



Volume 5; Number 1; 2020

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**Online Journal of Missouri Speech-
Language-Hearing Association
(OJMSHA)**

2020

**Annual Publication of the Missouri
Speech-Language-Hearing
Association**

Scope of *OJMSHA*

The Online Journal of Missouri Speech-Language-Hearing Association is a peer-reviewed, interprofessional journal publishing articles that make clinical and research contributions to current practices in the fields of Speech-Language Pathology and Audiology. The journal is also intended to provide updates on various professional issues faced by our members while bringing them the latest and most significant findings in the field of communication disorders.

The journal welcomes academicians, clinicians, graduate and undergraduate students, and other allied health professionals who are interested or

engaged in research in the field of communication disorders. The interested contributors are highly encouraged to submit their manuscripts/papers to msha@shomemsha.org. An inquiry regarding specific information about a submission may be emailed to Jayanti Ray (jray@semo.edu).

Upon acceptance of the manuscripts, a PDF version of the journal will be posted online during August or September. This publication is open to both members and nonmembers. Readers can freely access or cite the articles.

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Representation of People with Communication Disorders in Children's Literature

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Abstract

Purpose: The authors examined a list of books for inclusive representation of people with communication disorders. They hypothesized a) the majority of the books contained multiple inclusive characteristics, and b) a character with a communication disorder.

Method: The first author and an undergraduate student obtained physical copies of books from the top ten best-selling books on Amazon.com's Children's Special Needs Books list and analyzed their content using a checklist developed using Bland & Gann's 2013 guidelines for selecting inclusive literature.

Results: Three of the seven books analyzed featured characters with communication disorders. Each book featured a character with a different communication disorder. Overall, the books possessed 85% or more of the qualifications for inclusive literature.

Conclusions: Forty-two percent of the books surveyed included characters with communication disorders, with no two characters sharing the same diagnosis. All the books possessed a high number of Bland and Gann's desired inclusive characteristics. The results supported part b) of the hypothesis, but not part a). Further research should focus on increasing the number of books and variety of literary work.

Introduction

Literature has many forms and functions, including entertainment, information, and persuasion. For this paper, all of literature's functions fall under two overarching categories taken from Emerson and colleagues' (2014) work. Firstly, literature serves as the reader's gateway into another's thoughts, beliefs, knowledge, and overall experience as a human being. Secondly, it serves as a reflection of the author's values, convictions, and the time in which the author lives (Emmerson et al., 2014). The purpose of focusing on these two aspects is to illustrate a dilemma: Consuming literature can lead to readers gaining understanding, awareness, and acceptance of different experiences and ways of life than the reader's own (Gonene et al., 2015; Stelle, 1999). But what if the literature is misrepresenting these novel concepts, intentionally or unintentionally? How does this affect the reader and the society around them? In response, researchers have investigated the factors that contribute to creating an authentic representation.

Representation, per the Oxford Learner's Dictionary, is the portrayal, description, or depiction of an individual character or group of characters in a particular way "or as being of a certain nature" in a given entertainment medium (OLD, n.d.). It follows that representation can shape the viewer's perception of and feelings toward an individual, or a group of individuals, with the same characteristic,

depending how they are depicted. Depictions can be described overall as positive or negative, and accurate or inaccurate. Accurate and positive depictions are associated with more normalization and acceptance of marginalized groups (Menchetti et al., 2011). Inaccurate and positive depictions have led to a phenomenon that researchers in the field refer to as the “supercrip” trope; the idea that, if an individual with a disability were to put in enough effort, they could magically resolve their difficulties and become typically abled (Harnett, 2000). Inaccurate and negative depictions are associated with aversion and discomfort towards a group (Menchetti et al., 2011). Therefore, both positive and negative inaccurate representations can cause harm. They can cause people outside of a marginalized group to form prejudices, and can also cause the people within the group to develop false beliefs about themselves (Zhang & Haller, 2013). These beliefs damage an individual's self-image and self-confidence, along with their ability to navigate society and pursue a satisfying life (Aisawi, n.d.). Without positive and accurate representations, people in marginalized groups may continue to face institutional, economic, and societal hurdles due to the maintenance of harmful stereotypes (Andrews, 1998).

An example of a historically marginalized group are people with disabilities. Researchers have conceptualized disability in several ways. A common definition for disability is a physical or mental condition that complicates a person's ability to perform tasks and participate in their environment (Center for Disease Control and Prevention, 2019). Defining disability this way fits the medical or pathological model, in which a person is viewed as needing intervention to habilitate or rehabilitate life skills (Emmerson & Brenna, 2015). Others define

it as a phenomenon resulting from a lack of flexibility and acceptance on society's part (Emmerson & Brenna, 2015). Both definitions are incorporated for the purposes of this paper, as it will focus on disabilities that affect the ways that individuals are able to communicate.

Disabilities that limit a person's ability to communicate are more commonly known as communication disorders. Communication disorders are any conditions that lead to deficits in a person's ability to understand or produce messages by reading, writing, hearing, or speaking (American Speech-Language-Hearing Association [ASHA], 1993). Some examples of communication disorders include those that affect speech production, such as articulation, fluency, voice; and motor speech disorders, such as dysarthria and apraxia. According to ASHA, language disorders can affect the form, function, and content of an individual's language system, and can affect their ability to receive and express messages. Additionally, hearing loss and auditory processing disorders are also included under the umbrella of communication disorders, as hearing is important to understanding verbal communication. Finally, alternative or augmentative communication training is considered a part of communication disorders, as it is needed when an individual is unable to express themselves verbally. Because a communication disorder makes communicating more challenging, this can lead to misunderstandings about the abilities of people who have communication disorders, leading some typically-abled people to believe they cannot participate in typical daily life (Golos & Moses, 2013). Subsequently, if someone with a communication disorder wants to dispel these misconceptions, this becomes an uphill battle, as communication is still the medium by which these issues are remedied.

Therefore, it becomes more important that people with communication disorders and their experiences are included realistically in literature to promote understanding.

Inclusion in this sense refers to both the conventional definition, which is the state of being present (Merriam-Webster, 2020), and the state of being welcomed into a space, rather than being an outcast (Wopperer, 2011). In the past, individuals with communication disorders have been portrayed as lesser than typically-abled characters, or even as objects of pity (Pajka-West, 2007). Even when they were present, they were not fully included as complex human beings with agency and purpose as a typically abled character would be in the same position.

True inclusion literature is the gateway into another's experience. It increases the awareness, understanding, and acceptance of those who have no reference point regarding communication difficulties, and helps decrease the isolation that would result from not being included (Prater et al., 2006). This has become increasingly vital in the United States' school system, where students with and without disabilities are increasingly taught together whenever possible (Andrews, 1998). Inclusion literature changes our attitudes towards others through a process called bibliotherapy. Bibliotherapy is the process by which literary works present a novel perspective to the reader, leading the reader to compare it with their own thoughts, and possibly change as a result (Lea, 2015). If this is done effectively with enough children for a long enough time, it can lead to the realization of Eliza Dresang's Radical Change theory, in which a significant positive shift in the treatment and integration of marginalized groups into society is achieved to create a more harmonious, prosperous world (Emmerson et al., 2014).

To achieve this goal, bibliotherapy materials must be carefully chosen, and critical appraisal of literature must be performed (Barker et al., 2011). Guidelines regarding what would constitute quality literature for the purpose of promoting understanding of the perspective of people with disabilities have been developed by researchers throughout the years. The issue now is to provide education to related professionals, such as teachers, about these tools and their importance (Lea, 2015).

The purpose of this paper was to evaluate the inclusive qualities of a curated list of literature featuring characters with disabilities. The authors aimed to answer two additional research questions: How many of the selected books feature characters with communication disorders? What types of communication disorders are depicted? The authors hypothesized a) most of the books contained multiple inclusive characteristics, and b) a character with a communication disorder.

Method

Content analysis was utilized in this study to systematically categorize and analyze information within the texts (Vaismoradi et al., 2013). It emerged as a research method in the 1980s, and spread to several scientific disciplines that utilized it with a variety of mediums (Mayring, 2000). It can be used to document the presence or absence of characteristics, and how often they do or do not occur, to provide us with new insights into the implications of a given work (Erlingsson & Brysiwicz, 2017). These features made it an ideal tool for this project.

The texts were selected from Amazon.com's Best Seller list for the "Special Needs" children's literature category in March of 2020. The criteria for selection for this analysis was the top 10 most popular books on the top 100 best sellers list. Physical copies of each of the

books were obtained via the local library, interlibrary loan, or purchased on Amazon.com if unavailable via the first two options.

Of the top ten best sellers within the chosen category, one was a graphic novel, one was a picture book, and seven were juvenile/young adult chapter books. The final book, *What to Do When Your Brain Gets Stuck*, is a workbook for children diagnosed with obsessive compulsive disorder. This book was excluded, as it was designed to be used as a therapeutic tool rather than a traditional work of literature. As there was only one picture book and graphic novel apiece, results gleaned from their analysis would be inappropriate for generalizing conclusions. Therefore, they were excluded from the results of the content analysis. The final list of books included in the study was as follows:

- Wonder*, by R.J. Palacio
- Fish in a Tree*, by Lynda Mullaly Hunt
- Out of My Mind*, by Sharon M. Draper
- The War That Saved My Life*, by - Kimberly Brubaker Bradley
- Tangerine*, by Edward Bloor
- Insignificant Events in the Life of a Cactus*, by Dusti Bowling
- Roll with It*, by Jamie Sumner

For the content analysis of the selected books, the checklist from Bland and Gann's 2013 guidelines for selecting inclusive books was adapted (Appendix A). The guideline's acronym, "I AM NOT THE DISABILITY," encompasses the characteristics of inclusive literature: realistic, accurate, and balanced depictions of multidimensional characters "engaged in meaningful relationships and situations" (pg 258), with the focus of the story elsewhere than the character's disability showcasing typical interactions with "honest, positive, respectful language" (pg. 258). Definitions

for the terms used in the present study were taken from both Bland and Gann's work and the work of Prater et al. (2006). Realistic in this case means that the story is grounded in reality, rather than a fantasy. Accurate refers to the characters' interactions with others and the environment around them. Balanced means that the story showcases other parts of the characters' lives besides their disabilities and shows their similarities to other characters who do not have disabilities (Bland & Gann, 2013). In the same vein, the authors stated that the characters must also be shown to have the same kinds of interactions a character without disabilities would have with their environment and with others. Additionally, the authors stated that characters must be portrayed as the complex person they are, by demonstrating their likes, dislikes, fears, dreams, hobbies, and other activities. Finally, the authors recommended that language used in the books must be appropriate for the target age group, be positive regarding the person's condition, and honor and respect the character's personhood by utilizing person-first language such as a person who stutters, rather than a stutterer.

For literature to be inclusive and high-quality, it must also possess qualities such as a plot, clear point of view, setting, defined theme, tone, and style. Plot refers to what transpires in the book (Prater et al., 2006). Typically, it will involve the presentation of a conflict between the character and themselves, others, or their environment, and will build to a climax in the action, followed by a resolution of the conflict. A book's point of view, or the perspective from which the story is told, determines its style and tone. It is important to ensure the tone and style accurately depict the way a real person with the narrator's characteristics would explain the plot (Prater et al., 2006). Style also affects the

vocabulary, nonliteral language, and grammar used.

A checklist was developed using the above criteria, with a binary yes or no choice to mark whether it was present or not (Appendix A). The first author and an undergraduate student filled out a digital version of the checklist after finishing each book via Google Forms. A total of fourteen points was possible. The more points a book received indicates a higher perception of inclusivity.

Interrater reliability was assessed by having a second rater review each book and complete the checklist without knowledge of the first author’s responses. The second rater was provided with the operational definitions used for the checklist. The number of inclusive characteristics present in each book was indicated by a ratio, with 1.0 indicating all characteristics were present, 0.9 indicating 90% of all characteristics were included, and so on. Then, interrater reliability was determined via comparing each rater’s average rating.

Results

Three of the seven books surveyed featured a character with a communication

disorder (Table 1). These characters each dealt with conditions that affected their communication in different ways: one character had difficulties with perceiving spoken language (hearing loss); another was diagnosed with dyslexia, a complex condition that affects, among many other areas, a person’s ability to produce and decode written language; and another received a speech-generating communication device, which allowed her to communicate effectively for the first time in her life. For all three books, the character with a communication disorder was the main character. One of the three books (*Fish in a Tree*) featured more than one character with a communication disorder. This secondary character, who was present twice throughout the book, was the main character’s older brother. The main character mentioned that he experienced many of the same issues she experienced with understanding print due to dyslexia, but it is not depicted in any scene. None of the other books featuring characters with communication disorders in this study mentioned any other important characters dealing with a similar condition.

Table 1
Presence of Characters with Communication Disorders and Their Diagnoses

Book	Was there a diagnosis impacting communication?	Diagnosis
Wonder	Yes	Hearing loss
Fish in a Tree	Yes	Dyslexia
Out of My Mind	Yes	SGD user due to Cerebral Palsy
The War that Changed My Life	No	N/A
Tangerine	No	N/A
Insignificant Events in the Life of a Cactus	No	NA
Roll With It	No	NA

All the books included in the present survey were deemed by the two raters to possess at least 85% (or approximately 12/14) of the desired qualities of inclusive literature (Table 2). The books starring characters with communication disorders featured 92% - 100% (13/14 or 14/14) of the desired characteristics. For the six books assessed for interrater reliability, a score of

0.94 was achieved. This is an acceptable rate of reliability as determined by Lombard and colleagues (2004). The only inclusive characteristic found to be missing for *Out of My Mind*, as judged by one of the raters, was positive language regarding the main character’s condition, which will be explored more thoroughly in the Discussion section.

Table 2

Results from Appendix A Survey by Book

Book	Rater 1	Rater 2
Wonder	1.0	1.0
Fish in a Tree	1.0	1.0
Out of My Mind	0.92	1.0
The War that Changed My Life	0.85	1.0
Tangerine	1.0	0.85
Insignificant Events in the Life of a Cactus	1.0	1.0
Roll With It*	1.0	N/A
Mean Rating	0.97	0.98

Point-to-point interrater reliability is 0.94

* ‘Roll With It’ was not included in the interrater reliability measurement.

Discussion

Of the seven books analyzed, three featured a character with a communication disorder. All of the analyzed books possessed most of the characteristics of inclusion literature, which allowed for all to be considered as candidates for bibliotherapy materials, even when they lacked some elements. In some cases, lacking certain elements of inclusive literature lent to the book’s realism. For example, in *Fish in a Tree*, the main character, Ally, struggles socially, educationally, and at home due to her undiagnosed dyslexia. This has led her to believe that she is unintelligent, and her narration reflects that. This is consistent with what current research documents about self-esteem of children with dyslexia

(Altieri, 2007), but it does not promote the development of a new perspective on stereotypes about children who struggle with reading. In the same vein, *Out of my Mind’s* main character, Melody, describes herself and other individuals with disabilities in negative terms throughout the book. Both characters appear to have internalized prejudices towards individuals who have disabilities, and feel isolated from peers. Such isolation can serve as a feedback loop, further worsening the self-perception of children like them, and increasing the negativity of the language they use when referring to themselves and others like them (Andrews, 1998). When using these books as bibliotherapy materials, an instructor can highlight the damage stereotypes cause by showing how being excluded makes people

feel about themselves (Prater et al., 2006), and comparing with books in which a character with disabilities speaks in less unkind terms about themselves. Utilizing bibliotherapeutic materials in conjunction with facilitated discussions has been found by contemporary research to be the most effective in changing attitudes (Kurtis & Galigan, 2008).

A suitable companion book would be *Wonder*, in which the main character Auggie attends public school for the first time. The book includes his experience, along with the perspectives of his friends and family on the same events. While Auggie has difficulties with hearing, speaking, and eating due to congenital craniofacial anomalies, the story's focus is on Auggie's process of making friends, attending classes, and experiencing other typical life events that the target audience would experience. While he does become frustrated with being different from his "normal" peers throughout the book, the negativity is focused on the situation itself, rather than Auggie's condition. Additionally, through the shifting but distinct perspectives, the book provides us a window into how Auggie's loved ones tackle their prejudices and come around to a more understanding paradigm. By the end of the book, Auggie is recognized as a valuable, unique part of his school community. Depictions of children with hearing loss in this way are rare but extremely important in demonstrating to children who are deaf or hard of hearing that they are valued for being themselves (Dunn, 2016; Golos & Moses, 2013).

Limitations

Several limitations exist for the present study. Firstly, Bland and Gann's (2013) guidelines were applied to a limited number of books, which reduce the generalizability of any findings. Secondly, the Amazon.com Children's Special Needs

Books best seller list is in a constant state of flux, meaning that the types of literature and diversity of the populations represented will be further limiting the generalizability. Regarding the content analysis portion of the project, the operative definitions of elements of quality literature employed for this endeavor are subjective, which may have affected interrater reliability through differing interpretations. Additionally, interrater reliability was only assessed for six of the seven books before the second rater ceased participation.

Future Research

Recommendations for further research include analyzing a larger number of books, along with other types of books, such as graphic novels and picture books, from the Amazon.com Children's Special Needs Books best-seller list. This would allow for a sufficient amount of data to draw conclusions, both across and between types of literature. Secondly, it is suggested that further researchers take multiple samples from this bestseller list over a period of time, rather than a single day, so that the general patterns and themes of the books that appear on the list can be more concretely established. Finally, the authors recommended using more in-depth, qualitative content analysis to establish categories, code meaning, and derive overall themes. Doing so can generate lists of effective bibliotherapy materials that can be implemented in classrooms, libraries, and other settings as critical literacy, and provide learning experiences that allows children to increase their compassion, empathy, and understanding of others (Kurtis & Gavigan, 2008).

Conclusion

Literature provides us with many opportunities, including opportunities to learn about others and better empathize with

them. If we glean inaccurate or biased information from these opportunities, it can lead to the development or reinforcement of prejudices against groups of people, both in society at large, and within individuals themselves. Therefore, we must be careful about the literature we choose to share, and how we present it. Past researchers have documented how the elements of writing and character building are utilized in truly inclusive literature by providing guidelines. One such guideline was employed in this investigation to evaluate the inclusiveness of

contemporary representations of characters with communication disorders on a curated list, and found that all possessed at least half of the necessary elements to serve as a window into the experiences of real people with these conditions.

Acknowledgments

The first author would like to recognize and thank Alice Ruleman, MLS, MS, whose work as a research librarian provided invaluable information for the completion of this paper.

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Appendix A

1. Content Analysis Checklist (Bland & Gann, 2013, pg. 258)

Book Title:

Author:

Part I: Identification of Communication Disorders

Does the character have a communication disorder?

Yes No

The character is diagnosed with:

Part II: I AM NOT THE DISABILITY

2. “Inclusive Literature is Realistic.”

1. Is the book realistic fiction/non-fiction?

Yes No

3. “Accurate and Balanced”

2. Are the character’s interactions with their environment accurate to those of a person with their condition?

Yes No

3. Are the character’s interactions with the people around them accurate to those of a person with their condition?

Yes No

4. “Not the Focal Point of the Story”

4. Is the character portrayed as a complex person via the inclusion of their likes, dislikes, dreams, fears, opinions, hobbies, etc.?

Yes No

5. “Typical Interactions”/ “Engaged in Meaningful Relationships and Situations”

5. Does the character have interactions with others that a person without this disability would have in a similar situation?

Yes No

6. Does the character have interactions with their environment that a person without this disability would have in a similar situation?

Yes No

6. “Honest, Positive, Respectful Language”

7. Is person-first language used?

Yes No

8. Are the words used appropriate to the target age group?

Yes No

9. Is the character’s condition written about using positive language?

Yes No

“Possesses Literary Qualities”

10. Does the book have a plot (conflict, climax, and resolution)?

Yes No

11. Is the point of view clear and consistent?

Yes No

12. Is at least one clearly-defined theme present?

Yes No

13. Is the style of the writing appropriate for the target audience?

Yes No

14. Is the style accurate to the characteristics of the person telling the story?

Yes No

Auditory Processing Testing with Tele-Practice Measures: A Comparison to Traditional Methods

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Abstract

Auditory processing disorders (APDs) are deficits managing stimuli in the central auditory system. In a broad sense, APDs affect a person's ability to comprehend auditory information effectively. An audiologist administers a series of tests to determine where the breakdown occurs, for example in decoding degraded speech or understanding competing messages. Tele-practice is used frequently in medical settings to reach rural patients who cannot travel to a doctor. Tele-practice in audiology, referred to as tele-audiology, is a relatively new extension of online medicine. This study investigates the possibility of using tele-audiology to present speech stimuli often used in evaluation of APDs. Investigators tested 55 normal-hearing, young adults (aged 18-30 years of age) at the Center for Speech and Hearing at Southeast Missouri State University. Speech-in-noise and dichotic numbers tasks were administered in two settings: a sound-attenuated booth and online. Results revealed no significant difference between scores for either task, suggesting potential for broadening the scope of tele-audiology.

Introduction

Auditory Processing Disorders (APDs) are a breakdown along the central auditory nervous system (CANS) in the absence of a higher-order cognitive disorder (American Speech-Language-Hearing Association (ASHA), 2019a, 2019c). The CANS is responsible for processing incoming auditory information for sound recognition, discrimination, and localization, but it also aids in language, attention, and

auditory memory functions. To properly process incoming auditory information in the CANS, the following skills must be present: sound localization, auditory discrimination, temporal integration, discrimination, gap detection, ordering, masking, and an ability to process degraded signals (Yathiraj & Vanaja, 2018). In the absence of hearing loss, children who are not able to adequately process auditory stimuli may have APDs. In everyday situations, children with APDs may have problems following multiple step directions, listening to conversation in background noise, spelling and reading in school, staying organized, and formulating complex sentences ("Auditory Processing Disorder," 2012).

An audiologist is ultimately responsible for diagnosing APDs using a battery of auditory tests. These tests are aimed at the functions of the CANS, namely phonological skills, decoding, auditory discrimination, and auditory memory. The diagnosis of APDs is focused on testing the areas most affected by APDs including binaural separation, speech-in-noise, and temporal processing (Yathiraj & Vanaja, 2018). Results of an APDs assessment are compared to age-appropriate normative data to reach a diagnosis (ASHA, 1996). Scores must be two standard deviations (or more) below the mean on at least two tests in at least one ear (Chermak, 2007).

Typically, audiological tests are administered in sound-attenuated booths. Some audiologists, however, do not use face-to-face means of testing patients, instead using distance testing. The Health Resources and Services Administration

defines tele-health as, “the use of electronic information and telecommunications technologies to support long-distance clinical health care, patient and professional health-related education, public health and health administration” (Romano & Seckman, 2011). ASHA uses the more specialized term “tele-practice” to refer to distance services rendered by audiologists and speech-language pathologists (ASHA, 2019b). Even more specifically, the term “tele-audiology” can be used to describe diagnostics, assessments, and treatment provided online by audiologists. Although using tele-audiology for routine peripheral auditory testing is becoming more common, administering specialized audiological tests (such as an APDs test) is not. The reliability of assessing APDs using tele-practice measures is largely unknown.

Tele-health

Tele-health is a term that can be applied to any medical field providing health care from a distance (Romano & Seckman, 2011). Tele-health, in some form, has been in use for more than four decades and reaches numerous fields including nursing, radiology, dermatology, psychiatry, and pediatrics (Givens & Elangovan, 2003; Swanepoel et al., 2010). Almost any daily errand can be completed online, and this concept extends into medical care as well. For example, some individuals prefer to respond to online questionnaires because they feel more secure and more willing to share information about themselves (Goegan, Radil, & Daniels, 2018). A study investigating patient satisfaction with tele-health practices found that between 94-99% of people were very satisfied with this form of healthcare, citing convenience and better access to services (Polinski, Barker, Gagliano, Sussman, Brennan, & Shrank, 2016).

Tele-audiology

Tele-audiology is a specialized branch of tele-health used by audiologists. Methods can be asynchronous, such as a hearing screening over the phone or internet, or synchronous, real-time interactions. Although tele-audiology has not been used as much as other branches of tele-health, audiologists have been using these services for patients with hearing aid needs for at least the past four decades (Givens & Elangovan, 2003; Swanepoel et al., 2010). Tele-audiology provides reliable results for audiologic tests and evaluations, comparable to in-person testing (Givens & Elangovan, 2003; Polinski et al., 2016; Steuerwald et al., 2018). For example, an audiogram established in-person versus an online system shows no significant differences. Only a 1.3 dB variation in air conduction thresholds and 1.2 dB variance for bone conduction thresholds between the two test conditions (in-person/online) was found (Givens & Elangovan, 2003).

Over 25% of Americans do not have a primary care doctor either by choice or inaccessibility (Polinski et al., 2016). Consequently, many do not have access to, or choose not to seek hearing and balance services from audiologists. This is not due to a lack of need for audiologic services, however. Three in every thousand children born in the United States has a hearing loss (NIDCD, 2016). In addition, 108.7 million Americans are over the age of fifty (American Association of Retired People: AARP, 2014). Hearing loss is commonly associated with aging, so the need is growing exponentially. The demand is so high that there are not enough new audiologists entering the field each year. Tele-audiology may be the answer to treat more people in need, especially those unable to receive face-to-face services.

One reason people may be unable to visit with an audiologist is because they live

in a rural area, away from a qualified professional. Tele-audiology provides a way for an audiologist to diagnose and provide therapy for individuals with auditory problems from a distance. This service is also extended to people unable to leave their house due to illness, inclement weather, or financial reasons. Tele-audiology techniques can also reach people in prisons, nursing homes or care facilities who are too fragile to transport, and people who are afraid to go to the doctor in-person (Givens & Elangovan, 2003; Romano & Seckman, 2011; Swanepoel et al., 2010). Other potential benefits of tele-audiology include education of professionals, parents, and patients, diagnostic evaluations, and treatment of audiologic disorders (Paul, 2008; Swanepoel et al., 2010).

Problems with Tele-Audiology

There are several problems that need to be addressed regarding tele-audiology such as training and availability of professionals (Swanepoel et al., 2010), cross-state licensing (Romano & Seckman, 2011), and reimbursement (Romano & Seckman, 2011; Steuerwald et al., 2018).

An unequal disbursement of audiologists exists; more audiologists are found in developed countries. In addition, they are more readily found in cities rather than rural areas (Swanepoel et al., 2010). Pediatric audiologists are in even less supply, which means getting an appointment could take months to confirm and hours of travel. To solve this problem, Cincinnati Children's Hospital Medical Center created a way for children to receive audiology services through tele-audiology. They created a successful, cost-effective way to provide services to families including hearing aid follow-ups, troubleshooting of audiologic equipment, and cochlear implant mapping (Steuerwald et al., 2018).

Reimbursement for audiologic services provided remotely has been an additional problem. Although providing services through tele-practice has been shown to be cost-effective, paying for these services is not always straightforward (Romano & Seckman, 2011). Providers are not often reimbursed for tele-audiology services by third-party providers (Steuerwald et al., 2018). Such parties may include Medicare or Medicaid, who do not recognize tele-audiology as a service. Some states also do not have laws requiring private insurance companies to pay for any service delivered by tele-practice (Steuerwald et al., 2018).

The need for audiological services in rural and remote areas is apparent. Further, the need for an effective method for testing individuals with suspect APDs is also needed. Currently, no research has addressed this issue. The purpose of this study was to initiate an investigation into the plausibility of remotely screening auditory processing.

Methods

Participants

Fifty-five, normal-hearing adults, aged 18- 30 years, currently enrolled as students at Southeast Missouri State University (SEMO), participated in the study. All participants were recruited via announcements in the Communication Disorders department classes and in National Student Speech Language Hearing Association (NSSLHA) meetings. Instructors had the option of offering extra credit to students in their class who participated in the study. Students participated in the study on a volunteer basis and had the option of withdrawing at any point. Participants had no difficulties hearing speech in noise and had normal hearing (thresholds at 20 dB HL or better at

250-8000 Hz bilaterally), as determined by an audiometric screening.

Test Measures

Two auditory processing tasks were used to evaluate the ability to process auditory information remotely: Speech-in-noise testing and a dichotic numbers task. Similar tasks are commonly used as part of an APD test battery. For purposes of this study, a speech-in-noise and a dichotic numbers task were created. Both were recorded using a male speaker in a sound-attenuated booth using a SE7 condenser microphone and a PreSonus STUDIOLIVE AR16 sound board. Sound files were calibrated for intensity and 3-second interstimulus intervals using Audacity 2.3.1 software. The Root Mean Square (RMS) average intensity was calculated for both stimuli recordings and a 1000 Hz calibration tone matching the RMS intensity was placed at the beginning of both sound files. The speech-in-noise task was comprised of a carrier phrase "Say the word ____" and 30 monosyllabic words from the Nu-6 3A word list. A separate track of recorded party speech babble was added at 10 dB level below the speech stimuli. The recording was then saved to a wav file. The dichotic numbers stimuli were one syllable numbers (one, two, three, four, five, six, eight, nine, and ten) presented in two dichotic pairs, one word from each pair presented to both ears simultaneously. Numbers used in the pairs were chosen randomly using a random number generator. There was a 0.5 second pause between pairs of numbers and a 3-second interstimulus interval between each set of two pairs. The recording included two practice pairs and 20 test pairs of numbers.

Procedure

Participants were first briefed about the study and signed an informed consent before beginning testing. Participants

completed a hearing screening (25 dB HL at 250-8000 Hz) using a Madsen Itera II audiometer and ER-3A insert headphones to verify normal hearing. Test order was randomized. The speech-in-noise task was presented bilaterally at 60 dB HL with a 10 signal-to-noise ratio (SNR). Wilson, McArdle, Betancourt, Herring, Lipton and Chisolm (2010) found that young listeners with normal hearing require a poor SNR to establish a typical psychometric function, using a SNR range of 20 dB to -8 dB for Nu-6 words presented in uninterrupted speech noise. To avoid ceiling or floor effects in this study, an SNR slightly below the 100% point was desired. Stoppenbach, Craig, Wiley, and Wilson (1999) found listeners to reach 80-90% correct point of a psychometric function to Nu-6 words presented in competing babble at an SNR of 10 dB. Therefore, a SNR of 10 dB was used. The dichotic numbers task was presented at 60 dB HL bilaterally. Both tasks were presented using ER 3A insert earphones and a Madsen Itera II audiometer. Score sheets were used to document participant answers. Participants were not permitted to see results or correct answers, and no feedback was given regarding performance. After the in-person testing was complete, participants received instructions for completing the online portion of the study.

Instructions for the online testing were emailed to each participant. In the email, detailed steps on how to access the tests online were given, as well as instructions for self-recording their answers. Participants were given access to a password-secure OneDrive file containing both stimulus wav files.

Participants were instructed to use insert headphones. Although quality headphones with good sound resolution were recommended, this factor was not controlled. Participants in this study were instructed to complete testing in a quiet

room away from all distractions. Ribera (2005) demonstrated the ability to deliver speech-based tests in a quiet (versus sound-treated) environment. In addition, Moncrieff and Wilson (2009) established normative data to dichotic digits using both a sound booth and a quiet room. Both studies suggest that a quiet environment can be adequate for presenting speech stimuli.

At the beginning of the online testing, participants were instructed to set the volume to a loud, but comfortable level using the 1000 Hz calibration tone for each stimulus recording, which would approximate the 60 dB HL used during the in-person testing. Participants recorded the words they heard for both tests on blank paper in between presentations of recorded stimuli. If needed, participants could pause the recording to write their responses after each word. Participants were instructed not to share answers with anyone in the study, relisten to any stimuli, and to take the tests individually. The participants submitted their answer sheets to a secure mailbox in the Department of Communication Disorders office, with only their study number as identification on the answer sheet. The time between conditions (in-person versus online) averaged 2 weeks.

Results

Of the 55 participants originally tested, only 40 provided completed test information. Four participants chose to not complete the in-person testing, two participants did not follow directions for the online testing, and nine participants chose to not complete the online portion of testing.

Data for both conditions (in-person/online) were plotted separately according to task (speech-in-noise/ dichotic numbers) to identify any outliers. No outliers were found for the speech-in-noise task. However, one outlier was removed prior to analysis for the dichotic numbers task. To assess test-retest effects and the influence of any confounding factors (such as test environment, stimuli intensity, and earphone quality), a Pearson Correlation Coefficient was calculated for each task (speech-in-noise/dichotic numbers) using scores obtained for the in-person and online conditions. For both tasks, a significant correlation was found (speech-in-noise [$r(40) = 0.495, p = .001$]; dichotic numbers [$r(39) = 0.321, p = .046$]), indicating high reliability between scores on each condition. A correlation suggests that neither test-retest effects nor the above confounding factors contributed significantly to study results. See Figures 1 and 2.

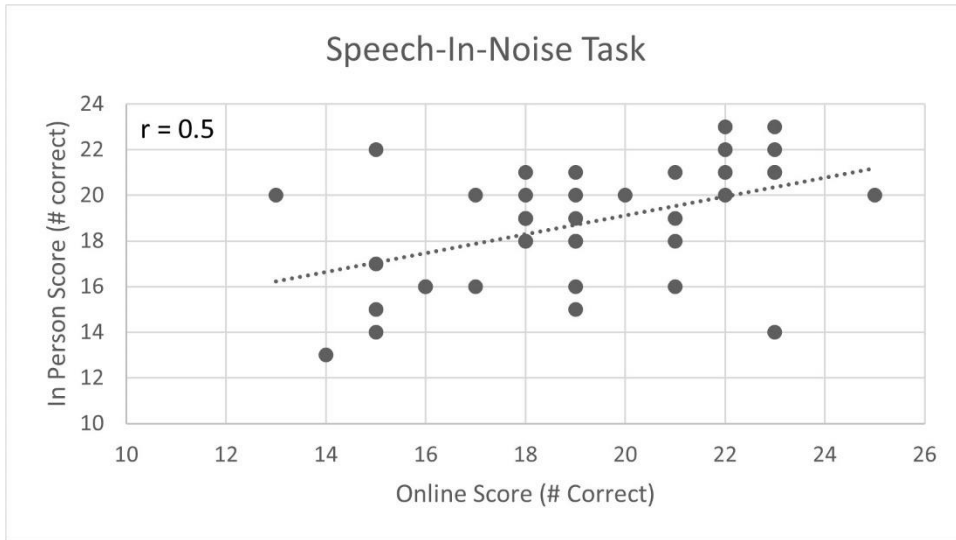


Figure 1. Scatterplot of participant scores on the Speech-in-noise task plotted with the scores obtained in-person on the y-axis and scores obtained online on the x-axis.

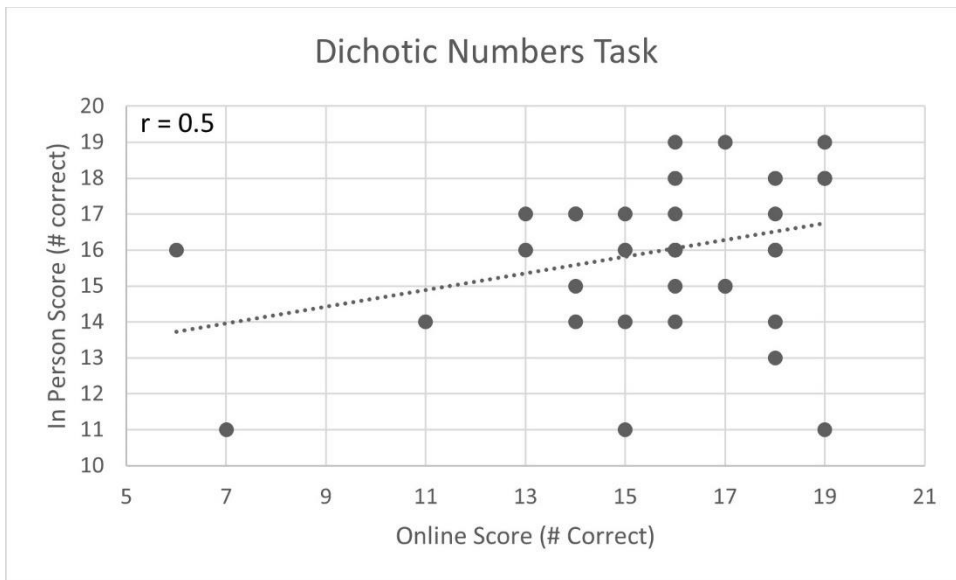


Figure 2. Scatterplot of participant scores on the Dichotic numbers task plotted with the scores obtained in-person on the y-axis and scores obtained online on the x-axis.

The number of errors for each word comprising the tasks were calculated (30 words: Speech-in-noise and 20 pairs: Dichotic numbers) in each condition (in-person versus online) to determine if any stimuli comprising the word lists were too difficult. A Chi-Square test showed no significant difference in number of errors between words in the lists for the in-person [$\chi^2(21) = 6.667, p = .999$] or online [$\chi^2(19)$

$= 7.333, p = .992$] conditions for the speech-in-noise task. In addition, no significant difference was found between the number of errors between number pairs for the in-person [$\chi^2(11) = 8.8, p = .640$] or online [$\chi^2(11) = 7.6, p = .749$] conditions for the dichotic numbers task. Table 1 shows the number of errors observed for the online and in-person scores for the Speech-in-noise and Dichotic numbers tasks.

Table 1

Stimuli Average Number of Errors for (a) the Speech-in-noise test and (b) the Dichotic numbers tasks.

(a)			
	N	Mean	Std. Dev.
Online	30	14.23	12.08
In-person	30	15.13	10.99

(b)			
	N	Mean	Std. Dev.
Online	20	9.2000	8.48900
In-person	20	8.6500	8.78560

An Analysis of Variance (ANOVA) was used to determine if testing condition (in-person versus online) influenced task scores. Levine’s Test of Homogeneity was not significant, indicating equal variance within the groups. Overall, no significant differences were found between task scores obtained in-person or online for either the Speech-in-noise test [$F(1,78) = .225, p = .673$] nor the Dichotic numbers tests [$F(1,76) + 1.04, p = .694$]. See Table 2 and Figure 3.

Table 2.

Speech-in-noise and Dichotic numbers test scores for online and in-person tests

		N	Mean (Number correct)	Std. Deviation
Speech-in-noise	<i>Online</i>	40	18.95	3.00
	<i>In-person</i>	40	18.65	2.64
	<i>Total</i>	80	18.80	2.82
Dichotic numbers	<i>Online</i>	39	15.78	2.95
	<i>In-person</i>	39	16.00	2.13
	<i>Total</i>	78	15.70	2.56

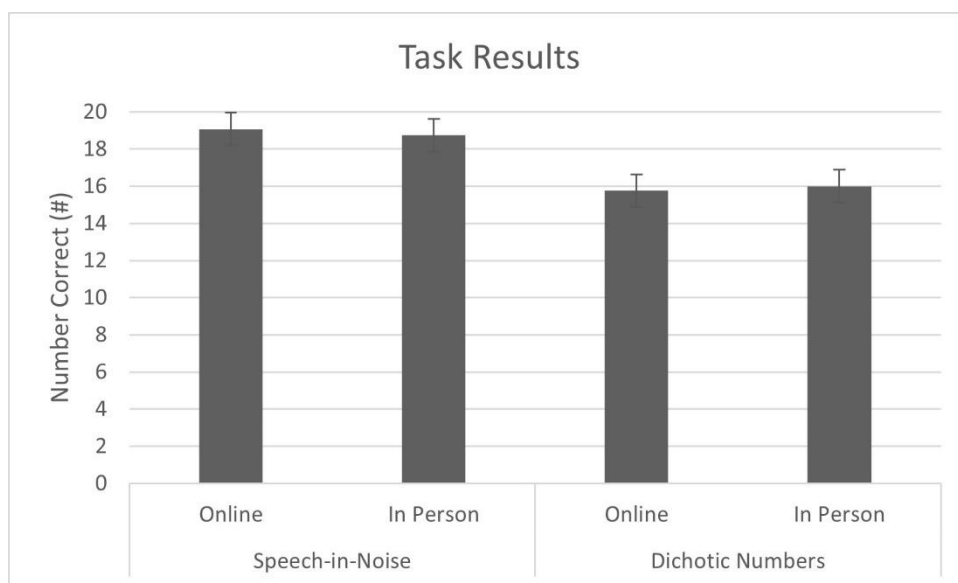


Figure 3. Bar graph of averaged task results. Average number correct is plotted on the y-axis. Task (Speech-in-noise/Dichotic numbers) and condition (online/in-person) are plotted on the x-axis.

Discussion

A limited number of practicing audiologists and a high demand for audiological services suggests alternative methods are needed to efficiently reach some patients. Audiologists need reliable ways to test patients which do not require travel or in some cases, patients to leave home. Solutions to limited audiological access, reduced patient expense, and increased engagement are gaining attention. Mobile or internet-based audiological technology may be one solution.

With internet access, professionals and patients can use applications such as videoconferencing and cloud-based data storage for medical assessment and management. In addition, accessible technology heavily reduces complexity, allowing applications to be operated by inexperienced users (Swanepoel, 2017; Van Tonder, 2017). Overall, technology has the capability to enhance efficiency, positively affect access, and affordability for professionals and patients. Indeed, telehealth services are beginning to

transition to mobile phones and tablets (Swanepoel, 2017).

Tele-audiology may be an effective tool for audiologists. Professionals appear willing to use technology to provide remote services. A recent worldwide survey of 269 audiologists found most audiologists have experience with video conferencing and positive attitudes towards tele-audiology (Eikelboom & Swanepoel, 2016). Indeed, the average response was a rating of 3.7 (out of 5) to questions measuring willingness to use tele-audiology. Although audiologists may be willing to provide services remotely, the reliability and validity of test results obtained through tele-audiology needs to be examined.

Already, the use of tele-audiology for various tasks looks promising. In fact, computer-based testing and conventional testing have comparable refer rates (Khairullah, et al., 2016; Lancaster et al., 2008; McPherson et al., 2010). Tele-audiology has been effectively used for hearing screenings (Larrosa, et al., 2015; Visagie, et al., 2015) and pure tone thresholds (Van Tonder, et al., 2017).

Auditory Brainstem Response (ABR) testing (Hatton et al., 2019), auditory training (Abrams, et al., 2015), and hearing aid fittings (Novak et al., 2016) have also been successfully completed remotely. However, the feasibility of remote assessment using degraded speech tasks is unknown. The purpose of this study was to investigate the consistency between in-person and online testing of two degraded speech tasks: Speech-in-noise and dichotic numbers.

One concern with any test-retest design is elevated retest scores due to familiarity with test stimuli. One method to assess effects is to complete a correlation analysis between both sets of scores (test/retest). Indeed, Stoppenback et al (1999) found high Pearson Correlation Coefficients when examining test-retest reliability of Nu-6 words presented in competing speech babble in adults ($r = 0.8$). Musiek, Gollegly, Kibbe, & Verkest-Lenz (1991) found test-retest correlations to be high ($r = 0.7$) for dichotic digits presented to adults. Correlation coefficients for test-test data in this study were high for speech-in-noise and dichotic number stimuli, suggesting that stimulus familiarity effect did not inflate retest scores. In addition, strong correlations also suggest that factors such as presentation level or quality of headphones did not adversely significantly affect online test scores.

Consistency of stimuli is an important factor for any assessment tool. An analysis of stimulus errors was conducted to determine whether specific stimuli (words or numbers) were difficult to interpret in either condition (in-person or online). The number of errors for each word in the speech-in-noise task and for the digits in the dichotic numbers task were assessed. No significant differences were found among any of the stimuli, regardless of whether presented in-person or online.

If stimulus presentation online is to be viable, scores on each task should be

consistent. Scores for speech-in-noise and for dichotic numbers tasks were not significantly different regardless of being presented in-person or online. Presenting either task via tele-audiology did not affect test results, even in a difficult listening scenario (10 dB SNR).

The ability to complete speech-in-noise and dichotic numbers remotely looks promising. In the current study, no significant difference was found between conventional and online presentation for either test. In addition, the number of errors on stimuli in each test did not vary with either test mode. With accessibility limitations for audiological services in some areas, the ability to test for APDs in creative ways is essential. Online administration may prove to be an effective and efficient method.

Limitations

A calibration tone, equal to the RMS value of the task stimuli was present at the beginning of each task. The tone was used to calibrate the audiometer during in-person testing and was used by participants to adjust the sound level on their computers. Although not exact, the calibration method helped approximate the two testing sound levels. Different test levels may have confounded results for each condition (speech-in-noise and dichotic numbers). However, the SNR remained stable across conditions for the speech-in-noise task (10 dB SNR) and no significant difference was found between conditions on either task, suggesting an unlikely confound. Participants were instructed to keep the volume at the same level once adjusted. Future online testing could include a different calibration method, possibly a speech-based calibration may be more effective.

Other limitations of the online portion of the study include participant compliance, quality of headphones, and test location. Detailed instructions were provided to participants, but no measure was in place to ensure instructions were

accurately followed. Participants were asked to use high quality insert headphones however, variability in types of headphones used could have influenced the results. Participants were instructed to complete the online tasks in a quiet room with minimal distractions. All three of limitations (instruction compliance, quality of headphones and test environment) may have been controlled with the use of online conferencing software such as Zoom or Google Meet and a webcam.

Finally, the small number of participants shared similar education levels, as they were all students at SEMO. This study did not separate results by gender or race. All participants were between 18-30 years old; using similar tasks with younger children could provide different results or indicate need additional modifications to the online testing. Further testing with more participants is needed to fully assess feasibility of online

presentation of the speech-in-noise and dichotic numbers tasks.

Conclusions

The field of tele-health is rapidly developing and has the potential to change the way health care is delivered. Increasingly, more fields are integrating tele-health into everyday practice. Although tele-audiology has been used for decades in programming and adjusting hearing aids (Givens & Elangovan, 2003), more investigations for other uses in the field are needed. The future use of tele-audiology will likely include education of professionals and communities, diagnosing hearing loss and conditions, and counseling (Swanepoel et al., 2010).

It was the intention of the study to investigate presentation of speech-in-noise and dichotic number tasks using tele-audiology. Results suggested that online presentation is promising.

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Crossing Borders: Is an Interstate Compact the Answer for Missouri?

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With the 2019 pandemic caused by the novel coronavirus (COVID-19), speech-language pathologists (SLP) quickly adopted telepractice as a recognized service delivery model across a variety of settings to continue serving patients and students. Although telepractice is not new to the field of speech-language pathology, the use of telepractice is new to many practitioners who, prior to the pandemic, may not have had plans to adopt and use this delivery platform. The increased awareness and comfort levels of therapists using telepractice as a primary mode of service delivery has also heightened interest in the interstate compact which has the potential for streamlining practice regulations across states among other benefits for client access to services. The purpose of this article is to inform readers about interstate compacts and increase awareness of how local states and therapists could be impacted if a compact was adopted.

According to the American Speech-Language-Hearing Association (ASHA), telepractice is a type of service delivery model where technology is implemented by SLPs or audiologists in order to assess and treat a patient or client from a distance (ASHA, 2020a). Whereas speech-language pathology services are typically provided in a face-to-face setting, telepractice allows the practitioner to provide services to those individuals or organizations remotely. Cason and Cohn (2014) identify many groups that benefit from teletherapy services. Some of those groups include transient populations, underserved communities, and those who

would benefit from services in a natural environment. Current standards for telepractice in speech-language pathology are set forth by ASHA, and clinicians who are using telepractice as a mode for service delivery must abide by the established guidelines, scope of practice, and the ASHA Code of Ethics (ASHA, 2020a).

For SLPs to be able to provide therapy services in another state, one must meet the licensure requirements of the state they reside in and the state where the client is physically located (Grillo, 2019). This requires the SLP to potentially apply for licensure in multiple states to practice legally through telepractice. Some states have added temporary practice provisions for telepractice for in-state and out-of-state therapists as a result of COVID-19. Currently, there are no permanent interstate provisions in place for SLPs to practice in more than one state while holding only one state license due to differences in the regulations across regions. Some, but not all, states offer limited reciprocity to individuals with licenses from other states in that they will expedite the process of granting licensure in the given state using documentation from the state that initially issued the license to practice (ASHA, 2020b).

Current Practices for State Licensure

While ASHA is the governing body for certifying SLPs and audiologists across the United States, each state provides rules and regulations for licensure. These rules and regulations vary, even with states that are proximal to one another. Licensure and practice

guidelines for telepractice across states are even more varied (ASHA, 2020b).

In order to obtain licensure in the state of Missouri, SLPs must hold a Master's degree from an ASHA accredited program. Additionally, applicants must provide evidence of completed coursework and clinical practicum as required by the accrediting body, completion of a jurisprudence exam, an activity statement, and passage of the PRAXIS exam (Missouri Board of Healing Arts, n.d.). In 2015, Senate Bill 107 was passed, which removed the nine-month clinical fellowship as a criterion for licensure in the state of Missouri (Mo-Case, 2015). New graduates apply for full licensure under the Missouri Board of Healing Arts. Since Missouri eliminated the temporary license requirement, new graduates can bill and receive reimbursement for their services. In contrast, neighboring states ask for additional requirements to obtain state licensure. For example, the states that surround Missouri (e.g., Kentucky, Arkansas, Kansas, Illinois, and Iowa) require completion of the nine-month post-graduate clinical fellowship experience in addition to holding a Master's degree from an accredited program prior to applying for licensure (ASHA, n.d.).

State Licensure for Telepractice

Although SLPs may have used teletherapy prior to 2005, it was 2005 when it became a recognized service delivery method by ASHA (Theodoros, 2011). With advances in technology and reimbursement, telepractice has recently gained popularity as a mode of service delivery. Each state determines their own rules and regulations for providing services in this manner which vary significantly from state to state. However, ASHA provides guidelines through the Code of Ethics and standards for the provision of speech-language pathology services through telepractice (Cohn & Cason, 2019). Since individual states control licensure procedures, state

organizations provide additional rules for administration of teletherapy based upon state license. Similarly, there has been no consensus on state guidelines for telepractice, and each state has very different rules and regulations. For example, the state of Kentucky specifies that the initial visit to establish a client-clinician relationship must be completed in-person, and then subsequent visits may occur via teletherapy, whereas Missouri and Kansas do not have licensure laws or regulations for telepractice (ASHA, 2020b).

The inability to provide services across state lines significantly impacts individuals and organizations in rural areas where an SLP is not available. As access to technology and the need for innovative methods for service delivery has increased, more SLPs are working with telepractice companies that provide therapy services primarily through this method. In addition to telepractice companies, many organizations and districts are adopting teletherapy due to the current COVID-19 pandemic. The delay in licensure may negatively impact client outcomes due to a disruption in services.

Temporary Changes to Telepractice Regulations

There is not a consensus as to the temporary changes that have been implemented secondary to COVID-19, so each state continues to differ in what is allowed regarding telepractice (ASHA, 2020c). In the state of Kentucky, secondary to the Governor's Executive Order, practitioners entering into telepractice must only register with the Kentucky Board of Licensure as licensing requirements have been waived temporarily. Out-of-state practitioners that meet Kentucky requirements for licensure but do not have a Kentucky license can provide speech and language therapy services for up to five days. Comparatively, Missouri also waived the requirement that SLPs and audiologists

must be licensed in the state of Missouri to provide teletherapy services during the state emergency under Executive Order 20-04 (Exec. Order No. 20-04, 2020). If an interstate compact for service provision had been in place prior to the onset of the pandemic COVID-19, negotiations for temporary regulation changes would have been unnecessary.

The Audiology & Speech-Language Pathology Interstate Compact (ASLP-IC)

According to the National Center for Interstate Compacts (2019), an interstate compact is defined as “a contract between two or more states...[that] carries the force of statutory law and allows states to perform a certain action” (What is a Compact? section, para. 1). Initially, Congress was tasked with approving any interstate compacts. Since that time, the Supreme Court has stipulated that not all compacts must have Congressional approval, and only the agreements between states that might affect a federal power would require consent. The Compact Clause of the United States Constitution (Article 1, Section 10, Clause 3) allows for states to enter into contracts with other states as long as those entities abide by rules that restrict violation of federal law (Cornell Law School, n.d.). Once states enter into an interstate compact, authority for that agreement is maintained by a named interstate agency (National Center for Interstate Compacts, 2019).

Today, there are approximately 200 interstate compacts that are in place, with most states belonging to more than 20 compacts (National Center for Interstate Compacts, 2019). Regulatory compacts are the most common type of interstate compact and are used to impart a set of rules and guidelines to a collection of states. Regulatory interstate compacts have been created in various healthcare professions, such as nursing and physical therapy, to enact the *privilege to practice*

model. The *privilege to practice* model allows professionals the right to practice across state lines as long as those states are members of the interstate compact specific to that occupation (National Center for Interstate Compacts, 2019).

While the interstate compact concept may seem like a win-win situation, all sides must be considered. An interstate compact provides many benefits for the practitioners involved, such as providing services across state lines in states that are members of the compact and reduced licensure costs to practice in multiple states. There are significant benefits for the general population as an interstate compact improves access of all populations, regardless of geography or socioeconomic status, to necessary therapy services (Adrian, 2017). There have also been some challenges and potential downfalls noted within allied health professions that currently utilize an interstate compact. Having the compact does not necessarily make the application process less cumbersome with streamlined requirements, as therapists may still be required to submit applications for each state individually (Steinbrook, 2014). Without standardized state regulations, disadvantages could emerge with some state licensing standards being considered lower than other states, and there is the possibility for decreased authority and oversight of professional boards across states (Steinbrook, 2014). Additionally, although having a compact would allow therapists from other states to serve areas in need can be seen as a strong benefit; some professionals have voiced concerns that the compact will undermine their collective bargaining efforts and make them readily replaceable by someone from another state (Kulig, 2003).

ASLP-IC

In 2017, an advisory group came together for the first time to begin drafting The Audiology & Speech-Language Pathology Interstate Compact (ASLP-IC).

This regulatory compact would facilitate the ability of audiologists and SLPs to enact the *privilege to practice* via in-person and telepractice services in participating states. While this compact establishes guidelines to protect the recipients of audiology and speech-language pathology services by setting up ethical legalities, it also serves to aid practitioners that practice in multiple states. The primary objective of the ASLP-IC is to improve access to audiology and speech-language pathology services for underserved communities and regions. In 2019, the final draft of the ASLP-IC was approved by the advisory council, and various state organizations began lobbying in their respective regions to join the compact. ASHA has provided financial and functional support to underwrite the compact and assist in contracting the interstate agencies that oversee the compact (National Center for Interstate Compacts, 2019).

The ASLP-IC will become operational when 10 states join the compact. Once the ASLP-IC becomes operational, the ASLP-IC Commission will be created. The ASLP-IC Commission is responsible for the rules and regulations that govern members of the compact (National Center for Interstate Compacts, 2019). In March of 2020, West Virginia became the first of three states to pass the legislation to join the ASLP-IC. Utah and Wyoming quickly followed West Virginia's model (Pullins, 2020). As of November, 2020, Oklahoma and North Carolina have joined the compact, however, this is an evolving situation in which many states are considering the advantages and disadvantages of joining the compact. A long list of national and state organizations across the country have provided support for the inception of the ASLP-IC and it may be assumed that with more time for these organizations to lobby in favor of the interstate compact, the ASLP-IC will become operational with

more states joining (National Center for Interstate Compacts, 2019).

State Participation

Once a state has passed legislation to become a member of the ASLP-IC, they must agree to follow the licensing requirements set forth by the compact. To increase the consistency of licensing requirements across states and accurately define the *privilege to practice* model in the compact, the ASLP-IC establishes a set of standards that must be followed by all member states for home state licensure for SLPs and audiologists. In addition to obtaining a master's degree in SLP as well as passing the national exam and completing a clinical fellowship year, SLPs that wish to enact the *privilege to practice* through the ASLP-IC must pass a criminal background check and demonstrate no previous adverse actions upon their home state license (National Center for Interstate Compacts, 2019). If the SLP or audiologist has met the criteria to obtain a license in their home state that is a member of the ASLP-IC, those practitioners may then obtain a *privilege to practice* in remote states as long as those states are a member of the compact. This *privilege to practice* includes in-person therapy services and telepractice (National Center for Interstate Compacts, 2019).

As mentioned above, Missouri does not require the clinical fellowship for licensure. Therefore, Missouri does not qualify to join the compact as the legislation currently stands. Missouri is one of three states that are not eligible. The other states that do not qualify because of the state's licensure educational requirements are Nevada and North Dakota.

Getting Involved

SLPs and audiologists may support the ASLP-IC by contacting their state association and state licensing agencies to advocate for their state's inclusion. In order for Missouri to be eligible for the

compact, SLPs can begin the lobbying process to once again require the clinical fellowship for licensure. ASHA and the ASLP-IC website provides fact sheets and legislative information to provide information to legislators at the local and state level. Through the dissemination of information, increased awareness of the ASLP-IC and considerations for implementation and membership, SLPs and audiologists have the opportunity to advocate for what will work best for their given state.

Conclusions

Current variances in the licensure rules, regulations, and procedures amongst

states can be confusing and tedious to navigate as an SLP or audiologist. Reduced ability to evaluate and treat clients across state lines adds to the list of barriers that may plague an individual's or organization's ability to procure skilled speech and language therapy services, whether in-person or through telepractice. The establishment of interstate compacts has been shown to be fruitful and beneficial for other healthcare professions. The ASLP-IC would allow for improved access for consumers, protection from harm from unethical or illegal practitioners, and reduced obstacles for qualified SLPs and audiologists (National Center for Interstate Compacts, 2019).

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Note: The authors do not have any financial or nonfinancial disclosures.

Call for Papers: The Online Journal of Missouri Speech-Language Hearing Association

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The *Online Journal of Missouri Speech-Language-Hearing Association* (OJMSHA) is MSHA's peer-reviewed journal, which is published annually. OJMSHA is not only available to MSHA members but is also accessible to readers out of state. Manuscripts from clinicians, students, and academicians are accepted on a rolling basis.

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OJMSHA is an online journal that publishes papers pertaining to the processes and disorders of speech, language, and hearing, and to the diagnosis and treatment of such disorders, as well as articles on educational and professional issues in the discipline. Contributed manuscripts may take any of the following forms: reports of original research, including single-subject experiments; theoretical or review articles; tutorials; research notes; and letters to the editor. *OJMSHA* follows the policies and procedures of any typical scholarly publishing board. Articles submitted to *OJMSHA* are reviewed by professionals in communication science and disorders and, when appropriate, professionals from allied health fields are also invited to review the papers.

Manuscripts should be submitted to *OJMSHA* Coordinator, Jayanti Ray, at jray@semo.edu. Specific questions or concerns may also be directed to jray@semo.edu. Manuscripts are reviewed by at least two peer reviewers on the editorial board and final decisions are made jointly by the coordinator and peer reviewers. Submissions are reviewed and edited for content and clarity prior to publishing. The peer reviewers, based on their expertise, have the discretion to reject any submissions as necessary.

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