-to-one interview). 36% of SLPs reported looking up information about the perception of disability in the student’s culture or native country. Finally, 9.5% of SLPs reported looking up information about the student’s religion.
Engaging Stakeholders	Almost half of NC SLPs (46.7%) reported that all stakeholders are equally invested. The stakeholders these practitioners reported engaging the most were students, parents, and teachers; Community liaisons, ESL teachers, and physical/occupational therapists were the least engaged.
Designing the Evaluation	A little over half (66.2%) of surveyed NC SLPs reported they did not design unique evaluation protocols for ELL students. However, the majority of SLPs (80.5%) reported using both formal and informal assessment measures “all” or “most of the time, such as language sample analysis (LSA) and standardized assessments with ELLs.
Selecting and Adapting the Instrumentation	Of the NC SLPs who translate standardized tests (29.5%), the most commonly reported way of interpreting them are describing correct and incorrect responses in a narrative (39.5%) and computing a standardized score (39.5%).
Collecting Data	Over half (53.3%) of surveyed SLPs reported that they considered how their experiences and cultural locations influence their data collection process.
Analyzing Data	99% of SLPs stated their reports were objective and their voices were not present in the report.

RQ 3

Our final questions explored the educational experiences (e.g. coursework) of NC SLPs in regards to bilingual language development, bilingual assessment, and multicultural issues. We also asked if SLPs felt that their graduate education prepared them to assess ELLs.

53% of respondents indicated receiving an infusion model (e.g. instruction related to multicultural topics throughout their curriculum) during their graduate education. A smaller percentage (14%) reported receiving a stand-

alone multicultural course. Finally, over a fourth (33.5%) reported receiving no instruction related to multicultural issues during their graduate education.

In terms of theoretical knowledge, slightly less than half (45.5%) of respondents reported that their graduate experience provided them with sufficient theoretical knowledge related to multicultural issues (e.g. bilingualism, least-biased assessment). A greater percentage (62.8%) of SLPs reported that their graduate education did not provide them with sufficient clinical knowledge related to multicultural

issues. A smaller percentage (20.2%) reported that their graduate education did provide sufficient theoretical knowledge related to these issues. Conversely, a smaller percentage (9%) of SLPs reported receiving sufficient clinical knowledge.

Phone Interviews

Five phone interviews were conducted. SLPs were asked about their challenges with assessing ELLs, thoughts on how to improve the assessment process, and what is needed in terms of coursework, clinical training, and continuing education. A summary of their themed responses can be found in Table 8.

Table 8. SLP Phone Interview Responses.

Question	Themed Responses
What is your greatest challenge when assessing English Language Learners (ELLs) with potential language disabilities?	<p>Respondents reported the following as challenges to assessing ELLs:</p> <ul style="list-style-type: none"> ● Getting them [ELLs] assessed in their native language. ● Knowing and having that background of student's language <ul style="list-style-type: none"> ○ Specifically related to morpho-syntax and phonology. ○ Familiarity with less common languages
In your opinion, what could make the assessment process easier?	<p>SLPs reported that the following resource would make assessing ELLs easier:</p> <ul style="list-style-type: none"> ● School districts establish policies/ guidelines for assessing ELLs <ul style="list-style-type: none"> ○ Serves as a framework for assessment process ● More bilingual SLPs in the school system <ul style="list-style-type: none"> ○ Preference for SLPs over interpreters ○ Knowing where to find bilingual SLPs as well as interpreters ● Access to more informal measures that are less biased to ELLs
What is needed in terms of:	
Coursework	<ul style="list-style-type: none"> ● Increased instruction on dynamic assessment specifically as well as least-biased assessments in general for ELLs ● Explicit instruction bilingual language development ● Instruction on ELLs and The Individuals with Disabilities Education Act
Clinical Experiences	<ul style="list-style-type: none"> ● Increasing exposure to a diverse range of students, including ELLs. ● More connections with local schools or programs with high levels of ELLs in order for SLP students to be exposed to that population.
Continuing Education	<ul style="list-style-type: none"> ● More in-services on dynamic assessment, bilingualism, and differentiating between a language difference and disorder

DISCUSSION

In this study we examined how years of experience and language status influenced assessment of ELLs according to CRE Theory as well as SLP confidence in assessing ELLs. Findings indicated that years of experience did not influence how SLPs assessed ELLs within the constructs of CRE or confidence in assessing ELLs. We found that language status, the ability to implement a language assessment in another language, was significantly related with two components of CRE: recognizing power differentials and understanding varying degrees of stakeholder investment. Further, bilingual SLPs reported confidence in assessing ELLs at a significantly higher level. This finding is not surprising, given that bilingual SLPs reported being proficient enough in a second language to implement a language evaluation.

We also questioned SLPs about their assessment practices with ELLs and compared their reports to the CRE Framework outlined by Hood et al. (2015).

Preparing for the Evaluation

A culturally responsive evaluators should be armed with knowledge about. Further, “they have a responsibility to educate themselves” (Hood et al., 2015, p. 287). SLPs reported a variety of ways of preparing for the evaluation, with the most prevalent way being researching information about the student’s native language followed by researching information on native country. Slightly less than half of SLPs reported looking up information about the perception of disability in the student’s culture or native country. Less than a fourth of SLPs noted that they looked up information about their student’s religion.

These findings suggest that NC SLPs are aware of the need to understand linguistic differences between a student’s native language and English as well as understanding the cultural context the student, including country of origin. Understanding how a cultural group perceives, or understands, a disability may impact the

assessment process. For example, some cultural groups view disability from the lens of superstition or witchcraft (Munyi, 2012). Religion is an important variable to consider when assessing a student as well. Some religions may view disabilities as an Act of God. For example, in Hinduism a disability may be the result of bad Karma. Understanding these factors may help a SLP understand the context in which he/she is entering.

A critical component of CRE is acknowledging privilege, in all its forms, as well as understanding that power differentials, or positionality impacts every phase of the evaluation process (Coghlan & Brydon-Miller, 2014). The majority of SLPs reported not acknowledging power differentials (e.g. the power associated with the role of *the diagnostician*) before entering into an assessment with ELLs. Acknowledging power, or privilege, is necessary as evaluators should be “aware of their own cultural locations vis-a-vis the community, including prior experiences, assumptions, and biases” (Hood et al., 2015), p. 291). In doing so, evaluators (e.g. SLPs) may be more likely to enter into an assessment conscious of their privileges, assumptions, and/or biases.

Engaging Stakeholders

Stakeholders are defined as “individuals who are invested in a program [or student] by virtue of their roles, values, or perceived gains or losses” (Hood et al., 2015 p.291). However, according to CRE Theory, stakeholders do not all hold the same investment. One stakeholder’s benefit may come at another’s expense. A culturally responsive evaluation values a diverse team of stakeholders, with varying levels of investment. Almost half of SLPs surveyed reported that all stakeholders shared an equal investment in the assessment process. However, according to CRE Theory this is untrue. An example of this may be an ELL student, who receives English as a Second Language (ESL) services, also begins receiving special education services. This may result in the ELL student losing their ESL services in order to accommodate the special

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education services. Though there is no formal rule that special education eclipses ESL services, it is an unfortunate reality for many ELL students who are placed in special education (Kangas, 2014). Therefore, it is necessary for SLPs, and other members of the special education team, to understand the underlying stakes associated with team decisions and advocate for their students accordingly.

Further, CRE Theory supports the creation of diverse team members through an “array of skills, competencies, and sensibilities” (Hood et al. 2015, p. 291). To that end, we questioned SLPs about the stakeholders they engaged with. SLPs reported engaging the most with the regular/special education teachers, parents, and the students. These individuals are some of the required members of any special education team. Those professionals with whom the SLPs did not, or rarely, engage with included: ESL teachers, community liaisons, and physical/occupational therapists. Engaging these members, particularly the former two, are an important, and necessary, part of the evaluation process. ESL teachers can report on the student’s language growth in English and provide information about how the student’s progress compares to peers of a similar age and language background. Community liaisons can serve as a link between the school and the student’s cultural background, increasing the likelihood of parental involvement.

Designing the Evaluation

Culturally responsive evaluations should be unique to the individual, group, or program. A little over half of SLPs reported that they did not create unique assessment protocols with their ELL students. However, we found that SLPs often used a mixed-methods approach when assessing ELLs, which is a recommended approach in CRE Theory. As mentioned previously, this type of mixed-methods approach is recommended in CRE theory (Hood et al., 2015). Further, this outcome supports previous findings by Arias and Friberg (2017) that SLPs are using both informal and formal (e.g. standardized assessment) measures with ELLs. The methods utilized most by SLPs were a standardized assessment (e.g. CELF-V) paired

with a language sample analysis, criterion-referenced checklist, or skilled observations. This suggests that SLPs are aware that a standardized test alone may not be sufficient to assess a student’s language abilities.

Selecting and Adapting the Instrumentation

At times, it is not conceivable for SLPs to create an entire assessment protocol for a student. If a SLP, in Designing the Evaluation, determines it is appropriate to use a standardized test, it is necessary to screen the instrument for culturally and linguistically biased test items. One form of adaptation is translation. CRE Theory supports the use of translated instruments, but warns that the evaluator should confirm that the translated questions continue to target the same skills or concepts.

Most SLPs did not report translating standardized assessment into the student’s native language. Of the SLPs (approximately one-third) who translated standardized tests, the most common way of interpreting them was to describe correct and incorrect responses in a narrative. Followed by computing a standard score and, third, calculating a percentage score from the total correct answers. Computing a standard score from a translated assessment is problematic for many reasons, including the loss of validity after translation and subsequently an inaccurate standard score. Keeping in mind the varied ways SLPs scored translated assessments, SLPs should interpret translated assessments with caution.

Data Collection

Collecting data, according to CRE Theory, goes beyond collecting correct and incorrect responses. In order to have a culturally responsive evaluation, it is necessary to understand how bias, both implicit and explicit, can influence what is seen and heard and how it influences data collection. Further, understanding one’s own cultural location, or identity, can help SLPs be more critical of their data collection. For example, a SLP who has considered her cultural location, may be more aware of her/his (un)familiarity with Spanish-influenced English, and therefore pause for a

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moment and question her/his rationale for marking a response as correct or incorrect. We expected only a small percentage of SLPs to consider their cultural locations when collecting data. However, our findings indicated that a little over half of SLPs considered how their experiences and cultural locations influence data collection. While these findings are greater than anticipated, a continued discussion of understanding one's own cultural location remains necessary.

Analyzing Data

"Data do not speak for themselves; they are given voice by those who interpret them" (Hood et al., 2015, p.296). SLPs should always be aware of the presence of their own voice within their reports. No report is objective. However, CRE Theory has recommendations for reducing the presence of our voices when writing a report including using cultural interpreters and engaging (diverse) stakeholders (Hood et al., 2015). As previously noted, the vast majority of NC SLPs (99%) stated that their reports were objective and their voices were not present in their reports. A small percentage (1%) reported recognizing the presence of their voice in the report. This finding highlights an underlying need to monitor the influence of one's own voice when reporting on data.

Graduate Education

We asked SLPs to share their educational experiences as well as their perceptions of preparation to assess ELLs during their graduate coursework. Our findings indicated that despite the majority (87.3%) of SLPs having some sort of coursework related to multicultural issues, most SLPs (90.9%) reported that their graduate education did not or only somewhat provide them sufficient theoretical knowledge to assess ELLs. In addition, the majority (79.8%) of SLPs reported not receiving sufficient clinical experience regarding assessment of ELLs. The findings of varied education experiences is supported by previous research indicating the documented differences in the educational experiences of SLPs in the area of cultural competency (e.g. Hammer et al., 2007; Roseberry-McKibbin et al., 2005). Essentially,

these findings suggest the need for graduate programs to make a more concentrated effort to address multicultural issues and topics in their curricula.

Phone Interviews

Finally, we interviewed five school-based SLPs regarding the challenges they've experienced when assessing ELLs, their suggestions for making the assessment process easier, as well as areas of improvement in graduate education, both theoretical and clinical. All SLPs reported difficulty with familiarizing themselves with the student's native language, specifically with technical characteristics such as syntax. One monolingual SLP reported very mild proficiency with Spanish that helped her with some components of the assessment. However, she reported that her confidence decreased when it was a language she did not know at all (e.g. Arabic).

Moreover, SLPs reported the need for more coursework, clinical training, and post-graduate school training to improve both confidence and competence with assessing ELLs. Increased instruction related to bilingual language development and clinical practice with implementing informal, least-biased measures such dynamic assessment were consistently indicated. SLPs also shared a desire for more support from their school districts by way of formal guidelines or procedures to assess ELLs. One SLP noted that having a general procedure, or steps, in place would give her a starting-off point when assessing her ELL students. During that call, the first author briefly explained the CRE Framework by Hood et al. (2015) to which the interviewee commented that such a framework (or something similar) would likely be beneficial for herself and many of her colleagues. In general, the phone interviews revealed a desire and need for increased education at the University level and increased support at the district level.

CONCLUSIONS AND CLINICAL IMPLICATIONS

In this study we examined SLP's assessment practices with ELLs, confidence, and graduate education. We have also introduced, for the first time, an established model of culturally responsive evaluation that can be applied to ELL students. The CRE Framework outlined by Hood et al. (2005), is a potential model for culturally responsive language assessment. However, more research needs to be done in this area to determine the feasibility of such a model within the public school setting.

In addition, the findings related to confidence and academic experiences, from both the questionnaire and phone interviews, may be the most significant, as it sheds light on a persistent challenge in CSD graduate programs (e.g. Caesar & Kohler, 2007; Hammer et al. 2007; Arias & Friberg, 2017). This finding, in addition to previous research, suggests that SLP graduate programs need to more rigorously incorporate cultural and linguistic diversity into their curriculums to address the persistent gap in education regarding language diversity.

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Limitations

First, the study questionnaire was distributed online, decreasing the likelihood of responses for SLPs with limited internet access. Second, the time of year in which the survey was distributed may have limited SLP response. The survey was distributed in May 2018, towards the end of the school year, which is a busy time for school-based SLPs. Third, we did not include a question asking SLPs about their geographic location (e.g. rural, urban, suburban). Therefore, our sample may not have been geographically representative of NC school-based SLPs in North Carolina. Finally, the questionnaire was distributed with a brief message describing the study. SLPs who may not have many ELL students on their caseload, may have chosen not to respond as they have limited experiences with that specific population.

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