ECHO

ECHO: An international e-journal concerning communication and communication disorders within and among the social, cultural and linguistically diverse populations, with an emphasis on those populations who are underserved.

ECHO is the Official Journal of the

National Black Association for Speech-Language and Hearing

Volume 8, Number 2 **Fall 2013**

ECHO

Volume 8, Number 2 **Fall 2013**

ECHO: An international e-journal concerning communication and communication disorders within and among the social, cultural and linguistically diverse populations, with an emphasis on those populations who are underserved.

Table of Contents

To navigate through this document, use the scroll bar in the right-hand column and observe the page indicator at the bottom of the screen.

ECHO

Volume 8, Number 2 **Fall 2013**

ECHO: An international e-journal concerning communication and communication disorders within and among the social, cultural and linguistically diverse populations, with an emphasis on those populations who are underserved.

About the Editor

Ronald Jones, Ph.D., CCC-A, *ECHO* Editor, is a professor in the Department of English and Foreign Languages at Norfolk State University. He is also Coordinator of the Communication Sciences and Disorders program and Director of the University's Speech, Language, Hearing and Literacy Center. Dr. Jones received his Bachelor of Science in Education degree and Master of Arts degrees from Northern Illinois University, DeKalb, IL and his PhD degree from the University of Cincinnati, Cincinnati, OH. He has written and presented extensively in his primary area of scholarly interest: Auditory Rehabilitation service delivery, Dr. Jones served as Chair of the Board for the National Black Association for Speech, Language and Hearing (2006-2008). Dr. Jones was the former managing editor for ECHO. He is also a past editor (of Letters) for the former ASHA magazine. E-mail address: rjones@nsu.edu.

Reviewers/Contributing Editors

The following individuals served as reviewers or otherwise contributed, editorially, to the journal during 2013. We thank them for their contributions to ECHO (any omissions were certainly unintentional):

Brittany Carroll	Yolanda F. Holt	Robert Mayo	Nola Radford
Amy Caye	Ronald Jones	Kristin Nellenbach	Tommie L. Robinson
Edward G. Conture	Sasha Johnson-Coleman	Kay Payne	Jesus Tanguma
Phillis Cooper	Isabel Killough	Andrea Plutskota	Diane Yenerall
Carrie Forde	Tedd Masiongale	Kenneth Pugh	Lamiaa Youssef
Karen Harris-Brown	Carolyn M. Mayo	Constance D. Qualls	

About the Journal

ECHO is a refereed journal that welcomes submissions concerning communication and communication disorders from practitioners, researchers, or scholars that comprise diverse racial and ethic backgrounds, as well as academic orientations.

ECHO 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. ECHO 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 to any aspect of child or adult language communication and swallowing, including prevention, screening, assessment, intervention, and environmental modifications. Special issues of ECHO concerning a specific topic may also be suggested by an author or initiated by the editor.

ECHO
Volume 8, Number 2 Fall 2013

ECHO: An international e-journal concerning communication and communication disorders within and among the social, cultural and linguistically diverse populations, with an emphasis on those populations who are underserved.

Guidelines to Authors

Topics accepted for publication in ECHO 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 marginized 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
- theoretical discussion papers
- works using disability frameworks or models
- critical clinical literature reviews
- tutorials
- clinical forums
- description of clinical programs
- scientifically conducted program evaluations demonstrating effectiveness of clinical protocols
- case studies
- letters to the editor.

Manuscript Submissions

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 (fifth edition, 2001; 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.

ECHO

Volume 8, Number 2 **Fall 2013**

ECHO: An international e-journal concerning communication and communication disorders within and among the social, cultural and linguistically diverse populations, with an emphasis on those populations who are underserved.

Copyrights & Permissions

Sponsoring Organization

National Black Association for Speech-Language and Hearing, 700 McKnight Park Drive, Suite 708, Pittsburgh, PA 15237, 855-727-2836, 888-729-3489 (fax), nbaslh@nbaslh.org (email), www.nbaslh.org (website)

Current Issue

ECHO

PHONOLOGICAL AWARENESS SKILLS OF SPEECH-LANGUAGE PATHOLOGY STUDENTS IN A PHONETICS COURSE

Tinita Ortega
Silvia Martinez
Jay Lucker

Howard University
Washington, DC

ABSTRACT

Many students enrolled in undergraduate phonetics courses evidence varying phonological awareness skills. The purpose of the present study was to assess these skills, and to determine if phonological awareness subtest scores relate to grades achieved in the phonetics course. All of the auditory phonological subtests of the Comprehensive Test of Phonological Processing (Wagner, Torgesen, & Rashotte, 1999) were administered to 16 undergraduate students enrolled in a phonetics course. Grades achieved on quizzes administered throughout the course were then analyzed and compared to scores achieved on the CTOPP utilizing a Pearson product-moment correlation analysis. Results indicated that performance on the Elision and Blending Nonwords subtests may be instrumental in identifying students in a phonetics course who may struggle with phonological awareness skills, and subsequently, transcription tasks.

KEY WORDS: phonological awareness, phonetics, communication sciences and disorders, undergraduates

ECHO

PHONOLOGICAL AWARENESS SKILLS OF SPEECH-LANGUAGE PATHOLOGY STUDENTS IN A PHONETICS COURSE

Tinita Ortega
Silvia Martinez
Jay Lucker

Howard University
Washington, DC

INTRODUCTION

Instructors who have taught courses in phonetics often note that some students master phonetic transcription skills rather quickly and easily, while others, despite being academically competent, evidence difficulty (Moran & Fitch, 2001). Reasons for such difficulty with phonetic transcription are not immediately apparent, although phonological awareness ability has been identified as a contributing factor in student performance variation (Moran & Fitch, 2001).

Speech-language pathology majors, as students and future professionals, will assess and treat deficits in articulation and phonology as well as reading disabilities (American Speech-Language-Hearing Association [ASHA], 2001, 2010; Spracher, 2000). They will provide diagnostic and therapeutic services in speech and language areas that require mastery of phonological awareness skills in order to identify phonemes, individually, and in segments, and be able to manipulate or identify the manipulation of phonemes in a person's speech. Speech-language pathologists' (SLPs) training in using the International Phonetic Alphabet (IPA) to transcribe speech sounds, along with their grasp of phonology and language processing; which also prepare SLPs to address literacy and other difficulties involving phonological awareness in their clients, is within the scope of practice for SLPs (ASHA, 2001). ASHA's position statement on this issue only reiterates how important it is for SLPs and related professionals to master phonological awareness skills beginning at the undergraduate level.

Nevertheless, the literature suggests that many professionals in the field of education, including speech-language pathologists, lack phonological awareness training. In particular, Spencer et al (2008) mention vast research evidence indicating that "educators [speech-language pathologists were included in several studies] perform poorly on measures of phonological awareness knowledge and skill" (p. 513). Therefore, in order to address the weaknesses in skills documented in the literature, it is imperative that the skills of undergraduate students be assessed and solidified.

What is Phonological Awareness?

Moran and Fitch (2001) define phonological awareness as the ability to understand and "manipulate speech segments at the level of phonemes" (p.85). It also implies an "understanding of the sound structure of language, including the awareness that words are composed of syllables and phonemes" (Catts, 1991, p. 196). Gillon (2005) extends this definition by adding that phonological awareness is "a multilevel skill and is generally considered to encompass syllable awareness, onset-rime awareness, and phoneme awareness," which he clarifies as, "the conscious awareness that words are made up of individual sounds" (p. 309). Phonological awareness skills are illustrated in Table 1. Although several studies have investigated the phonological awareness skills of children (Gillon, 2005; Chera & Wood, 2003; Ehri et al., 2001; Schneider, Roth & Ennemoser, 2000) relatively little exists regarding college students (Moran & Fitch, 2001).

Table 1 *Descriptions of Phonological Awareness Skills Assessed Using the CTOPP*

Types and Examples
Elision- the omission of a sound between two or more sounds or words • "Say 'toothbrush.' Now say 'toothbrush' without saying 'tooth.'" • Correct Response: "brush" • "Say 'strain.' Now say 'strain' without saying 'r'." • Correct Response: "stain"
Blending (words and non-words)- the combination of sounds to form a single word • "What words do these sounds make…'can-dy'?" • Correct Response: "candy" • "What words do these sounds make…'sh-ah-bow'?" • Correct Response: "shabow"
Non-word Repetition- the act of repeating what is heard • "I want you to repeat what you hear. Say exactly what you hear…'ral.'" • Correct Response: "ral" • "I want you to repeat what you hear. Say exactly what you hear… 'voostam.'" • Correct Response: "voostam"
Phoneme Reversal- the act of reversing the order in which sounds are heard • "What word would you get if you say 'deeps' backwards?" • Correct Response: 'speed'

Phonological Awareness Skills in Phonetics Courses

Students in the field of Communication Sciences and Disorders (CSD), especially those studying speech-language pathology, are required to exhibit mastery of phonological awareness skills, and this mastery is assessed early in the undergraduate career via a phonetics course. Phonetics courses require students to evidence skill in producing and perceiving speech sounds and understanding the sound structure of a language. They are also required to transcribe speech utilizing the International Phonetic Alphabet (IPA) by associating quasi-alphabetic symbols and diacritics with speech sounds [IPA transcription] (Moran & Fitch, 2001; Padgitt, Munson & Carney, 2005). In short, they must be able to demonstrate the ability to manipulate speech sounds, which essentially are abilities involved with phonological awareness. It therefore stands to reason that the level of mastery an incoming student possesses in phonological awareness will influence his/her performance in a phonetics course.

The basic phonological awareness skills needed include the ability to analyze sounds via: 1) segmenting words into smaller units, such as syllables and individual phonemes, 2) blending speech sounds to form larger units, such as syllables and words 3) substituting speech sounds at the phoneme and syllable levels, and 4) deleting phonemes at the phoneme and syllable levels.

Previous studies seeking to gain an understanding of the relationship between phonological awareness skills and phonetic transcription abilities have assessed the phonological awareness skills of students in a variety of ways. Moran and Fitch (2001) examined the phonological awareness skills of 21 undergraduate students enrolled in a phonetics course and compared these skills to their phonetic transcription abilities. Four adapted phonological awareness tasks were assessed: phoneme switching, phonetic reversal, phoneme counting, and vowel matching. The phonological awareness task scores were correlated with transcription quiz scores from a phonetics course and a subsequent articulation course. The findings indicated a moderate to high correlation between the total phonological awareness scores and all measures of transcription skills assessed.

In a more recent study, Robinson, Mahurin and Justus (2011) sought to identify screening procedures to predict phonetic

transcription performance in a phonetics course. Using the Comprehensive Test of Phonological Processing (CTOPP) (Wagner, Torgesen, & Rashotte, 1999), Elision, Phoneme Reversal and Segmenting Words skills were assessed and tested against pre- and post- test phonetic transcription tasks. These researchers found significant correlations between all phonemic awareness scores and phonetic transcription post-test scores. Additionally, results indicated that the Elision and Phoneme Reversal scores predicted phonetic transcription abilities.

In contrast to the previously mentioned studies, Spencer, Guillot and Schuele (2008) examined the impact of a phonetics course on the phonological awareness skills of CSD students. These researchers compared students' performances on specific phonological awareness tasks to those of SLPs and other educators (i.e., kindergarten, first grade, reading, and special education teachers). Findings indicated that the students enrolled in the phonetics class performed better than all educators except SLPs. Students did best with phoneme identification tasks (80% accuracy rate), but poorly with phoneme segmentation (65.8%) and phoneme isolation tasks (61.3%). The authors concluded that performance on phonetics coursework was a positive predictor of performance on the phonological awareness measures since the students who took the phonetics course performed significantly better than those who did not take such course. This is an interesting finding as it provides insight into how a phonetics course may influence performance on a phonemic awareness measure, as opposed to the reverse practice (i.e., exploring how a phonemic awareness measure may be used to predict performance in a phonetics course), which has been most often explored in the literature.

Purpose of the Present Study

It is clear that students enrolled as majors in the area of CSD evidence varying levels of difficulty in performing phonological awareness tasks required in a phonetics course, and this difficulty has been shown to impact coursework performance, particularly as it relates to phonetic transcription ability. To date, a small body of research has focused on the correlation between phonological awareness skills and phonetic transcription skills. In doing so, researchers have often adapted assessments (e.g., Moran & Fitch, 2001; Spencer, Guillot & Schuele, 2008) or utilized subsets of complete phonological awareness assessments (e.g., Robinson, Mahurin & Justus, 2011) to assess those skills deemed most necessary in phonetic transcription. While there is sound reasoning in these practices, the use of a full phonological awareness battery to aid in determining the relationship between phonological awareness tasks, transcription ability and, subsequently, successful navigation through a phonetics course, may add to existing knowledge regarding this issue. Therefore, the purpose of the present study was to examine the relationship between phonological awareness skills as measured on a comprehensive assessment of phonological processing and the academic performance of undergraduate students enrolled in a phonetics course utilizing all of the auditory phonological processing subtests of the Comprehensive Test of Phonological Processing (Wagner, Torgesen, & Rashotte, 1999).

The following research questions were examined:

1. How does performance on a phonological awareness measure relate to academic performance for students enrolled in an undergraduate phonetics course?
2. How does performance in a phonetics course relate to each individual subtest of a phonological awareness test?

METHOD

Participants

Participants included 16 undergraduate students (12 females, 4 males), ages 18-39 (mean age, 22.1; SD, 5.6). The sample included 15 African American students and one Asian American student. Participation in the study was incorporated into the phonetics course (grades were not impacted in any way by performance in the study).

Criteria for inclusion in the study included: a) current enrollment in the university as an undergraduate student; b) proficiency in the English language, as determined by self report; c) hearing skills within normal limits as indicated by a bilateral hearing screening at the following frequencies presented at 25 dBHL: 1000 Hz, 2000 Hz, 4000 Hz, and 8000 Hz conducted upon entrance to the university), and d) no prior experience with a phonetics course, as determined by self report.

Following an IRB protocol, the investigators gathered data regarding: a) years of education; b) location of prior academic institutions attended, if any; c) primary language spoken; and d) other pertinent case history information (e.g., presence of past and/or current speech/language impairments) by asking participants to complete a written questionnaire prior to the administration of the assessment. All tests were administered by a doctoral student with ASHA certification as a speech-language pathologist.

Setting

The sessions were conducted in a quiet room controlling for all auditory and visual distractions.

Materials

The participants were administered the CTOPP, which is an auditory-based assessment of phonological awareness, phonological memory, and includes four rapid naming tasks. This measure identifies phonological processing strengths and weaknesses in individuals.

The CTOPP is comprised of three composites that conceptualize phonological processes into the following three skill areas: Phonological Awareness, Phonological Memory, and Rapid Naming (Wagner, Torgesen, and Rashotte, 1999). To examine

phonological awareness skills, all of the phonological awareness subtests on the CTOPP were administered to participants: a) Elision (EL); b) Blending Words (BW); c) Blending Nonwords (BN); d) Segmenting Nonwords (SN); e) Phoneme Reversal (PR); f) Segmenting Words (SW); and g) Nonword Repetition (see Table 1 for examples).

The CTOPP further groups subtests to obtain composite scores: the Phonological Awareness Composite Score (comprised of the EL and BW subtests) and the Alternate Phonological Awareness Composite Score (comprised of the BN and SN subtests). Subtests not included in composite scores are: a) Phoneme Reversal, b) Segmenting Words, and c) Nonword Repetition.

Although not all of the auditory based subtests of the CTOPP are pre-recorded, in order to maintain consistency in presentation of the auditory material, the originally non-pre-recorded subtests were recorded by one of the investigators. He presented the test material monitoring his voice to maintain a consistent volume level. Thus, his recorded speech included vocal presentations monitored to be at 0dB on a VU meter. Therefore, all of the auditory messages of the CTOPP subtests were presented with the same auditory presentations for each of the participants in this study.

Procedures

The CTOPP subtests were administered in one 30-40 minute session. Students completed eight weekly quizzes as part of their phonetics course requirements. Quizzes consisted mostly of transcription exercises, either via dictated stimuli and/or written material provided by the phonetics instructor.

The present study was conducted in a triple blind manner; that is, all students were assigned a number so their identification was anonymous, all CTOPP scores were withheld from both the instructor of the phonetics course and the students until the course was completed, and the investigator was not aware of participants' performance in the phonetics course. All participants received individual feedback regarding his/her performance on the CTOPP.

Data Analysis

The CTOPP contains normative data for individuals ages 5-24 years; however, since the present study included students who were over the age of 24 (n = 4), raw scores, as opposed to standard scores were used to determine whether participants scored below, within, or above the normal range for all CTOPP subtests and composites for the participants in the present study. The relationship between performance on the phonological awareness subtests and performance on the quizzes was obtained using Pearson product-moment correlations correlating quiz scores with the raw scores for each of the subtests of the CTOPP.

RESULTS

Phonological Awareness Skills

The means and standard deviations for all phonological awareness subtests and quizzes are presented in Table 2. The results indicate that the skills required for these tasks varied amongst the students, leading the authors to question whether a relationship existed between phonological awareness subtest scores and quiz scores.

Table 2 *Mean Class Performance on CTOPP Subtests and Quizzes Using Raw Score Data*

Subtests/Quizzes	*Mean Scores*	*Standard Deviations*
Elision (EL)	15.69	3.86
Blending Words (BW)	12.50	4.27
Blending Non-Words (BN)	8.19	2.61
Segmenting Words (SW)	9.44	4.66
Segmenting Non-Words (SN)	10.31	5.20
Phoneme Reversal (PR)	8.00	4.32
Non-word Repetition (NR)	12.19	2.20
Quizzes	67.25	27.24

To determine whether performance on quizzes was related to performance in phonological processing, a Pearson product-moment correlation was computed comparing the relationship between both the two subtests (EL and BW) that comprise the Phonological Awareness composite and the students' quiz scores and the two subtests (BN and SN) that comprise the Alternate Phonological Awareness composite scores and the quiz scores. Results indicate that only for the comparison of the subtests comprising the Phonological Awareness Composite score was there a significant correlation with the quiz grades ($r = .55$, $p = .03$).

In order to determine: 1) whether performance on quizzes was significantly related to one or both of the subtests that comprise the Phonological Awareness Composite (EL, BW), and 2) whether performance on quizzes was significantly related to any other phonological awareness subtest of the CTOPP, a Pearson product-moment correlation comparing the relationship between

each phonological awareness subtest score and performance on quizzes was calculated. Table 3 presents the results of each of these comparisons. The results indicate that the only significant correlation was for the Elision subtest (r = .61, p = .01).

Table 3 *Pearson-Product Moment Correlation Between Quiz Scores and CTOPP Subtests*

Comparisons	*r*	*p*
Q vs. EL	.61	.01*
Q vs. BW	.42	.10
Q vs. BN	.25	.34
Q vs. SW	.39	.14
Q vs. SN	.41	.11
Q vs. PR	.26	.33
Q vs. NR	.16	.55

Note: * significant at the p<0 .05 level. Q = quiz score.

To further investigate the relationship between quiz performance and CTOPP subtest scores, another Pearson product-moment correlation was conducted specifically for those students who received either a subpar or failing average quiz grade. Table 4 presents the results of this correlation. Results do not indicate a significant correlation for any subtest; however, it should be noted that a near statistical significant correlation for students who received a subpar or failing quiz grade was evident for the Blending Nonwords subtest (r = .94, p = .06).

Table 4 *Correlation Between Quiz Scores and CTOPP Subtests for Failing Students*

	r	*p*
Q vs. EL	.63	.37
Q vs. BW	.58	.42
Q vs. BN	.94	.06*T*
Q vs. SW	-.41	.60
Q vs. SN	-.75	.25
Q vs. PR	-.15	.84
Q vs. NR	.49	.52

Note: T-trend noted as p <.10 but >.05. Q = quiz score.

DISCUSSION

Results of the present study support findings that undergraduate students enrolled in a phonetics course evidence varying phonological awareness skills. According to these results, some of the mean scores on the subtests fell within the average range when one computes the mean score and calculates the range + and – one standard deviation of this mean value. Yet most of the subtest scores (i.e., PR, BN, SW, and SN subtests) fell below the -1 standard deviation value for that subtest. Thus, it can be determined that while some phonological awareness skills exhibited by participants are within the average of the group, many others are weaker than the average range.

In examining the correlation between CTOPP subtest scores and mean quiz scores for all participants, it was found that only one of the subtests, the EL subtest, was significantly correlated with quiz grades. This supports similar research findings by Robinson, Mahurin & Justus, (2011), who reported that the EL subtest most strongly correlated with transcription scores in their study. This finding is notable, as the EL subtest requires a student to segment sounds in words and analyze the individual parts (syllables or phonemes) within those segments; the act of transcription often relies on a student's ability to segment sounds at the phoneme, syllable, word, and connected speech levels.

While Robinson, Mahurin and Justus (2011) arguably note that segmentation is often only a first step in phonetic transcription followed by subsequent steps that require "advanced metalinguistic skills that include phonemic matching, phonemic manipulation, and visual and auditory memory" (p.93), O'Connor (2007) mentions that segmentation skills regress as individuals are no longer required to "decode words letter by letter" (as is required in childhood), making the re-learning and re-mastery of segmentation a very relevant and critical process for students enrolled in a university-level phonetics course.

Students' overall performance on the EL subtest in the present study varied; yet, it is interesting to note that two of the four students who received a raw score below the average range on the EL subtest also received a low-average to failing quiz grade average score. This finding is noteworthy, as it suggests that the ability to segment sounds and analyze the segments at the phoneme, syllable and word levels, a skill assessed via the EL subtest, may be related to phonetic transcription ability and overall academic performance in a phonetics course. This also suggests that the EL subtest may be utilized to determine whether further phonological awareness training should be recommended for those students in phonetics classes who perform poorly on this subtest. This is a finding that is in line with results attained by Robinson, Mahurin and Justus (2011), who concluded that the EL and PR subtests of the CTOPP predicted phonetic transcription abilities. The present study confirmed the EL relationship but not that for PR.

Upon examination of the correlation between CTOPP subtest scores and mean quiz scores for students who received poor quiz grades, it was found that none of the subtests were significantly correlated with quiz grades; however, results indicate that the BN subtest achieved near statistical significance. ($p = .06$). This is in clear opposition to results seen for the class as a whole, which suggest that the EL subtest, and subsequently, segmentation skills, are most strongly correlated with quiz grades received.

The BN subtest requires students to combine segmented sounds into nonsense words, and the act of transcription arguably relies on a student's ability to combine sounds at the syllable and word levels as well, particularly at the end of the initial transcription process during which students 'read' and review for errors their final transcribed products. Blending is also a more complicated skill that requires skills that are the opposite of those needed for segmentation, as blending requires one to "hook" sounds together in a smooth manner (Gagen, 2007). The sole significance of the BN subtest for students who performed poorly on quizzes may be accounted for by the fact that blending, in addition to segmenting, is a critical skill that is not only a necessary prerequisite for literacy, as suggested by Oudeans (2003), but for higher level phonological awareness tasks as well, such as needed for IPA transcription.

Performance on the EL and BN subtests proved to be an accurate indicator of performance on quizzes 81% and 75% of the time, respectively. This suggests that both segmenting and blending skills may be important for overall phonological awareness and transcription abilities, and attaining a score within the average range on these subtests of the CTOPP may be instrumental in identifying students who may be expected to experience difficulty with phonetic transcription.

Limitations and Future Research

There are several limitations to the current study, including the small number of participants. It is possible that a larger, more diverse population of students may have yielded different results. Secondly, some participants (n = 4) did not fall within the age range set by the CTOPP (5-24 years), instead ranging in age from 25-39 years of age. As such, raw and not standard scores were used to analyze all data; however, this age difference may have influenced how participants responded whether raw scores or standard scores could have been used. As noted by Huata (2006), the manner in which individuals have been taught to read, whether via the phonics or whole-language reading approach, was altered throughout the 1960s to 1980s, and it is possible that participants' performance on phonological awareness subtests varied based upon these differences. Further research should be conducted to examine the relationship, if any, between reading approaches taught to individuals and phonetic transcription skills.

Thirdly, authors of the present study also did not continue to track the progress of participants at later stages in the school year to assess progression, stability, or regression of phonological awareness skills, and this limits the ability to determine the effects of time on the transcription skills of students in a CSD program. Further research should be conducted to more extensively track the progress of participants at later stages in the school year to assess any progression, stability, or regression of phonological awareness skills.

CONCLUSIONS

Results of the present study suggest that assessing performance on the EL and BN subtests of the CTOPP may be helpful in identifying students who may be expected to have difficulty with phonetic transcription in phonetics courses. This is an important finding as students evidencing borderline or substandard scores can receive counseling and other forms of extra assistance to promote improved phonetic transcription skills.

As the scope of practice for speech-language pathologists expands, so does the expectations of the skill levels of practitioners in the field, and a rather important expectation involves both the ability to identify, describe and treat speech disorders, as well as deficits in literacy. To succeed at these tasks, it is paramount that CSD students gain sufficient phonological awareness and phonetic transcription skills, making the phonetics course the starting point from which adequate training must begin.

REFERENCES

ASHA. (2001). Roles and Responsibilities of Speech-Language Pathologists With Respect to Reading and Writing in Children and Adolescents. Retrieved from http://www.asha.org/docs/html/GL2001-00062.html

ASHA. (2010). Roles and Responsibilities of Speech-Language Pathologists in Schools. Retrieved from http://www.asha.org/docs/html/PI2010-00317.html

Catts, H. (1991). Facilitating phonological awareness: Role of speech-language pathologists. Language, Speech, and Hearing Services in Schools, 22, 196–203.

Chera, P., & Wood, C. (2003). Animated multimedia 'talking books' can promote phonological awareness in children beginning to read. Learning and Instruction, 13, 33-52.

Ehri, L. C., Nunes, S. R., Willows, D. M., Schuster, B. V., Yaghoub-Zadeh, Z., & Shanahan, T. (2001). Phonemic awareness instruction helps children learn to read: Evidence from the national reading panel's meta-analysis. Reading Research Quarterly, 36, 250 -287.

Gagen, M.R. (2007). Blending explained: Why smooth blending is important to reading development & how to help children develop smooth blending. Retrieved from http://www.righttrackreading.com/blending.html

Gillon, G.T. (2005). Facilitating phoneme awareness development in 3- and 4-Year-old children with speech impairment. Language, Speech, and Hearing Services in Schools, 36, 308-324.

Huata, D.H. (2006). The reading race: How every child can learn to read. Wellington, New Zealand: Huia Publishers.

Moran, M.J. & Fitch, J.L. (2001). Phonological awareness skills of university students: Implications for teaching phonetics. Contemporary Issues in Communication Science and Disorders, 28, 85-90.

O'Connor, R.E. (2007). Teaching word recognition: Effective strategies for students with learning difficulties. New York, NY: Guilford Press.

Oudeans, S.M.K. (2003). Integration of letter-sound correspondences and phonological awareness skills of blending and segmenting: A pilot study examining the effects of instructional sequence on word reading for kindergarten children with low phonological awareness. Learning Disability Quarterly, 26, 258–280.

Padgitt, N. R., Munson, B., & Carney, E.J. (2005). Speech-perception training tool to improve phonetic transcription. Journal of the Acoustical Society of America, 118 (3), 1862-1862.

Robinson, G.C., Mahurin, S.L., Justus, B. (2011). Predicting difficulties in learning phonetic transcription: Phonemic awareness screening for beginning speech-language pathology students. Contemporary Issues in Communication Science and Disorders, 38, 87-95.

Schneider, W., Roth, E., & Ennemoser, M. (2000). Training phonological skills and letter knowledge in children at risk for dyslexia: A comparison of three kindergarten intervention programs. Journal of Educational Psychology, 92, 284-295.

Spencer, E.J., Schuele, C.M., Guillot, K.M., & Lee, M.W. (2008). Phonemic awareness skill of speech-language pathologists and other educators. Language, Speech, and Hearing Services in Schools, 39(4), 512-520.

Spracher, M. M. (2000, April 25). Learning about literacy: SLPs play key role in reading, writing. The ASHA Leader.

Wagner, R. K., Torgesen, J. K., & Rashotte, C. A. (1999). Comprehensive Tests of Phonological Processes. Austin, TX: Pro-Ed.

ABOUT THE AUTHORS

Ms. Tinita Ortega is a third-year PhD student studying speech-language pathology with a specialization in autism spectrum disorder in the Communication Sciences and Disorders Department at Howard University, Washington, DC. She received her Master's degree in speech-language pathology from Howard University in 2010, and also received her Bachelor's degree in speech-language pathology from Howard University in 2008. She has authored articles and has presented at several conferences and conventions.

Dr. Silvia Martinez is an Associate Professor in the Department of Communication Sciences and Disorders at Howard University in Washington, DC. She holds degrees from the University of Puerto Rico, Harvard University, and Boston University. For over 30 years, she has addressed inner city populations and immigrants in diverse settings in the areas of Spanish development, dialectology, technology for health education of low literate populations, health disparities, and phonology. She is the developer of www.myhealthstories.com, which contains health education materials for low literate populations in English and Spanish. She has authored numerous books and articles.

Dr. Jay R. Lucker is an Associate Professor in the Department of Communication Sciences and Disorders at Howard University in Washington, DC. He is an internationally recognized researcher and presenter in the area of auditory processing disorders. He specializes in treating multicultural and multilingual populations. He has presented at numerous workshops at NBASLH conventions and presents for the PRAXIS review course at NBASLH.

Please submit all correspondence to Ms. Tinita Ortega; email:tortega.speech@gmail.com.