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REVUE CANADIENNE D'ORTHOPHONIE ET D'AUDIOLOGIE | RCOA

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Speech-Language &
Audiology Canada

Orthophonie et
Audiologie Canada

Communicating care
La communication à coeur

From the Editor

ELIZABETH FITZPATRICK

Analysis of Phonological Awareness Content in
Pre-Service Textbooks on the Teaching of Reading

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The association was founded in 1964 and incorporated under federal charter in 1975. SAC's periodical publications program began in 1973.

The purpose of the Canadian Journal of Speech-Language Pathology and Audiology (CJSLPA) is to disseminate contemporary knowledge pertaining to human communication and communication disorders that influence speech, language and hearing processes. The scope of the Journal is broadly defined so as to provide the most inclusive venue for work in human communication and its disorders. CJSLPA publishes both applied and basic research, reports of clinical and laboratory inquiry, as well as educational articles related to normal and disordered speech, language, and hearing in all age groups. Classes of manuscripts suitable for publication consideration in CJSLPA include tutorials; traditional research or review articles; clinical, field and brief reports; research notes; and letters to the editor (see Information to Contributors). CJSLPA seeks to publish articles that reflect the broad range of interests in speech-language pathology and audiology, speech sciences, hearing science and that of related professions. The Journal also publishes book reviews, as well as independent reviews of commercially available clinical materials and resources.

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MISSION

Speech-Language and Audiology Canada supports and empowers our members to maximize the communication and hearing potential of the people of Canada.

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OBJET ET PORTÉE

Nous sommes Orthophonie et Audiologie Canada (OAC), une organisation axée sur la membréité qui appuie, promeut et élève les professions de nos membres. Nous sommes le seul regroupement national qui s'emploie passionnément à appuyer et à représenter les orthophonistes, les audiologistes et les aides en santé de la communication du Canada, inclusivement.

L'association a été fondée en 1964 et incorporée en vertu de la charte fédérale en 1975. L'association a mis sur pied son programme de publications en 1973.

L'objet de la Revue canadienne d'orthophonie et d'audiologie (RCOA) est de diffuser des connaissances relatives à la communication humaine et aux troubles de la communication qui influencent la parole, le langage et l'audition. La portée de la Revue est plutôt générale de manière à offrir un véhicule des plus compréhensifs pour la recherche effectuée sur la communication humaine et les troubles qui s'y rapportent. La RCOA publie à la fois les ouvrages de recherche appliquée et fondamentale, les comptes rendus de recherche clinique et en laboratoire, ainsi que des articles éducatifs portant sur la parole, le langage et l'audition normaux ou désordonnés pour tous les groupes d'âge. Les catégories de manuscrits susceptibles d'être publiés dans la RCOA comprennent les tutoriels, les articles de recherche conventionnelle ou de synthèse, les comptes rendus cliniques, pratiques et sommaires, les notes de recherche, et les courriers des lecteurs (voir Renseignements à l'intention des collaborateurs). La RCOA cherche à publier des articles qui reflètent une vaste gamme d'intérêts en orthophonie et en audiologie, en sciences de la parole, en science de l'audition et en diverses professions connexes. La Revue publie également des critiques de livres ainsi que des critiques indépendantes de matériel et de ressources cliniques offerts commercialement.

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From the Editor

SPRING ISSUE



Our spring issue of CJSPLA presents reports of diverse research conducted in Canada and elsewhere. In the first article, Hayward, Phillips, and Sych share unique findings about the accuracy of phonological awareness content from a review of chapters in 28 textbooks on teaching reading. Based on the errors uncovered, they recommend that authors and publishers collaborate with expert reviewers prior to publication to improve the accuracy of the material printed. They also highlight the implications of these findings of inaccuracies for speech-language pathologists who are working with teachers.

Boyer and Mundschenk address the interesting topic of using animal-assisted therapy to facilitate social communication in children with language impairments. The results of their pilot study involving three young children in play-based therapy sessions using a live cat, suggested that animal-assisted therapy has good potential for promoting social interaction.

In the third paper, MacLeod and colleagues present a tool developed for screening speech sound disorders in pre-school age French-speaking children. The authors provide preliminary normative data for 243 children for the screening measure. Based on psychometric data collected to date, they conclude that the measure has good potential as a screening tool for speech sound disorders. The fourth article adds to the research on assessment tools being developed in Quebec. In this article, Michallet and Boudreault address the needs of children with specific language impairment and describe the development of a transdisciplinary instrument currently under development in Quebec for children age 4 to 15 years. The authors discuss the utility of the instrument in planning interventions with children and their families.

In the fifth paper of this issue, Homma and Yamada present findings from a study that compared oral reading performance in native adult Japanese speakers who stutter and those who do not stutter. They discuss differences analysed in speech segments during an oral reading task for these two groups of individuals.

The final paper of this issue presents wait time benchmarks from the Pan Canadian Alliance of Speech-Language Pathology and Audiology Organization for the diagnostic grouping of Speech Sound Disorders. This report prepared by Rvachew and Rafaat summarizes the literature reviewed and provides recommended wait times for assessment and intervention for this disorder.

Thank you to all those who considered CJSPLA for publication of their work in 2013 and we welcome your submissions again this year in all aspects related to audiology and speech-language pathology. Again, I would like to thank authors and reviewers for your patience in working with the current submission system. We anticipate that we will be able to transition to a new online submission software in 2014. Please do not hesitate to contact CJSPLA technical support at support@coverpage.ca if you encounter difficulties during the submission or review process.

We continue with the same team of Associate Editors in 2014 whose volunteer contributions are greatly appreciated. We are always looking to expanding our roster of reviewers; if you have not yet reviewed papers for CJSPLA, please consider submitting your name at www.cjslpa.coverpage.ca or alternatively send us an email to let us know your areas of interest. We look forward to a productive year in 2014, SAC's 50th anniversary.

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Mot de la Rédactrice en Chef

NUMÉRO DU PRINTEMPS



Notre numéro du printemps du CJSLPA présente des rapports de recherches diversifiées réalisées au Canada et ailleurs. Dans le premier article, Hayward, Phillips et Sych nous communiquent leurs conclusions sur la précision du contenu conscience phonologique tirées d'un examen de chapitres de 28 livres sur l'enseignement de la lecture. En s'appuyant sur les erreurs découvertes, ils recommandent aux auteurs et rédacteurs de collaborer avec des réviseurs experts avant publication afin d'améliorer la précision du matériel imprimé. Ils font également ressortir les implications de ces constatations d'imprécisions pour les orthophonistes qui travaillent avec des enseignants.

Boyer et Mundschenk se penchent sur l'intéressant sujet de l'utilisation de la zoothérapie pour faciliter la communication sociale entre des enfants ayant des troubles du langage. Les résultats de leur étude pilote mettant en scène trois jeunes enfants en sessions de thérapie à base de jeux à l'aide d'un chat vivant suggèrent que la zoothérapie offre un bon potentiel de promotion de l'interaction sociale.

Dans le troisième article, MacLeod et ses collègues présentent un outil mis au point pour dépister des troubles orthophoniques chez des enfants francophones d'âge préscolaire. Les auteurs présentent des données normatives préliminaires pour 243 enfants pour la mesure du dépistage. Sur la base des données psychométriques recueillies à date, ils concluent que la mesure offre un bon potentiel comme outil de dépistage des troubles de la parole.

Le quatrième article ajoute à la recherche sur les outils d'évaluation en voie d'élaboration au Québec. Dans cet article, Michallet et Boudreault traitent des besoins d'enfants ayant des troubles du langage et décrivent le développement d'un instrument transdisciplinaire en cours d'élaboration au Québec pour les enfants de 4 à 15 ans. Les auteurs discutent de l'utilité de l'instrument dans la planification des interventions avec les enfants et leurs familles.

Dans la cinquième communication de ce numéro, Homma et Yamada présentent des conclusions tirées d'une étude qui a comparé la performance en lecture orale chez des locuteurs adultes, japonais de naissance, qui bégaièrent et d'autres qui ne bégaièrent pas. Ils discutent des différences analysées dans des segments de parole pendant une tâche de lecture orale confiée à ces deux groupes de personnes.

Le dernier article de la revue présente les temps d'attente de référence de l'alliance pancanadienne des associations d'orthophonistes et d'audiologistes pour le groupement des diagnostics des troubles des sons de la parole. Ce rapport préparé par Rvachew et Rafaat résume la littérature consultée et fournit les temps d'attente recommandés pour une évaluation et une intervention pour ce trouble.

Merci à tous ceux et celles qui ont considéré le CJSLPA pour la publication de leurs travaux en 2013 et nous serons heureux de recevoir à nouveau cette année vos soumissions traitant de tous les aspects reliés à l'audiologie et à l'orthophonie. J'aimerais remercier encore les auteur(e)s et les réviseur(e)s de leur patience quand ils ont eu à travailler avec notre système de soumission en ligne. Nous prévoyons pouvoir faire la transition à un nouveau logiciel en 2014. N'hésitez pas à contacter le soutien technique de CJSLPA à l'adresse support@coverpage.ca si vous vous butez à des difficultés pendant la soumission ou le processus de révision.

En 2014, nous continuons avec la même équipe de rédacteurs associés dont les contributions bénévoles sont grandement appréciées. Nous cherchons toujours à augmenter notre banque de réviseur(e)s ; si vous n'avez pas encore révisé de communications pour le CJSLPA, considérez soumettre votre nom à www.cjslpa.coverpage.ca, ou encore, faites-nous parvenir un courriel pour nous faire connaître vos domaines d'intérêt. Nous prévoyons une année productive en 2014, l'année du 50^{ème} anniversaire d'OAC.

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Analysis of Phonological Awareness Content in Pre-Service Textbooks on the Teaching of Reading



Analyse du contenu relié à la conscience phonologique dans les manuels de formation sur l'enseignement de la lecture

KEY WORDS

PHONOLOGICAL
AWARENESS

INSTRUCTION

CLASSROOM

SPEECH-LANGUAGE
PATHOLOGIST

TEACHERS

KNOWLEDGE

TEXTBOOKS

Denyse V. Hayward
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Abstract

The current study examined the accuracy of phonological awareness content in pre-service textbooks on the teaching of reading. Chapters in 28 textbooks published between 2001 and 2011 were analyzed for accuracy and omissions of content on phonological awareness. We identified and analyzed content related to six categories: (a) definitions, (b) task hierarchy, (c) task descriptions, (d) phoneme descriptions, (e) skill components, and (f) phoneme-grapheme correspondences. A total of 313 errors in accuracy were identified all six categories: no chapter was error-free. Content errors in the phoneme-grapheme correspondences category were the most prevalent across chapters. Error exemplars and inappropriate activities are provided. A total of 39 omissions were identified in the two categories examined: definitions and phoneme level word analysis. This is the first known study of the magnitude and type of phonological awareness inaccuracies and omissions of content in pre-service textbooks. Knowledge of these inaccuracies and omissions will allow speech-language pathologists to collaborate with teachers to overcome such resource shortcomings and enhance classroom phonological awareness instruction, particularly for children with language impairment who are at risk for reading difficulties. We recommend that textbook authors and publishers seek out expert collaborators and reviewers prior to publication.

Abrégé

L'étude examine le contenu associé à la conscience phonologique dans les manuels d'enseignement de la lecture. Des chapitres dans 28 livres publiés entre 2001 et 2011 ont été analysés pour évaluer la précision et les omissions du contenu en conscience phonologique selon six catégories : a) définitions, b) hiérarchie des tâches, c) description des tâches, d) description des phonèmes, e) composantes des habiletés et f) relations graphème/phonème. Un total de 313 erreurs de précision ont été identifiés dans toutes les catégories : aucun chapitre n'était sans erreur. Les erreurs de contenu dans la catégorie relations graphème/phonème étaient les plus fréquentes dans les chapitres. Des exemples d'erreurs et d'activités inappropriées sont fournis. Un total de 39 omissions ont été identifiées dans les deux catégories examinées : définitions et analyse de mots par phonèmes. Il s'agit de la première étude connue portant sur l'ampleur et le type des imprécisions en conscience phonologique et sur les omissions de contenu dans les manuels de formation. Une connaissance de ces imprécisions et omissions permettra aux orthophonistes de travailler avec les enseignants pour surmonter ces lacunes et rehausser l'enseignement relatif à la conscience phonologique, spécialement auprès d'enfants ayant des troubles de langage qui sont à risque d'éprouver des difficultés de lecture. Nous recommandons aux auteurs et éditeurs de trouver des collaborateurs et réviseurs experts dans le domaine avant de publier ces livres.

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Adequate knowledge of phonological awareness is recognized as a critical element for reading (e.g., Ehri, 2000; Moats, 2009), and spelling (e.g., Apel & Masterson, 2001; Goswami & Bryant, 1990; Masterson & Apel, 2010). The combined influence of a large body of research evidence, changes to educational policy, responses to intervention initiatives, and child-learning accountability standards have been instrumental in the inclusion of phonological awareness instruction in Kindergarten and Grade 1 curricula in both Canada and the United States. However, several studies have shown that many teachers do not possess adequate phonological awareness skills (e.g., Cunningham, Perry, Stanovich, & Stanovich, 2004; Fielding-Barnsley, 2010; Moats, 2009) and thus, their ability to provide explicit and accurate instruction of phonological awareness is compromised, which in turn impacts children's learning to read (McCutchen, Green, Abbott, & Sanders, 2009; McCutchen et al., 2002).

Even though practicing and pre-service teachers access a variety of resources to acquire or increase their knowledge of reading instruction, a commonly used resource is textbooks on the teaching of reading encountered in teacher training programs. Through our experiences teaching pre-service teachers, we noted numerous misunderstandings in their knowledge of phonological awareness and checked the required textbooks used in their programs of studies. It is important to know how well these textbooks present the fundamentals of phonological awareness (PA). Thus, the aim of this study was to analyze the phonological awareness content in pre-service textbooks developed for teacher education on the teaching of reading. Such information is important for professionals, such as speech-language pathologists (S-LPs), who collaborate in the instruction of PA with teachers.

Background

Phonological awareness (PA) is defined as "the ability to detect, manipulate, or analyze the auditory aspects of spoken language (including the ability to distinguish or segment words, syllables, or phonemes), independent of meaning" (National Early Literacy Panel, 2008, p. 3). The term phonological awareness is commonly used to describe both the construct and the level of analysis within a word and type of task. The phonological awareness construct "refers to an individual's awareness of the sound structure or phonological structure of a spoken word" (Gillon, 2004, p. 2). Phonemic awareness is a constituent element of phonological awareness and refers to aspects associated with the focus on and manipulation of individual speech sounds within words (Anthony & Francis,

2005). The level of analysis and type of task include manipulation of larger and simpler units of analysis, such as separating words into syllables, creating rhymes, and identifying words that begin with the same sound, as well as manipulation of smaller and more difficult to isolate units of analysis; individual sounds in words (e.g., blending sounds into words, segmenting words into sounds, and deleting, substituting, or adding sounds in words) (Anthony & Francis, 2005; Stahl & Murray, 1994; Vloedgraven & Verhoeven, 2009). Phoneme segmenting and blending are recognized as critical skill achievements that support reading success; however, larger units of analysis are important components of instruction to the extent that they facilitate subsequent development of phoneme blending and segmenting (Schuele & Boudreau, 2008).

Phonological awareness is considered essential to all of the processes involved in learning to read and write and contributes to these skills in a variety of ways (Ehri, 1994; Griffith, 1991). Ehri points out that blending skills are needed to decode words, to read a word by analogy (i.e., read an unfamiliar word 'click' by using a familiar word with the same rime unit 'kick') onset-rime segmentation and blending skills are required, and reading words from memory requires phoneme segmentation. In the case of spelling, phoneme segmentation supports the construction of word spellings and memory of the correct spelling of words (Griffith, 1991; National Institute of Health and Human Development (NIHHD) (2000).

A large body of evidence showing causal relationships among phonological awareness, and reading, and spelling development has substantiated the importance of phonological awareness instruction in the early grades. Phonological awareness is cited as a strong predictor of early reading achievement and children experiencing delayed phonological awareness are at risk for developing delays in reading acquisition compared to children who do not experience delays in phonological awareness (Chafouleas, VanAuken & Dunham, 2001; Rvachew, Chiang, & Evans, 2007; Torgesen, Wagner, & Rashotte, 1994). For example, Torgesen et al. (1994) reported long term impacts of PA deficits on reading outcomes, whereby grade 1 children, otherwise developing typically, with phonological awareness skills below the 20th percentile lagged behind same-aged peers in word reading abilities throughout their elementary schooling. In fact, by grade 5, their average reading attainment was at a grade 2 level compared to at-grade-level attainment for children who had scored above the 20th percentile in their grade 1 testing of phonological awareness.

Dickinson, Golinkoff and Hirsh-Pasek (2010) stated “language is unique among precursor abilities in its pervasiveness for both early and later reading competencies” (p. 308) and has been verified by a large body of research demonstrating that oral language difficulties effect reading development (Bishop & Snowling, 2004; Boudreau & Hedberg, 1999; Nation & Norbury, 2005). In fact, Catts, Fey, Tomblin, and Zhang (2002) reported that more than 60% of children diagnosed with language impairment (LI) can be expected to have reading difficulties. Bishop and Snowling (2004) and Catts et al. (2002) provide evidence that children with LI may have word reading (decoding) and/or reading comprehension difficulties, and that word decoding deficits typically indicate the existence of phonological awareness difficulties.

Relationships between phonological awareness instruction, reading, and spelling development have also been demonstrated in two meta-analyses conducted by Bus and van IJzendoorn (1999) and Ehri et al. (2001). Both research groups examined experimental and quasi-experimental intervention studies to estimate the effects of phonological awareness interventions on reading. The 34 studies examined by Bus and van IJzendoorn (1999) provided intervention on either one or more of the following skills: (a) phoneme segmentation, (b) phoneme blending, (c) sound deletion, and (d) letter-sound connections. Ehri et al. (2001) examined 52 studies where the instruction or intervention was comprised of one or more of the following: (a) phoneme identification, (b) phoneme categorization, (c) phoneme segmentation, (d) phoneme blending, (e) sound deletion, (f) onset-rime, and (g) letter-sound connections. The Bus and van IJzendoorn (1999) and Ehri et al. (2001) meta-analyses showed phonological awareness as a causal factor in learning to read with effect sizes of 0.73 and 0.86 respectively. The effectiveness of phonological awareness instruction on reading was also found to be greater in particular circumstances than others. First, the effect of phonological awareness instruction on reading was greater for children at-risk for reading difficulties ($d = 0.86$) than for children with average reading abilities ($d = 0.47$) and children with existing reading disabilities ($d = 0.45$) (Ehri et al., 2001). Second, the combination of phonological awareness instruction with the instruction of letter-sound correspondences had a greater impact on reading than phonological awareness instruction alone ($d = 1.75$ vs $d = 1.19$) and ($d = 0.67$ vs $d = 0.38$), Bus and van IJzendoorn (1999) and Ehri et al. (2001) respectively. Ehri et al. (2001) also showed that phonemic awareness instruction supported spelling abilities ($d = 0.59$).

Results of these meta-analyses prompted the National Reading Panel (NIHHD, 2000) to recommend the inclusion

of phonological awareness instruction in the early grades. Additionally, researchers studying children’s language and literacy development, irrespective of language ability, have also consistently recommended high quality, classroom instruction in phonological awareness to support reading and spelling development (e.g., Boudreau & Hedberg, 1999; Dickinson et al., 2010; Torgesen et al., 1994). However, studies over the past two decades have revealed that many teachers have not received adequate training with respect to English phonology or phonological awareness, knowledge of which is necessary to ensure accurate, systematic, and explicit instruction (e.g., Bos, Mather, Dickson, Podhajski, & Chard, 2001; Brady, et al., 2009; Cunningham et al., 2004). The following example of an actual teacher lesson presented by McCutchen et al. (2002) illustrates the crucially important contribution that knowledge of English phonology and phonological awareness has to accurate and explicit instruction. In the lesson, students were asked to identify the words in which the letter U “says its name,” pronounced /ju¹ /, from a list of words provided by the teacher (i.e., hunt, shush, crush, prune, stump, abuse, slump, cute, stuck, tube, truck, and crunch). Though the two phonemes /ju/, representing the letter name U, occur in the words, ABUSE → /əbʊs/ and CUTE → /kjut/, the teacher directed children to similarly categorize the words PRUNE → /prun/ and TUBE → /tub/, which in the majority of American dialects comprise only the single phoneme /u/, as words in which the letter U says its name (McCutchen et al., 2002). The example shows that the consequence of limited knowledge in English phonology results in inaccurate instruction. Additionally, children who had correctly categorized words and children who struggled to make accurate grapheme-phoneme connections were likely confused.

The importance of knowledge of English phonology and phonological awareness for student learning has been confirmed in studies by McCutchen et al. (2002; 2009). In 2002, McCutchen and colleagues examined the relationships between 51 teachers’ (24 kindergarten; 27 grades 1 and 2 combined) knowledge of phonology and classroom phonological awareness instructional practices with student literacy achievement. A significant correlation was found between a measure of kindergarten teachers’ knowledge of phonology and their instruction of phonological awareness with students’ end-of-year word reading ($r = .49$ and $r = .47$, respectively, $p < .05$). The correlation between teacher knowledge and student literacy was not significant for first and second-grade children; however, word reading was only indirectly evaluated via comprehension and vocabulary measures for these students. In a later study, McCutchen et al. (2009)

examined the effects of teacher knowledge of English phonology and phonological awareness on the literacy achievement of students in grades 3 to 5, and a sub-group of struggling readers in each grade. Thirty teachers (16 intervention condition; 14 control condition) participated. Intervention teachers attended a 10-day workshop focused on increasing their understanding of phonology, phonological awareness, and the important connections between phonological awareness and reading instruction. All teachers (intervention and control) were observed during literacy instruction in their classrooms three times over the school year. Student literacy skill measures were assessed in both Fall and Spring and comprised vocabulary, comprehension, spelling, and writing. The struggling reader subgroup was also administered tests of word reading and word decoding.

McCutchen et al. (2009) found that teachers within both the intervention and control groups varied considerably in their knowledge of English phonology and phonological awareness. Hierarchical linear analysis revealed that teacher knowledge was related to improved student performance regardless of condition (intervention or control). Moreover, teacher knowledge had specific and measurable positive effects on struggling readers. Struggling readers in intervention classrooms showed significantly higher levels of performance at year-end on all literacy measures, compared with the struggling readers in control classrooms. These findings are consistent with the interpretation that adequate knowledge of English phonology and phonological awareness enables teachers to provide more effective instruction, especially for struggling readers (McCutchen et al., 2009).

Written Versus Spoken Word Conceptualizations

Proficiency in phonological awareness requires the ability to analyze words at the syllabic, onset-rime, and phoneme levels. Convergent evidence from the United States, United Kingdom, and Australia shows that teachers' misunderstandings of these concepts are primarily due to a reliance on the written conceptualization of words rather than on the spoken conceptualization of words (see Cheesman, McGuire, Shankweiler & Coyne, 2009; Fielding-Barnsley, 2010; Stainthorp, 2004).

For example, on a written survey of phonemic awareness knowledge (PAK), Spencer, Schuele, Guillot, and Lee (2008) found that when teacher participants (kindergarten, grade one, special education, and reading resource) and S-LP participants were asked to identify the number of sounds in a word, mean accuracy was relatively high (83% correct Teachers; 95% correct S-LPs) for words

where there was a close correspondence between the phonemes and graphemes. For example, when counting phonemes in the word CAT each phoneme is represented by a single grapheme /k/ → C, /æ/ → A, /t/ → T. However, for phonemes where there was not a close phoneme-grapheme correspondence the mean accuracy for both groups was lower but substantially lower for teachers (22% correct Teachers; 54% correct S-LPs). The word BOX has four phonemes /b/ → B, /ɒ/ → O, /k/ and /s/ → X. However, most teachers indicated that the word BOX has 3 phonemes, counting 'X,' a letter where the phoneme-grapheme correspondence is not transparent, as a single phoneme. Spencer et al. (2008) found a similar pattern in phoneme identification tasks for teacher participants. When asked to identify the third phoneme in the word WOULD, most teachers stated that /l/ was the third phoneme even though there is no /l/ in the spoken word form of WOULD → /wud/. When asked to analyze the sound structure of words, the teachers tended to focus on orthographic representations of the word instead of the phonemes that comprise the word. When there is a close phoneme-grapheme correspondence, then either orthographic or spoken conceptualizations can lead to accurate word analysis; but for words with less transparent correspondence, orthographic knowledge tends to interfere with accurate analysis for many teachers (Moats, 2009; Stainthorp, 2004). Even though many of the teacher misunderstandings related to sound structure analysis can be linked to an over-reliance on orthographic patterns, other studies have shown that some teachers have difficulty analyzing the sound structure of words in general. For example, Cunningham et al. (2004), in an examination of 722 kindergarten and grade 3 teachers' PAK, found that 37% of the teacher participants could not correctly identify the number of phonemes in the word SUN even though it has one-to-one phoneme-grapheme correspondences.

Words containing consonant clusters (e.g., **STOP**, **GRASS**, **SCRATCH**) were also shown to be problematic for many teachers and other professionals. On a written survey that included PAK items, Moats (1994) found that over one-half of the 89 participants (reading teachers, regular classroom teachers, teaching assistants, and S-LPs) treated consonant clusters as a single phoneme rather than two or three distinct phonemes. Moreover, the letter combinations TCH and BT (e.g., **STRETCH**, **DOUBT**) were treated as consonant clusters even though each of these letter combinations represents a single phoneme in these words. Cunningham et al. (2004) reported similar findings for one-third of their teacher participants.

McCutchen et al. (2002) and Moats (2009) pointed out that a key difficulty for literate adults is that their knowledge of phonemes and orthographic patterns are intertwined to such a high degree that separation is difficult. If teachers have not received specific training in phonological word analysis, their classroom instruction may be inaccurate or inconsistent, and lead to confusions for children. Spencer et al. (2008) emphasized that in order to provide effective instruction, teachers, at the very least, must be able to accurately segment the sounds of words that would be found in basal readers. Moats (2009) went further and insisted that it is essential for teachers to have 'extensive proficiency' in analyzing the sound structure of words in order to implement phonological awareness instructional activities.

A final challenge for accurate teaching of phonological awareness is that many teachers confuse the instruction of phonological awareness with the instruction of phonics (i.e., letter-sound relationships) (Bos et al., 2001; Cunningham, Zibulsky, & Callahan, 2009; Joshi, et al., 2009b). The Bus and van IJzendoorn (1999) and Ehri et al. (2001) meta-analyses revealed that combining phonological awareness instruction with the instruction of letter-sound relationships had a greater impact on reading than phonological awareness instruction alone. Thus, it is critical for teachers and any other professionals engaged in reading instruction in classrooms to have (a) a clear understanding of the constituent components of phonological awareness, (b) the ability to analyze the sound structure of words, and (c) an understanding of the differences between phonological awareness and phonics instruction, to support reading success for children in their classrooms.

Barriers to Acquisition of Knowledge and Skills

Although the need for teachers to acquire knowledge and skills to provide accurate and explicit instruction of phonological awareness has been clearly identified, the informational resources that many teachers use to acquire knowledge may present additional barriers to, rather than aid, knowledge acquisition. Three barriers identified thus far include: (a) classroom instructional materials, (b) university and college instructor knowledge, and (c) course content related to reading instruction in college.

Instructional materials. A study conducted by Smith et al. (2001) provides insight into how instructional materials may create barriers for teachers attempting to provide adequate instruction. These authors completed a content analysis of 221 phonological awareness activities across four commercial basal reading programs at the Kindergarten level published between 1991 and 1993. The

reading programs were examined for instructional design and pedagogical features that reflected current research, at the time, on phonological awareness for children at risk for reading delays.

The authors found similarities across the four reading programs regarding the type of phonological awareness activities provided. Activities focused on identifying beginning sounds in words and rhyming rather than on aspects most highly correlated with early reading acquisition (i.e., blending and segmenting phonemes in words). The four reading programs emphasized alphabetic understanding (i.e., letter naming) rather than phonological awareness. Smith et al. (2001) concluded that the phonological awareness instructional procedures in the four Kindergarten reading programs failed to integrate critical findings from empirical research for children at risk for reading failure or to provide sufficient teacher supports to enable the provision of accurate instruction.

Even though Smith et al. (2001) found basal reading programs lacking in terms of quantity and level of word analysis related to phonological awareness instruction, they did not indicate specifically whether the programs contained errors in instructional guidance. Teacher participants in the Spencer et al. (2008) written survey on PAK, on the other hand, asserted that their misunderstandings related to phonological awareness were attributable to instructional errors in the basal reading programs. Teachers claimed, for example, that instructional guides stated that consonant clusters were two letters that make one sound. Spencer et al. (2008) conducted a cursory review of the specific basal reading programs and found the claim to be unsubstantiated. However, errors in identifying and counting phonemes were found. The word OX → /ɒks/ was identified as having two rather than three phonemes, and the words OFF, ON, OLIVE, and ONE were identified as all beginning with the phoneme for the letter O (p. 517). None of these words begin with /o/, and depending on regional dialect, one or two of the four words may begin with different phonemes (i.e., OFF → /ɒ/ or /aʊ/; ON and OLIVE → /ɒ/; ONE → /w/).

It is possible that basal reader programs have improved in the quantity and level of word analysis related to phonological awareness since publication of the review conducted by Smith et al. (2001); however, the more recent, albeit cursory, examination of basal readers by Spencer et al. (2008) revealed errors in the quality of information, and if followed by teachers and other professionals, would result in inaccurate instruction. An examination of currently available basal reader programs is warranted not

only to determine if the quantity of instructional activities has improved but also to determine if the information is accurate with respect to phonological awareness. Moreover, instructional errors or lack of specific and explicit information in instructional materials would not be as problematic if teachers and other professionals were able to identify and correct errors, and enhance activities. As revealed in several studies cited herein, many teachers and professionals providing literacy instruction in schools have limited knowledge and training, inaccuracies are therefore likely left unchecked, and children who are already struggling with the reading process are further confused and ineffectively taught.

Instructor knowledge. Joshi et al. (2009b) identified another barrier to teacher knowledge acquisition. They found that pre-service teachers may not be receiving instruction related to phonological awareness in university and college-level reading courses because many college and university instructors are not familiar with the linguistic features of the English language. In a survey, conducted with a group of 78 college and university instructors of reading courses, Joshi et al. (2009b) sought to determine the instructors' level of knowledge about the linguistic features of English. All instructors taught from two to four reading courses to pre-service elementary education students across 30 universities, and all instructors claimed that they were well prepared to teach reading. The instructors completed a 68 item written multiple-choice survey of linguistic knowledge in which some items related to language structure, including definitions of key concepts (e.g., identifying the definition of phonological awareness) and word analysis (e.g., identifying the number of phonemes in words). Interestingly, similar to teachers, college and university instructors had difficulty identifying the number of phonemes in words where the phoneme-grapheme correspondence was not transparent. Only 42% of college and university instructors correctly identified the number of phonemes in the word BOX. Furthermore, only about one-half of the instructors were able to correctly identify the definition of phonological awareness. A second group of 62 college and university instructors, all teaching reading courses to pre-service teachers, completed a second 12-item written survey and participated in follow-up interviews. The survey and interview examined the instructors' beliefs about best practices in reading instruction and their knowledge of the sub-skills of reading. Similar to the first survey respondents, Joshi et al. (2009b) found that the majority (80%) of the second group also had difficulty correctly identifying the definition of phonological awareness. This is a worrisome finding for three reasons. First, the survey used by Joshi et al. (2009b)

with both groups of instructors did not require recall of information; the instructors merely selected the correct definition from a series of choices, a much easier task. Second, given the importance of phonological awareness to early reading success, college and university students reasonably expect that instructors of reading courses are well versed in research evidence and best practices in reading instruction. Third, and most importantly, instructors cannot teach what they do not know, a phenomenon known as the 'Peter Effect' (Applegate & Applegate, 2004). Applegate and Applegate (2004) introduced the term Peter Effect, ascribed to a bible story about the Apostle Peter, to describe teachers expected to convey an enthusiasm for reading to their pupils but were not able to do so because they did not read or enjoy reading themselves. Binks-Cantrell, Washburn, Joshi, and Hougen (2012) adopted the term to describe instructors who, because of their lack of knowledge of English language structure, were not able to provide pre-service teachers in their classes with an understanding of language concepts known to be essential for reading success.

Course content. Course content related to reading instruction in college and university pre-service reading courses was identified as another barrier to teacher acquisition of knowledge necessary to support adequate instruction of phonological awareness. Two factors in particular were identified: instructional focus and textbooks.

Walsh, Glaser, and Wilcox (2006) studied factors related to the instructional focus of reading courses in an effort to determine what pre-service teachers were taught about reading instruction by examining the course syllabi from 222 undergraduate reading courses taught in the United States. Following the National Reading Panel's (NIHHD, 2000) recommendation that teachers need to be knowledgeable about the five core components of good reading instruction (i.e., phonological awareness, phonics, fluency, vocabulary, and comprehension), the syllabi (lecture schedule, quizzes, exams, assignments) were scored on whether these five reading components were present. Walsh et al. (2006) considered scoring of course syllabi a 'low bar' indicator of instructional focus since neither the quality nor proportion of instruction of the five core reading components was considered in the scoring. Nonetheless, they found that only 15% of the syllabi included all five core reading components and fully one third of the syllabi failed to include any of the core reading components. Even more disconcerting to Walsh et al. (2006) was that in institutions where students were required to take four courses in reading instruction, often not a single course included an instructional focus on any of the five core reading components. Walsh et al.

(2006) described their findings as ‘alarming’ and concluded that course instructors were failing to provide prospective teachers with the knowledge and skills needed to offer systematic and explicit instruction of the five components of good reading instruction.

In addition to the course syllabi, Walsh et al. (2006) examined the 226 textbooks listed in 222 course syllabi. The textbooks were examined and rated for inclusion of the five core reading components (i.e., phonological awareness, phonics, fluency, vocabulary, and comprehension). A textbook was rated an ‘acceptable core textbook’ if it was accurate and thoroughly covered all five core reading components, or ‘acceptable supplemental’ if it was accurate and covered some but not all of the five components. A textbook received a rating of ‘not acceptable’ if it was a comprehensive source of reading instruction but was either inaccurate or incomplete. Of the 226 textbooks reviewed by Walsh et al. (2006), only four were rated as acceptable core textbooks, and these four textbooks were used in only eleven of the 222 courses. An additional 50 textbooks were rated as ‘acceptable supplementary’ because there was information on at least one of the five core components of reading instruction. Examination of the six most frequently used textbooks across the 222 courses revealed that only one of the six was considered acceptable as a core textbook, and it was used in only six courses. Another of the six textbooks used in only 16 courses received an acceptable supplemental textbook rating. The remaining four most frequently used textbooks were used in 59 courses and all were rated as unacceptable. Walsh et al. (2006) concluded,

“the vast majority of what prospective teachers are required to read does not provide an accurate, complete, or sufficiently deep overview of good reading instruction. Despite the scientific advancements, it would appear that teachers leave preparation programs no more knowledgeable than previous generations of teacher’s.” (p. 33)

Joshi et al. (2009a) undertook an examination of 17 of the most widely adopted textbooks used in university reading education courses at the elementary level in the USA. They extended the Walsh et al. (2006) study and examined whether all five components of good reading instruction were present in the textbooks, definitions of the five core reading components matched the National Reading Panel’s definitions, and coverage of the five components. Results were no more favorable than those reported by Walsh et al. (2006) three years earlier. Four pre-service textbooks on the teaching of reading adopted

by 91 universities did not cover phonological awareness. Ten textbooks included all five components and defined them correctly. However, when the coverage of the five core reading instruction components was examined in these textbooks, Joshi et al. (2009a) consistently found that overall coverage was very poor but substantially poorer for phonological awareness, phonics, and fluency when compared to coverage of vocabulary and comprehension. For example, the percentage of information provided on reading comprehension in textbooks ranged from 1% to 20%, and information on phonological awareness ranged from 1% to 5%. The researchers observed that in addition to providing scanty information about core reading instruction components, sometimes the information was unclear or incorrect. Joshi et al. (2009a) concluded that the textbooks did not provide adequate coverage of scientifically-based reading research.

Our study builds on the research of Joshi et al. (2009a) and Walsh et al. (2006) in three distinct ways. First, both research studies (Joshi et al., 2009a; Walsh et al., 2006) indicated the presence of inaccuracies in phonological awareness in textbooks; however, neither study reported the type nor extent of the phonological awareness inaccuracies, thus, the magnitude of the specific errors is unknown. Second, Joshi et al. (2009a) focused on the proportion of text within textbooks devoted to phonological awareness rather than the accuracy of the content. Equally important is the accuracy of content on phonological awareness, which is the focus of our study. Third, both prior research groups reported that the vast majority of chapters examined in their studies either did not include any information on phonological awareness or it was covered very minimally. We examined only textbooks on the teaching of reading that specifically included information on phonological awareness to determine the accuracy of the content when it was provided.

The preceding review paints a sobering picture of many prospective and practicing teachers being ill-prepared to provide accurate, systematic, and explicit instruction of phonological and phonological awareness for beginning, at-risk, and struggling readers. The studies reviewed show a consistent lack of information and instruction to help prospective and practicing teachers acquire the knowledge and skills necessary for effective reading instruction. For S-LPs to collaborate effectively with teachers to support classroom PA instruction, especially for children with LI, many of whom are at significant risk for or are evidencing reading difficulties, it is important for S-LPs to understand the nature and quality of pre-service textbooks on the teaching of reading in order to be watchful of the likely

pitfalls of teachers' PA content knowledge and ready to offer professional support.

Method

The aim of our study was to examine the accuracy and completeness of PA content in pre-service textbooks on the teaching of reading. We have adapted a content analysis methodology guided by a leading reference text on the topic, Neuendorf (2002). Content analysis is a quantitative summary of content through the analysis of texts based on, in our case, a substantive body of established research and theory on phonological awareness. This body of work served as a logical base for the descriptive and source content analysis conducted herein.

Data Sources

University and college pre-service course outlines on the teaching of reading in the early grades were procured through listserv requests and examined for the required pedagogical texts. The publishers of those texts in Canada and the United States were located through a series of internet searches. Next, each company was contacted to confirm the current and most frequently ordered pre-service textbooks on the teaching of reading. A list of all textbooks identified in the course outlines, as well as those named by the publisher, was compiled, cross-checked, and a copy of each pedagogical text was purchased.

Specific chapters in each textbook were selected based on two criteria: (a) inclusion of instructional content on phonological awareness; and (b) originally published between 2001 and 2011 inclusive. These criteria ensured that our review focused on the most recent textbooks published after the National Reading Panel's recommendations were made available. Application of the selection parameters resulted in the identification of 28 chapters in the textbooks studied (see Appendix – Pedagogical Textbook Chapter Key for a complete list).

Procedures and Materials

Content error coding. We first developed an error taxonomy to identify and categorize the different types of errors identified in the textbook chapters. A sub-sample of the 28 chapters was examined to identify and label all observed content errors in each strategy or activity presented in the chapters for teachers to use in the instruction of PA. Error identification was informed by the types of inaccuracies previously identified in instructional materials (e.g., Smith et al., 2001) and by the English language structure difficulties identified for pre-service teachers, teachers and instructors (e.g., Fielding-Barnsley,

2010; Moats, 2009; Spencer et al., 2008; Stainthorp, 2004) presented in the Background section. However, we did not limit our examination to only these previously identified problems but included as errors any information that would lead to inaccurate instruction. Once a list of content errors was compiled error categories were created to group similar types of content errors, after which the remaining chapters were examined and coded. Content error types and error categories were added if errors encountered during the coding process did not fit within the taxonomy. We paid keen attention to documentation provided in the chapters, transcribed errors as they were identified, and noted specific pages where errors were found.

Content omission coding. We made an a priori decision to examine each chapter for the inclusion of two specific PA content areas. The first was the definition of phonological awareness. Our decision was based on the extant research (e.g., Binks-Cantrell et al., 2012; Cunningham et al., 2004; Fielding-Barnsley, 2010; Joshi et al., 2009a; 2009b) that prospective teachers, teachers, and college and university course instructors were not able to define phonological awareness or confused phonological awareness and phonics. Additionally, it is important for teachers to understand phonemic awareness, a constituent component of phonological awareness, because phoneme level tasks are those that have been identified as critical for reading success.

The second was the inclusion of skill component strategies targeting phoneme blending and phoneme segmenting. We considered it important that textbooks include such information because the National Reading Panel (NIHHD, 2000) and National Early Literacy Panel (2008) specifically identify these as key areas of instructional need to support reading success.

If chapters did not include a definition of phonological awareness, phonemic awareness, or strategies targeting phoneme blending or phoneme segmenting we counted these as omissions. For any textbook that provided definitions or activities targeting phoneme blending or segmenting we examined each for accuracy. If inaccuracies were observed these were included as part of our Content Error Coding. Beyond intercoder reliability, the first and third authors established content validity through consistent verification of each content domain category (see Table 1).

Coding Reliability. To ensure that all content errors and omissions were captured and agreed upon, each chapter was examined thoroughly by the first and third authors. The first author has extensive background and training in

language structure analysis, assessment, and intervention of phonological awareness, and the third author has an education background with a language and literacy focus. Once coding was completed, coding results were compared using a match-mismatch interrater-reliability procedure and agreement was 92%. Discrepancies were discussed and resolved with the second author who has extensive background and training in cognition, reading, assessment, and intervention for reading difficulties.

Next, we present the results of our study followed by a discussion of those results in relationship to previous research and their possible impact on instructional practices. Finally, we provide some implications and recommendations for speech-language pathologists, other professionals engaged in literacy instruction, and textbook authors followed by a conclusion.

Results

Content Errors

Our analyses of phonological awareness content in pre-service textbooks developed for teacher education on the

teaching of reading revealed that no chapter was error free and a total of 313 content errors were identified across the 28 chapters. Errors were identified in six content categories: (a) definitions, (b) task hierarchy, (c) task descriptions, (d) phoneme descriptions, (e) skill components, and (f) phoneme-grapheme correspondences. The six content categories and total errors identified by category in the 28 chapters are displayed in Table 1. In the next section we describe each of the content categories and provide examples of the types of errors that appeared in the chapters. Examples were chosen as exemplars of particular types of errors that occurred across chapters.

Definitions. The first content category referred to inclusion of definitions related to the construct of phonological awareness for completeness and accuracy against the definitions provided by the National Reading Panel (2000). Even though phonological awareness encompasses phonemic awareness, phonemic awareness abilities are considered critical for reading success, thus, we considered it important for textbook authors to define both phonological awareness, the ability to manipulate spoken language (words, syllables, or phonemes) independent

Table 1. Content Category and Total Number of Content Errors Across Textbook Chapters

Content Category	Error Total	Textbook Chapter Number and Content Errors
Definitions	14	6, 9, 10 ² , 12, 15, 16, 17 ² , 18, 21, 23, 26 ²
Task Hierarchy	13	8 ⁶ , 10 ⁶ , 16
Task Descriptions	33	4, 8, 9, 11 ⁴ , 13 ² , 15, 16 ⁴ , 17 ² , 18 ² , 19 ² , 21 ⁶ , 22 ⁴ , 27, 28 ²
Phoneme Descriptions	92	1 ¹⁰ , 3, 4 ⁹ , 7, 10 ² , 11 ⁵ , 12 ⁴ , 13 ⁶ , 15 ⁸ , 16 ¹¹ , 18 ⁶ , 19 ⁸ , 20 ¹¹ , 28 ¹⁰
Skill Component <i>Blending</i>	12	11 ² , 22 ¹⁰
<i>Segmenting</i>	23	1 ⁸ , 8 ² , 9 ⁶ , 16 ⁷
Phoneme-grapheme Correspondences	126	2, 3 ⁴ , 6 ² , 8, 10, 12 ⁹ , 13 ⁴ , 14 ¹¹ , 15 ⁶ , 16 ³ , 18 ¹⁵ , 19 ¹¹ , 21 ³³ , 22 ²⁰ , 27 ⁵

Note. Number in Textbook Chapter Number and Content Errors column signify the assigned number for Textbook Chapters in Appendix. Superscript numbers 2 to 33 positioned over the assigned Textbook Chapter number is the number of specific content errors for that particular content category in a chapter if higher than 1. For example, 3² means Textbook Chapter number 3 and 2 instances of the specific error in the particular content category.

of meaning, and the constituent component, phonemic awareness, the ability to manipulate phonemes in spoken words (NIHHD, 2000).

We tallied 14 instances, 4% of the total error count, where incomplete or inaccurate definitions occurred across the 28 chapters. An incomplete definition is illustrated by the following example definition of phonemic awareness: *“The awareness that words are made up of individual sounds is logically called phonemic awareness.”* [210, p. 291] which omits the key element related to the ability to manipulate individual phonemes in spoken words.

Task Hierarchy. Task hierarchy refers to the level of analysis within a word and type of task, progressing from manipulation of larger and simpler units of analysis and manipulation of smaller and more difficult to isolate units of analysis. We identified 13 errors in task hierarchy accounting for 4% of identified content errors across the 28 chapters.

Some inaccuracies in content related to the order of task difficulty. For example, one chapter [8, p. 92] provided a chart delineating the difficulty of phonological awareness tasks and cited Yopp (1988). The order of task difficulty delineated in the content of the aforementioned chapter went from easiest to most difficult as follows: phoneme segmentation, counting, sound isolation, word-to-word matching, phoneme blending, auditory discrimination, rhyme, deletion, and substitution. Note that rhyming, an easier task, is listed toward the end of the hierarchy, and phoneme segmentation, a difficult task, is listed at the very beginning of the hierarchy. This order of task difficulty is inconsistent with the work of Yopp (1988) in which the order of task difficulty progressed from rhyme, auditory discrimination, phoneme blending, word-to-word matching, sound isolation, phoneme counting, phoneme segmentation to deletion. More importantly, Yopp (1988) did not present this progression as an order of task difficulty in the instruction of phonological awareness, but rather as the relative difficulty of tests being used to assess phonological awareness at the time.

Another content inaccuracy related to the type of tasks associated with phonemic awareness (e.g., *“phonemic awareness includes the ability to decide whether spoken words rhyme, to know what spoken word you would have if you removed a sound, and to manipulate phonemes to form different spoken words”* [6, p. 92]). Deleting sounds and manipulating phonemes represent complex tasks associated with phonemic awareness; however, rhyming is a simpler task and is considered an important component of phonological awareness (NIHHD,

2000; Schuele & Boudreau, 2008). Some chapters provided correct definitions of the construct of phonemic awareness but then provided strategies and activities that did not correspond to the level of word analysis. For example, another chapter [11, p. 180], provided a clear definition of phonemic awareness that closely matched the National Reading Panel’s (2000) definition yet went on to provide a phonemic awareness assessment task where children are required to recognize rhyming words, which is a component of phonological awareness³[11, p. 181].

Task Descriptions. The 33 instances of content inaccuracies related to task descriptions accounted for 10% of the total number of errors tallied across chapters. Chapters containing inaccuracies described the importance of phonological awareness, but the activities or sample lessons provided did not address these skills. For example, one lesson plan identified the following learning outcome *“demonstrate awareness of individual sounds and sound patterns of language”* [27, pp. 107-108], yet the lesson involved children guessing a storybook title and story content, discussing story vocabulary, demonstrating animal and human actions from the story, and sorting written sentences, words, and letters from the story. None of these activities targeted the development of an awareness of sounds and sound patterns. Chapters also provided inaccurate information regarding tasks that support the acquisition of phonemic awareness skills (e.g., *“The two best ways to develop phonemic awareness are invented spelling and reading literature aloud”* [26, p. 190]). Although it is possible that phonemic awareness may be acquired incidentally from these activities, there is consensus that for the majority of children, proficiency in phonemic awareness skills results from a planned and explicit instructional focus on phonemic awareness tasks (Schuele & Boudreau, 2008), rather than on incidental or implicit learning.

Phoneme Descriptions. Content errors in phoneme descriptions accounted for 29% of the errors found across all chapters. Some inaccuracies related to pronunciation of phonemes, for example, adding phonemes to words that result in a change of pronunciation (e.g., *“Say the word, ‘quick.’ Then say each sound slowly /kwook/ + /i/ + /ck/”* [20, p. 40]), which results in the addition of a vowel in the pronunciation, /kwoik/ rather than the correct pronunciation, /kwɪk/ and the consonant cluster /kw/ and vowel /u/ treated as a single phoneme /kwu/ rather than as three distinct phonemes. Another frequent error was misclassification of phonemes related to either manner of articulation or number of phonemes in words: (a) labeling the continuant sound /h/ as a stop [20, p. 37]; and (b) labeling ‘QU’ as an unvoiced continuant [20, p. 38]. The

phonemes 'QU' were misclassified in three ways: first, as a single phoneme rather than as a consonant cluster /kw/; second, as a consonant type QU, consists of both a stop /k/ and a continuant /w/; and third, voicing, /k/ is voiceless but /w/ is a voiced phoneme. Misclassifications were also common in consonant cluster activities. In one chapter, a mini-lesson on final consonant clusters provided the following teacher demonstration words: BEST, RANG, HAND, PINK, and BUMP. However, RANG → /ræŋ/ does not have a final consonant cluster but rather the letters NG represent a single phoneme /ŋ/. Next, words listed for children to say and practice isolating final clusters similarly included words that ended in single phonemes rather than clusters: WING → /wɪŋ/ and HANG → /hæŋ/. Finally, guided practice of final consonant clusters also included selections that were single phonemes rather than final consonant clusters -ANG → /æŋ/ and -ING → /ɪŋ/ [19, p. 112].

Skill Components. Inaccuracies in chapter content related to blending and segmenting are reported next. Some chapters did include other PA skills components (e.g., rhyming, sound identification) but no errors were identified in skills other than blending and segmenting.

Blending. Incomplete or inaccurate descriptions of strategies or activities related to blending accounted for 4% of the total error tally across the 28 chapters. Inaccuracies were identified only for phoneme blending. Only four chapters provided strategies or activities for other types of blending but were error free. Phoneme blending errors related to confusions between phonemes and orthographic representations of words. An oral phoneme blending activity required children to listen to words spoken by the teacher one phoneme at a time and then blend the sounds to form a word. However, two of the ten words that the teacher was directed to say one phoneme at a time contained inaccuracies making the blending task both incorrect and confusing for children. For example, the word MICE was to be said by the teacher as m-i-c-e adding an E to the end of the word that is not present /mais/, while the word TURKEY was to be said t-ur-key where the last two phonemes in the word /k/ and /i/ would be spoken as a syllable /ki/ rather than as individual sounds [11, p. 187].

Segmenting. Incomplete or inaccurate descriptions of strategies and activities related to segmenting accounted for 7% of the total number of content errors across the 28 chapters. We found errors in tasks involving both syllable and phoneme segmenting. Other types of segmenting was included in only four chapters but was accurate. Similar to errors identified in blending tasks, the inaccuracies we did identify included confusions between phonemes and

orthographic representations of words at both the syllable and phoneme level. Several chapters included oral syllable segmentation tasks but applied written syllabification rules rather than spoken syllabification rules for words orthographically written with doubled letters (e.g., PEPPER, BUBBLE, LETTUCE). In all cases, the teacher was instructed to segment the word between the doubled consonants using written rather than oral syllabification rules. For example, "Clap the word pepper (pep●per). Tell students to clap the word car●rot and pep●per several times. Repeat the same procedure using a picture of let●tuce" (1, 7.21). However, the doubled written consonant in each of these words represents a single phoneme /pɛpɜː/, /kærət/, and /lɛtəs/. The pronunciation that would result from segmenting the syllables as described in the above activity adds a phoneme not present in the oral pronunciation of these words, /pɛppɜː/, /kærrət/, and /lɛttəs/.

At the phoneme segmentation level, chapters either gave incorrect examples of tasks, or of sounds that were segmented incorrectly. An activity designed to help children identify sounds in words stated the following: "Sing the song 'Bingo.' In the song each letter is chanted. There is a pretty little girl that I know and Jenny is her name-o J-e-n-n-y, J-e-n-n-y, J-e-n-n-y and Jenny is her name-o." [16, p. 160]. In this case, the activity identified letter names not the sounds, /dʒ/ /ɛ/ /n/ /i/. Another chapter provided examples of sound clusters that could be segmented into individual phonemes: "children can segment all sounds of a word including sound clusters such as sk, ch, and sh into individual sounds" [8, p. 95]. Even though this is a correct statement for SK, it is not for CH and SH as these are digraphs that represent single phonemes not a sound cluster. In another chapter where the stated goal was to teach children whether words sound the same or different at the beginning of the word, the teacher is directed to say, "in order to tell whether a word is the same or different at the beginning, we must say the word slowly and separate the beginning sound from the rest of the word" [9, p. 173]. However, one of the examples given is 'snnnn-ail' [9, p. 172] which segments the onset and rime units rather than the beginning sound in SNAIL, /s/.

Phoneme-grapheme Correspondences. The 126 inaccuracies tallied in the phoneme-grapheme correspondences content category accounted for 40% of the total number of content errors identified across the 28 chapters. Many chapters provided rules to support teaching letter-sound correspondences, yet these rules frequently included confusing or incorrect descriptions of the letter-sound correspondence for X and QU. A common description for the pronunciation of the letter X was as follows, "When x is at the beginning of a word, it

is often pronounced /z/, as in xylophone, but sometimes the letter name is used, as in X-ray. At the end of a word, x is pronounced /ks/ as in box.” [12, p. 173]. The description for X in X-ray, although correct, is also confusing because it leads the reader to think of X as a single phoneme when in fact the letter name X comprises three phonemes /ɛks/ and may lead to the same type of inaccurate instruction we described in the Background section reported by McCutchen et al. (2002) for the letter name ‘U’. The letter combination QU was either categorized with letters represented by a single sound [e.g., 15, p. 173] or described as a “two letter-one sound pair” [27, p. 192] when in fact the graphemes QU represent two phonemes /kw/.

Digraph descriptions and exemplars represented another common content error. For example, “Consonant digraphs are letter combinations representing single sounds that aren’t represented by either letter. The five most common are *ch* as in *chair*, *sh* as in *shell*, *th* as in *father*, *wh* as in *whale*, and *ph* as in *photo*” [22, p. 108]. By this definition, the WH example is not an exemplar since the /w/ sound is pronounced in the word WHALE and represented by the letter W. Additionally, the definition does not indicate that the TH digraph can represent two different sounds; the voiced interdental fricative /ð/ as in FATHER → /fɑðə/, or the unvoiced interdental fricative /θ/ as in PATH → /pæθ/. Other chapters using the same definition included CK and GHT as digraph exemplars [14, p. 152]. The sound /k/ can be represented by either of the letters C or K so does not create a sound not represented by the letters, and GHT is not a digraph. The examples given in the chapter included LIGHT, MIGHT, FIGHT where the three letter combination IGH represents the diphthong /ai/.

Phoneme-grapheme correspondence descriptions for consonant clusters, termed ‘consonant blends’ in many chapters, were also inaccurate. Chapter 16, page 140, for example, stated “Consonant blends are two or three letters that when placed together blend into one sound that represents the two or three letters”, and provided BL, CR, DR, FL, GL, PR, ST as exemplars of letters that blended into one sound. However, pronunciation of consonant clusters does not result in a single phoneme, each phoneme in a consonant cluster is pronounced (e.g., FLAG → /flæg/, SCRATCH → /skrætʃ/).

Several chapters provided tables with phonics rules, yet the examples given did not match aspects of the described rule. For example, a CVC rule included the following words: BAT, CUP and LAND [22, p. 112]. Even though the first two words match the CVC rule, LAND is an example of a CVCC pattern. Similarly, CVVC pattern exemplars included CLEAN

and SNAIL [22, p. 113], both of which have two consonants, CC, at the beginning rather than a single consonant. This phonics rule description presents additional confusion because not only are the consonant clusters SN and CL represented as single consonants (CVVC), the single vowel EA → /i/ and diphthong AI → /eɪ/ are both represented by two vowel symbols (CVVC). These content inaccuracies and inconsistencies in pattern exemplars make it difficult to determine whether the phonics pattern represented the phonemes or graphemes that comprise words since they reflected neither accurately.

Content Omissions

Our analyses of the pre-service textbooks revealed content omissions in the two content areas examined: (a) definitions of phonological awareness and the constituent component, phonemic awareness, and (b) skill component strategies (phoneme blending and segmenting). A total of 39 content omissions were counted and are displayed by content category in Table 2.

Definitions

Eighteen chapters did not provide a definition of one of the two key terms (i.e., phonological awareness or phonemic awareness) and four of these chapters did not provide a definition of either term. These definitional omissions accounted for 56% of the total content omission count.

Phoneme Blending and Segmenting

One third of the 28 chapters did not provide any strategy descriptions for blending phonemes in words (21% of omission total). Similarly, we found that 24% of the 28 chapters failed to include at least one strategy on segmenting phonemes in words.

Discussion

Our examination of the accuracy and completeness of content related to phonological awareness in pre-service textbooks on the teaching of reading revealed not only numerous inaccuracies and omissions but two distinct error patterns across the content categories. Errors were related to (a) the nature of phonological awareness, and (b) an overreliance on English orthography.

Errors Related to the Nature of Phonological Awareness

Knowledge of what constitutes PA allows a teacher and other professionals engaged in literacy instruction to have a clear understanding of what differentiates these skills from other skills, in particular phonics. Furthermore, designing appropriate and accurate instruction is not possible without

Table 2. Content Category and Total Number of Content Errors Across Textbook Chapters

Content Category	Error Total	Textbook Chapter Number and Content Errors
Definitions	22	3 ² , 4 ² , 5, 6, 7, 9, 12, 13, 14 ² , 15, 18, 19, 21, 22, 24, 25, 27, 28 ²
Skill Component Strategy <i>Phoneme Blending</i>	8	4, 6, 7, 9, 13, 16, 26, 28
<i>Phoneme Segmenting</i>	9	4, 5, 6, 7, 9, 13, 14, 26, 28

Note. Number in Textbook Chapter Number and Content Omission column signify the assigned number for Textbook Chapters in Appendix. Superscript number 2 positioned over the assigned Textbook Chapter number is the number of specific content errors for that particular content category in a chapter if higher than 1. For example, 3² means Textbook Chapter number 3 and 2 instances of the specific omission in the particular content category.

complete and accurate knowledge of the constituent elements of PA; knowledge that previous studies (e.g., Bos et al., 2001; Cheesman et al., 2009; Fielding-Barnsley, 2010; Joshi et al., 2009a; 2009b) have repeatedly revealed prospective teachers, teachers, and university course instructors lack. For this reason we specifically examined the inclusion of, and accurate, definitions of phonological awareness. Of the 28 textbooks we examined, over 50% did not provide a definition of one of the terms (phonological or phonemic awareness), and of those that did, 35% of the chapters provided incomplete or inaccurate definitions. Thus, many textbooks continue to do little to increase teacher knowledge.

Similarly, errors in Task Hierarchy and Task Description content categories were primarily related to a lack of understanding by textbook authors regarding the nature of phonological awareness, as evidenced by the task exemplars that specifically targeted phonics, spelling, print concepts, and vocabulary rather than phonological awareness. Thus, our findings may explain in part why previous researchers (e.g., Bos et al., 2001; Cunningham et al. 2004; Cunningham et al., 2009; Joshi et al., 2009b) found that teachers demonstrated limited knowledge of phonological awareness and consequently on how to teach it. Such content inaccuracies may lead many teachers to think they are providing PA instruction when in fact they are not.

A lack of understanding of the nature of PA also resulted in the failure of many textbook authors to integrate critical findings from research on PA components considered essential to reading success, namely the contribution

of phoneme level blending and segmenting. Smith et al. (2001) showed that basal reader programs did not address aspects of phonological awareness related to blending and segmenting phonemes in words. We found the same to be true of pre-service teacher textbooks. Even though textbook authors frequently described the importance of phoneme blending and segmenting, one third did not include a single instructional activity or strategy targeting blending or segmenting of phonemes in words.

When teachers lack knowledge about what constitutes phonological awareness, they are not in an informed position to judge whether tasks provided in resources such as textbooks address these skills. Consequently, the lack of such knowledge may result in teachers not providing instruction in those PA skills considered essential to reading or thinking that they are providing phonological awareness instruction when in fact they are not.

Errors Related to an Overreliance on English Orthography

Of all of the content inaccuracies found in the 28 chapters, errors classified in the phoneme-grapheme correspondence category was the most prominent and signaled an over-reliance on written word forms. Over 50% of the chapters contained inaccuracies in this error category, and the majority of chapters contained multiple inaccuracies, for example, Chapters 21 and 22 contained 33 and 20 inaccuracies respectively. The types of inaccuracies found in textbook chapters were similar in nature to those described in previous studies that examined teacher and university instructor knowledge, that is, confusion between phonemes and graphemes. Spencer et al. (2008) and Joshi

et al. (2009b), for example, observed that teachers and university instructors had difficulty identifying or naming phonemes where grapheme-phoneme correspondences were not transparent; similar inaccuracies were also evident in the chapters we examined. We found several chapters that had inaccuracies for words even when there was a transparent relationship between phonemes and graphemes. Consistent with the findings from earlier studies (e.g., Cunningham et al., 2004; Cunningham et al. 2009; Moats, 1994) with teachers, many textbook authors also lacked the knowledge and understanding of language structure critical for word analysis in spoken and written forms and tended to over-rely on the written form of the word rather than on the spoken form, with the latter being the correct form.

Additionally, many errors identified in the Phoneme Description and Segmenting content categories also revealed confusions between spoken and written word forms. Phoneme descriptions were incorrect with respect to phoneme pronunciations, phoneme classifications, and number of phonemes in words. A common segmenting error involved transposing written syllabification rules for words with double letters to oral syllabification of these same words. As shown in the exemplars in the results section, such inaccuracies result in additions of phonemes, LET • TUCE → /lɛttəs/ instead of the correct pronunciation /lɛtəs/. However, there are words for which double letters represent two distinct phonemes (e.g., SUC • CESS → /səksəs/). A distinction that is only obvious when attending to the oral word form.

Interestingly, our research revealed a possible explanation for claims made by teachers in the Spencer et al. (2008) study. You will recall that Spencer et al. did not find evidence to support teacher claims that the instructions in the basal reader programs stated consonant clusters as two letters that made a single phoneme; however, we found that pre-service textbooks vindicated the teachers because this error was replicated across several chapters. Teacher participants in the Cunningham et al. (2004) and Moats (1994) studies also considered consonant clusters as single phonemes. Not only did we find this same error in descriptions and examples of consonant clusters across several chapters, we also found frequent inaccuracies in descriptions and examples of digraphs and phonics rules. Consequently, the content of many textbooks offered little to advance phonological awareness knowledge.

Additional Findings

We found that some textbooks had the same authors,

and so, as to be expected, the same authorship resulted in duplication of the same inaccuracies and omissions of content across multiple textbooks. Finally, despite the large number of errors found and the fact that no textbook was error-free, some chapters often provided excellent content related to phonological awareness (e.g., 23, 24, 25). Correction of the inaccuracies and omissions identified herein would result in resources supportive of the acquisition of knowledge and skills in phonological awareness for professionals involved in reading instruction in elementary schools or in post-secondary contexts.

Implications and Recommendations

Based on the results of our study, we recommend that every effort be made to ensure that the phonological awareness content provided to teachers be complete, consistent, and accurate to enable high quality instruction to their students. Given that instruction in phonological awareness training is known to prevent reading and writing difficulties and that teachers are the primary instructors in reading and writing, their lack of understanding of phonological awareness can have a negative impact on their students' reading and writing development. This is of particular importance to S-LPs who frequently recommend a teacher provide PA instruction to children with LI. It is likely that many teachers would not know what such a recommendation entails (Cheesman et al., 2009). Thus, S-LPs may need to reconsider their recommendations for children with LI. If teacher skills or classroom resources are inadequate to support these children's acquisition of PA skills continued intervention from a S-LP may be warranted.

Moats (2009) suggested that teachers need extensive training in the English sound system if they are to have the needed proficiency to teach phonological awareness and Binks-Cantrell et al. (2012) suggested the same for university and college instructors. Binks-Cantrell and colleagues refer to negative impact instructors lacking knowledge in oral language constructs and phonological awareness as having the Peter Effect. Binks-Cantrell et al. describe the fact that "teachers cannot pass on understanding of the basic language constructs considered essential for early reading success when they do not possess that understanding" (p. 526). We concur, and would argue that all professionals engaged in supporting classroom reading instruction need similar training. The same holds true for textbook authors and publishers. Textbook authors and publishers should seek out professionals with the requisite knowledge of the sound structure of English to write or review content related to phonological awareness so that individuals using pre-service textbooks on the teaching of reading as a

resource have access to correct, consistent, and complete information.

Most S-LPs have extensive training in phonetics, articulation, phonology, and phonological awareness (Scheule & Boudreau, 2008; Spencer et al., 2008), and possess a great deal of knowledge to support classroom instruction of phonological awareness. Therefore, rather than wait for improved resources, S-LPs should consider collaborating with teachers and offer seminars and workshops at schools, within school districts, and at conferences attended by literacy educators. Such an initiative by S-LPs would help support an immediate and positive change in knowledge and skills of professionals involved in literacy instruction and, hence, improve instructional practices in phonological awareness.

Spencer et al. (2008) stress that curricula and instructional materials should support and enhance teacher efforts to teach phonological awareness. They note the importance of a thorough examination of curricular materials to ensure that teachers provide accurate instruction that supports children's phonological awareness development. We agree, and our results confirm and extend previous findings that there is not only a general lack of information on phonological awareness but when there is, the quality of that content is wanting. S-LPs could also direct their expertise to examining curricular materials with teacher colleagues to identify and correct inaccuracies in available resources used in classrooms. It is important to emphasize that accuracy in resources is necessary and expected, if teachers have adequate knowledge of English sound structure and PA they could correct and compensate for the resource deficiencies with the support of their S-LP colleagues. Thus, the possible impact of such S-LP collaboration on the effective teaching of children is substantial.

The results of our research on phonological awareness information confirm those of previous research, signal that little has changed, and extend the specificity of the phonological awareness inaccuracies and omissions in the content of current pre-service textbooks on the teaching of reading. For typical learners, inaccurate instruction in phonological awareness is not likely to have an adverse impact on their ability to acquire skills crucial for reading (McCutchen et al., 2009; Moats & Lyons, 1996). However, phonological awareness is an area in which many young, at-risk or struggling readers, and children with LI are particularly weak (McCutchen et al., 2002; McCutchen et al., 2009), and these students need reliable, accurate, explicit, and systematic instruction of these skills. Inaccurate or contradictory instruction may create substantial barriers

to learning and significantly impede student progress (McCutchen et al., 2009; Spencer et al., 2008). Awareness of possible resource barriers will allow S-LPs to collaborate more effectively with teachers, and, thus, enhance language and literacy instruction in classrooms, particularly for children with LI who are at risk for or already have reading difficulties. Knowledge of these barriers will also allow S-LPs to determine if recommendations they make for children with LI with respect to classroom support for PA acquisition are in fact achievable.

Conclusion

Prospective and practicing teachers assume that their textbooks are accurate. However, our analysis of the quality and accuracy of the content in textbooks commonly used in college and university reading courses indicated another barrier, not only for teachers, but for other professionals using textbooks as a resource to support instruction of phonological awareness. We identified specific errors in six content categories. Nonetheless, it was clear that errors were largely related to two general aspects, namely (a) the nature of phonological awareness, and (b) an overreliance on English orthography. In addition, we identified textbook omissions such that neither definitions of key phonological terminology nor skill component strategies were provided. There was a general failure by text book authors and publishers to integrate critical findings from research even in the most recently published pre-service textbooks on the teaching of reading. We hope S-LPs will view our results as pointing to an exciting opportunity to collaborate with teachers to overcome textbook resource deficiencies and enhance classroom phonological awareness instruction for children with LI as well as other children for whom accurate and explicit instruction is a key to reading success.

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End Notes

¹We use IPA symbols between slashes to represent phonemes. Graphemes are represented using capital letters unless taken from direct quotes from original sources.

²Quotes from reviewed chapters are presented using their assigned chapter number (see Appendix), followed by the page number of the quote.

³Rhyming can be considered a phonemic awareness task in CV word contexts.

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Appendix

Pedagogical Textbook Chapter Key

Assigned Number	Textbook Chapter Reference
1.	Honig, B., Diamond, L., Gutlohn, L., & Mahler, J. (2008). Phonemic awareness. In <i>Teaching reading sourcebook: For kindergarten through eighth grade</i> (2 nd ed.) (pp. 7.2-7.53). Emeryville, CA: CORE.
2.	Walpole, S., & McKenna, M. C. (2007). Differentiating phonemic awareness instruction. In <i>Differentiated reading instruction: Strategies for the primary grades</i> (pp. 31-47). New York: The Guilford Press.
3.	Reutzel, D. R., & Cooter, Jr., R. B. (2007). Phonics and word attack skills. In <i>Strategies for reading assessment and instruction</i> (3 rd ed.) (pp. 205-236). Newark, DE: International Reading Association.
4.	Gunning, T. G. (2005). Teaching phonics, high-frequency words, and syllabic analysis: Basic principles of phonics instruction. In <i>Creating literacy: Instruction for all students</i> (5 th ed.) (pp. 161-186). Boston, MA: Pearson Education, Inc.
5.	Smith, J. A., & Read, S. (2005). Foundations of literacy: Helping students develop phonemic awareness. In J. A. Smith & S. Read (Eds.), <i>Early literacy instruction: A comprehensive framework for teaching reading and writing, K-3</i> (pp. 48-55). Upper Saddle River, NJ: Pearson Education, Inc.
6.	Cunningham, P. M., & Cunningham, J. W. (2002). What we know about how to teach phonics. In A. E. Farstrup, & S. Samuels (Eds.), <i>What research has to say about reading instruction</i> (3 rd ed.) (pp. 87-109). Newark, DE: International Reading Association.
7.	Graves, M. F., Juel, C., & Graves, B. B. (2007). Emergent literacy. In M. Graves, C. Juel, & B. Graves (Eds.), <i>Teaching reading in the 21st century</i> (4 th ed.) (pp. 88-121). Boston, MA: Allyn & Bacon.
8.	Cramer, E. D. (2006). In the beginning: Phonological awareness. In J. S. Schumm (Ed.), <i>Reading assessment and instruction for all learners</i> (pp. 89-117). New York: The Guilford Press.
9.	Duffy, G. G. (2003). Example 16: Phonemic awareness. In <i>Explaining reading: A resource for teaching concepts, skills, and strategies</i> (pp. 170-175). New York: The Guilford Press.
10.	Farris, P. J., Fuhler, C. J., & Walther, M. P. (2004). Teaching reading: A balanced approach to phonics and word study. In P. Farris, C. Fuhler, & M. Walther (Eds.), <i>Teaching reading: A balanced approach for today's classrooms</i> (pp. 281-319). New York: McGraw-Hill.
11.	Reutzel, D. R., & Cooter, Jr., R. B. (2007). Phonemic awareness and alphabetic principle. In <i>Strategies for reading assessment and instruction</i> (3 rd ed.) (pp. 179-204). Newark, DE: International Reading Association.
12.	Tompkins, G. E. (2005). Emerging into literacy: Phonemic awareness. In G. Tompkins (Ed.), <i>Language arts: Patterns of practice</i> (pp. 167-178). Upper Saddle River, NJ: Pearson Education, Inc.
13.	Collins Block, C. (2001). When sound meets print: Teaching phonics and vocabulary. In C. Collins Block (Ed.), <i>Teaching the language arts: Expanding thinking through student-centered instruction</i> (3 rd ed.) (pp. 191-238). Needham Heights, MA: Allyn & Bacon.
14.	Graves, M. F., Juel, C., & Graves, B. B. (2007). Word recognition. In M. Graves, C. Juel, & B. Graves (Eds.), <i>Teaching reading in the 21st century</i> (4 th ed.) (122-163). Boston, MA: Allyn & Bacon.

15. Tompkins, G. E. (2001). Breaking the alphabetic code: Phonemic awareness and phonics. In *Literacy for the 21st century: A balanced approach* (2nd ed.) (pp. 165-181). Upper Saddle River, NJ: Prentice-Hall, Inc.
16. Morrow, L.M. (2009). Strategies to figure out words: Phonological awareness, phonemic awareness, and phonics. In L. Morrow (Ed.), *Literacy development in the early years. Helping children read and write* (6th ed.) (pp. 135-185, 37-38). Boston, MA: Pearson.
17. Smith, J. A., & Read, S. (2009). Building early literacy skills: Phonemic awareness: Recognizing and using speech sounds. In J. Smith & S. read (Eds.), *Early literacy instruction: Teaching reading and writing in today's primary grades* (2nd ed.) (pp. 57-64). Boston: Allyn & Bacon.
18. Tompkins, G. E. Bright, R. M., Pollard, M. J., & Winsor, P. J. (2008). Emergent literacy. In G. Tompkins, R. Bright, M. Pollard, & P. Winsor (Eds.), *Language arts: Content teaching strategies* (4th ed.) (pp. 92-102). Upper Saddle River, NJ: Pearson Education, Inc.
19. Tompkins, G. E. (2007). Cracking the alphabetic code. In G. Tompkins (Ed.), *Literacy for the 21st century. Teaching reading and writing in pre-kindergarten through grade 4* (2nd ed.) (pp. 90-115). Upper Saddle River, NJ: Pearson.
20. Bursuck, W. D., & Damer, M. (2011). Phonemic awareness. In W. Bursuck, & M. Damer (Eds.), *Teaching reading to students who are at risk or have disabilities* (2nd ed.) (pp. 34-77). Upper Saddle River, NJ: Pearson Education, Inc.
21. Combs, M. (2010). Learning about words: Making the transition to print. In M. Coombs (Ed.), *Readers and writers in primary grades: A balanced and integrated approach* (4th ed.) (pp. 24-73). Boston, MA: Pearson Education, Inc.
22. Tompkins, G. E. (2011). Cracking the alphabetic code. In G. Tompkins (Ed.), *Literacy in the early grades: Instructor's copy* (3rd ed.) (pp. 92-119). Boston, MA: Pearson Education, Inc.
23. Ellery, V. (2009). Phonemic awareness. In V. Ellery (Ed.), *Creating strategic readers: Techniques for developing competency in phonemic awareness, phonics, fluency, vocabulary and comprehension* (2nd ed.) (pp. 23-46). Newark, DE: International Reading Association.
24. Strickland, D. S., & Snow, C. (2002). Sounds, letters and words: How print works. In D. Strickland, C. Snow, P. Griffin, M. Burns, & P. McNamar (Eds.), *Preparing our teachers: Opportunities for better reading instruction* (pp. 81-118). Washington, DC: Joseph Henry Press.
25. Cunningham, P. M., & Allington, R. L. (2007). *Classrooms that work. They can all read and write* (4th ed.) (30-44). Boston, MA: Pearson.
26. Cramer, R. L. (2004). Emergent literacy: Phonemic and phonological awareness. In R. Cramer (Ed.), *The language arts: A balanced approach to teaching reading, writing, listening, talking and thinking* (pp.189-191, 195). Boston, MA: Allyn & Bacon.
27. Bainbridge, J., Heydon, R., & Malicky, G. (2009). *Constructing meaning. Balancing elementary language arts* (4th ed.). Scarborough, ON: Nelson Education.
28. Carnine, D. W., Silbert, J., Kame'enui, E. J., & Tarver, S. G. (2004). Phonemic awareness and alphabetic understanding. In D. Carnine, J. Silbert, E. Kame'enui, & S. Tarver (Eds.), *Direct instruction reading* (4th ed.) (pp. 50-59). Upper Saddle River, NJ: Pearson Education, Inc.

Note. Textbook chapters do not appear in alphabetical order, chapters were assigned numbers in order of procurement and examination.



Using Animal-Assisted Therapy to Facilitate Social Communication: A Pilot Study



L'utilisation de la zoothérapie pour faciliter la communication sociale : une étude préliminaire

KEY WORDS

ANIMAL-ASSISTED THERAPY

LANGUAGE IMPAIRMENT

SPEECH-LANGUAGE THERAPY

SOCIAL COMMUNICATION

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Abstract

Promoting social communication is a challenging but important component of working with children with language impairments (LI). The purpose of this clinical investigation was to determine if animal-assisted therapy (AAT) was effective in promoting social communication between children with LI and typically-developing peers by comparing the use of a live cat to a toy cat and a preferred activity. Three female children, ages 4-8 years, were observed in interactions with a matched peer over twelve weeks to monitor social interactions during play-based speech-language therapy sessions. Two of the three participants demonstrated more sustained interaction in the live animal condition. The results of this pilot study suggest the potential benefits of AAT in speech therapy with children and continued expansion of the project is recommended to increase generalization.

Abrégé

La promotion de communication sociale est un important défi lorsqu'on travaille avec des enfants ayant des troubles de langage. Le but de cette étude clinique était de déterminer si la zoothérapie est efficace pour promouvoir la communication entre les enfants ayant des troubles de langage et leurs pairs ayant un développement typique en comparant leur utilisation d'un chat vivant à un chat jouet et une activité préférée. Les interactions sociales de trois filles ayant des TL de quatre à huit ans ont été observées avec un pair pendant 12 semaines de thérapies en orthophonie qui se sont déroulées sous forme de jeux. Deux des trois participantes ont démontré une communication plus soutenue avec l'animal vivant. Les résultats de cette étude suggèrent de potentiels bénéfices de la zoothérapie en intervention orthophonique avec des enfants et nous recommandons la poursuite de ce projet afin de vérifier la généralisation des résultats obtenus auprès de cette population.

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Appropriate, efficient communication that facilitates relationships is an important skill for all children to learn. For children with language impairments (LI) who are receiving speech-language therapy, a functional approach to intervention focuses on the development of meaningful communication skills in order to establish relationships with peers (Owens, 2010). Promoting social communication between peers can be challenging work for speech-language pathologists (S-LPs) but animal-assisted therapy (AAT) has shown promise as a helpful mechanism to promote social interactions and encourage language use with children with LI including impairments attributed to autism spectrum disorders (ASD), Down syndrome, and developmental disabilities (Esteves & Stokes, 2008; Limond, Bradshaw, & Cormack, 1997); Martin & Farnum, 2002; Nathanson, deCastro, Friend, & McMahan, 1997; Nimer & Lundahl, 2007; Redeker & Goodman, 1989; Solomon, 2010). The purpose of this pilot project was to compare the use of a live animal with a toy animal and a preferred activity to determine if the live animal promoted social communication between a child with a language impairment and a typically developing peer.

Social Communication

In order to facilitate language development, a functional approach embeds all aspects of language in the context of language use, referred to as pragmatics or social communication (Owens, 2010). When pragmatic use of language is the primary focus of therapy, clinicians and educators do well to promote interactions between children with language impairments and typically developing peers. Inclusion, or the education of students with disabilities in an environment with peers without disabilities, can promote language development and social communication (Rafferty, Piscitelli, & Boettcher, 2003; Vaughn & Bos, 2012), but the establishment of such a setting is not sufficient to increase communication between children with language impairments and those without language impairments. Fujiki, Brinton, Isaacson, and Summers (2001) for example, reported that children with language impairments spent significantly less time in peer interactions and more time in withdrawal behavior during playground sessions. Hadley and Rice (1991) also reported that preschool children with LI responded to peers at lower rates when compared with typically-developing peers, and in fact were more likely to engage in verbal interactions with a teacher in the classroom than with a peer. Hence, simply placing children in an environment that enables increased interactions will not in itself promote functional communication between peers. The challenge is to identify effective tools to promote social communication.

Social communication includes social interaction, social cognition, verbal communication, and nonverbal communication (ASHA, 2013). Social communication enables an individual to establish and maintain social interactions. When social communication deficits are present, individuals may have difficulties taking turns in conversation, knowing how to use verbal and nonverbal signals to regulate interactions, and sharing information (ASHA, 2013). Interventions focused on pragmatic language to facilitate social communications have been described as being in their "infancy" (Gerber, Brice, Capone, Fujiki, & Timler, 2012).

Gerber and colleagues (2012) examined the literature to find pragmatic interventions for school-age children with language impairment. Originally, Gerber et al. identified 11 possible research questions based on different intervention methods, but they found only eight qualifying empirical investigations related to three of the research questions. The eight studies focused on conversation and discourse treatment, pragmatic treatment, and narrative and discourse treatment. Specific techniques included modeling, role play, practice, caregiver training, and meta-pragmatics. The authors noted that other methods such as those from applied behavior analysis might have been identified if they had expanded their definition of language impairment to include children with autism spectrum disorder or intellectual disability. However, the authors noted their own surprise at the limited empirical data related to pragmatic interventions. Gerber et al. (2012) concluded that feasibility was demonstrated by the literature, but that they could not recommend specific practices to target pragmatic language based on the current evidence.

Adams and colleagues (2012) applied a rigorous randomized control design to compare traditional speech therapy to application of a scripted social communication intervention package. The scripted package was individualized for children between the ages of six and eleven with social communication deficits. Participants in the social communication intervention group received 16-20 hours of individualized therapy but exact techniques were not described. Results indicated that compared with traditional practices children in the experimental group improved their overall quality of conversation but not in structural language use. Adams et al. (2012) described the challenges in obtaining universal benefit using a treatment package and the need to individualize interventions for social communication.

Fujiki, Brinton, McCleave, Anderson, and Chamberlain (2013) applied a case study design with four participants

with language impairment using a treatment approach focused on increasing access to peers and cooperative play with peers in part by increasing validating comments. Validating comments were described as comments by the child with LI that promoted ongoing social interaction including compliments, comments, and encouragement. Participants completed a 10-week intervention program with sessions focused on role play, modeling, and the opportunity to practice with typically developing peers. Fujiki et al. (2013) documented increased validating comments for three of the four participants. The authors noted differences across participants and described the need for further investigation into techniques to promote peer relationships.

Social communication interventions often involve practice opportunities with supports from a clinician. However, there is consistency among researchers in the need to individualize intervention programs focused on pragmatics and social communication. Animal-assisted therapy might be a viable mechanism for promoting social communication between peers for some with LI.

Animal-Assisted Therapy

The use of animals in a formalized way in intervention/treatment is referred to as animal-assisted therapy, defined by Gammonley et al. (1991) as the “utilization of the human/animal bond in goal directed interventions as an integral part of the treatment practice...” (p.1). AAT is an increasingly popular treatment approach in both rehabilitation and education settings (Jalongo, Astorino, & Bomboy, 2004). AAT is goal-directed so that the animal is utilized specifically to assist the individual in accomplishing specific, therapeutic goals. In contrast, animal-assisted activities (AAA) involve animals in activities that are often structured, but activities are for the purpose of recreation and enjoyment (Gammonley et al., 1991). AAT is the focus of this investigation, because a live animal was introduced to therapy sessions to facilitate language goals for each participant. Interventions involving animals have been documented in therapy between clinician and child in classrooms, and in non-traditional settings such as water tanks (Esteves & Stokes, 2008; Martin & Farnum, 2002; Nathanson et al., 1997). Documented gains in both quality and quantity of social interactions provide promise that animals can be a tool in promoting verbal, social interactions in an educational setting.

A variety of animals have been utilized in AAT in diverse settings such as hospitals, residential facilities, and schools. For example, Green Chimneys is a residential treatment

facility specializing in care of children with emotional and behavioral disorders utilizing farm animals and domestic animals in the therapeutic process (Mallon, Ross, Klee, & Ross, 2010). Horses have been utilized to promote physical improvements, in a process referred to as hippotherapy, and also to promote social behavior (Macauley & Guitierrez, 2004). Nathanson et al. (1997) utilized dolphins to facilitate improved communication. While a variety of animals have been incorporated in AAT, dogs continue to be the most common animal utilized (Nimer & Lundahl, 2007).

Animal use for therapeutic intervention, such as social communication, is based on the idea that animals can be agents to reduce stress and promote social engagement, including language interactions. Beetz et al. (2011) compared use of a real dog, toy dog, and friendly human to mediate stress responses in a group of 31 boys age seven to 12 with insecure or disorganized attachment. Each participant was assigned to a treatment condition and allowed to interact with a live dog, toy dog, or friendly human before and after a stressful task. The stressful task first required each participant to construct and present an oral story to a two-person panel followed by completion of a math test. The researchers used salivary cortisol levels to assess stress responses as well as self-report. While self-report did not differ across conditions, salivary cortisol levels decreased in the real dog condition both during and after the stressful task. In addition, when participants increased body contact with the dog, cortisol levels decreased. Beetz and colleagues (2011) concluded that live animals appeared to decrease stress response in the participants.

Nimer and Lundahl (2007) examined 49 different quantitative investigations in a meta-analysis of AAT. The criterion used by Nimer and Lundahl for inclusion were that the investigations involved a minimum of five participants in the experimental group, were written in English, AAT rather than AAA, and had sufficient data to calculate an effect size. The authors organized dependent variables across studies into four different groups: behavioral outcomes related to autism spectrum disorder, medical outcomes such as blood pressure, emotional wellbeing including stress, and observable behaviors such as aggression. Using treatment effect sizes, Nimer and Lundahl (2007) described moderate to high treatment effect size for promotion of social interaction among children with ASD, moderate effect size for both medical benefits and behavioral outcomes, and low to moderate effect sizes for well-being. Dogs appeared to be more beneficial than other animals, although the authors noted none of the included investigations utilized cats.

Nielson and Delude (1989) compared social responses of preschool and kindergarten children with a variety of animals including a dog, bird, rabbit, and tarantula. Using videotaped observations, the researchers described responses to the animals and concluded that all animals promoted social engagement, but engagement differed across animals. The dog and rabbit promoted more intimate interactions including touching and hugging. The bird and tarantula appeared to promote talking from the children including talking to the animal in the case of the bird or about the animal in the case of the tarantula. The authors did note that verbal interactions seemed particularly influenced by the presence of live animals (Nielson & Delude, 1989). Results from Nielson and Delude support the presence of live animals as facilitators of social engagement, potentially making animals a therapeutic tool in promoting social, verbal communication.

Improvements in verbalizations, compliance with requests, and other social interactions have been documented when using animals with children with ASD (Martin & Farnum, 2002; Redefers & Goodman, 1989). Solomon (2010) reported that after only three weeks of working with a dog, a child with autism initiated a social interaction with two of his peers in the presence of the animal. Use of an animal to promote interactions in a classroom was described by Esteves and Stokes (2008). The authors reported increased initiations by children towards their teacher as a result of interventions using a dog, and suggested the need for further documentation of interaction between peers when using an animal to promote social interactions (Esteves & Stokes, 2008). Friesen (2010) suggests that dogs possess a non-judgmental nature that is thought to provide social and emotional support to children with disabilities. Because the basis for this nonjudgmental nature is that dogs are “outside the complications and expectations of human relationships”, cats and other animals that meet the same criteria should be expected to provide similar types of emotional and social support (Friesen, 2010, p. 261).

AAT has been compared with more traditional speech therapy as well as with the use of a toy animal to determine if a live animal is a necessary component to effectiveness. Macauley and Guitierrez (2004) reported that both parents and three participants in a hippotherapy program reported high motivation for attending hippotherapy sessions (i.e., sessions involving horses) as opposed to traditional speech therapy sessions. No significant performance differences were documented between the two types of treatment approaches. Limond et al. (1997) documented qualitative differences in verbalizations, specifically more on-subject

initiations, when comparing use of a live animal with a toy animal with children with Down syndrome.

The live animal utilized in this investigation was a three-legged domestic cat. While cats are not as commonly utilized as dogs, cats have been described in AAT literature as viable therapeutic adjuncts (Hart, 2000). The cat's disability did not contribute to selection which is consistent with warnings regarding selection of animals based on perceived metaphors between the animal's disability and the challenges of the participant (Fredrickson-MacNamara & Butler, 2010). A cat was utilized in this investigation in order to extend the literature on AAT to a less frequently utilized animal, to accommodate practical considerations regarding size and speed of movement in a small therapy room, and because all the participants had cats at home.

Current Study

The body of evidence that animals facilitate language suggests the possibility that an animal might also facilitate sustained social communication between a child with LI and a typically developing peer. In this study, a domestic cat was introduced to speech-language therapy sessions that were focused on promoting social interactions between a child with LI and a peer who was in the same classroom. Improved social communication was defined as the presence of verbal continuations, verbal productions past the initiation/response sequence. In order to determine the relative effectiveness of a live cat in promoting social communication, an alternating treatment design was implemented that compared a live cat with the use of a toy cat, and also with preferred play activities that included a sensory table or dolls. Abby, the live cat, was not a licensed pet partner for AAT, but was selected based on her age and demeanor. She was 5 years, 9 months at the onset of the program and had been socialized to several different environments that included interactions with children. She was frequently handled and enjoyed people, meeting the recommendations that an ideal cat for AAT enjoy, being petted and human attention (Granger & Kogan, 2000). The research addressed two specific questions: 1) Does AAT result in improved verbal, social communication between a child with LI and a peer? and 2) Do peers in an AAT condition participate in longer communication exchanges than in alternative treatment conditions?

Methods

Participants and Setting

Three participants with language impairments participated in the study. All participants were female,

Caucasian, and attended either preschool or an after-school program at the same nonprofit, developmental preschool and therapy center. The center adhered to an inclusion-based philosophy, and placed children with disabilities in the same classrooms as typically developing peers. Each of the participants met the criterion for diagnosis of language impairment based on scoring at least 1 standard deviation below the mean on either the Preschool Language Scale-3 (PLS-3; Zimmerman, Steiner, & Pond, 1992) or the Clinical Evaluation of Language Fundamentals (CELF-4; Semel, Wiig, & Secord, 2003). One participant, Jasmine¹, scored between 1 and 1.5 standard deviations below the mean on the PLS-3 with greater deficits in expressive language than in auditory comprehension. The remaining two participants presented with more significant language impairments with both receptive and expressive language skills more than 2 standard deviations from the mean on the CELF-4. All participants had documented difficulties with peer interactions in the classroom based on teacher report and clinician observation. Participants varied in co-morbid conditions, but all participants were receiving S-LP intervention and had therapy goals that focused on increasing verbal interactions with peers. Each participant was matched with a peer from the same classroom, and each matched peer was recommended by the facility director based on demonstration of the ability to engage in play activities with peers and to use language during play activities.

Jasmine was a 4 year, 4 month old child with mild expressive language impairment who had attended the preschool five days per week. She had also received regular speech-language therapy for more than one year to address areas of expressive language including semantics and pragmatics. Joy was an 8 year, 5 month old child with mixed receptive and expressive language impairment as well as Down syndrome and a bilateral mild-moderate hearing loss. She attended a specialized school during the day, was integrated into a classroom with typically-developing five-year-olds at the developmental center after school, and had been receiving speech-language therapy for several years. June was a 7 year, 3 month old child with mixed receptive and expressive language impairment and a history of developmental delay. She attended her neighborhood school in a special education classroom for much of the day, and had been receiving speech-language therapy for several years. Both Joy and June attended after-school programming at the developmental center five days per week in the same classroom, and received speech-language therapy both at the center and in a public school. All the participants had cats in the home and parents reported the children enjoyed interacting with the cats.

Before AAT began, several challenges to facilitating social communication were reported by the clinician. For example, when attempting to support interactions between the participants and their peers, the S-LP reported that she often felt like an interpreter. Instead of Joy, June, or Jasmine speaking directly to a peer, they would often speak with the SLP. The S-LP encouraged the typically-developing peers to play with the child with the language impairment, but the interactions that did occur were often very brief initiation/response sequences. During observations when the S-LP was not directly involved in the interaction, June, Joy, and Jasmine were often playing in isolation in the classrooms, and finally, preschool staff documented behavioral problems including biting (Jasmine), attempting to flee (Joy), and hitting (June).

For the present study, all speech-language therapy sessions lasted 15 minutes, were conducted outside the classroom in a therapy room at the preschool, and were videotaped using a Sony digital handy cam video recorder. This setting was chosen in order to eliminate background noise, and to determine if dyad interactions increased without the presence of other peers.

Materials differed for each condition. Ellie, the toy cat, closely resembled Abby in appearance. Abby was 5 years, 8 months at the onset of the investigation. Materials used during both the live and toy animal conditions included grooming items, food items, various cat toys, cat clothes, a camera to take pictures of the animals, a wagon, and a cat carrier. Materials provided for the preferred activity condition included Barbie dolls, a sensory table, a kitchen set, and other items related to these various activities.

Design and Data Collection

Single subject design was utilized in this investigation with the purpose of observing effects of specific stimuli on observable behavior. The use of single subject design enabled the flexibility of comparing each participant only with her own progress allowing for differences between the participants. The individualized nature of single subject design is consistent with social communication literature recommending individualized strategies for intervention (Adams et al., 2012). Specifically, we utilized an alternating treatment design (Cooper, Heron, & Heward, 2007) to compare the influence of a live animal, a toy animal, and more traditional play-based treatment condition on a measure of verbal continuations of social interaction within dyads composed of a student with language impairment and a matched peer. The alternating treatment does not require baseline prior to the onset of treatment conditions

(Richards, Taylor, Ramasamy, & Richards, 1999). This design benefit enabled the introduction of treatment conditions into an ongoing, active treatment schedule. The conditions were alternated across days and each treatment condition was presented once per week. A block form of counterbalancing was used to present treatment conditions, and each block was used twice during the 12-week study. Counterbalancing is critical in an alternating treatment design to prevent the order of presentation of the treatment from impacting results (Bloom, Fischer, & Orme, 2003). Each dyad participated in three sessions per week, and each session lasted 15 minutes. Twelve weeks of intervention is consistent with literature documenting changes in behavior with AAT, and is adequate for measuring progress exhibited in speech therapy.

Although the teachers were blind to the purpose of the investigation, they were given a five-point, Likert-type scale to rate the child's use of response behaviors and verbal interaction opportunities in the classroom in order to examine social validity of the target behaviors outside the therapy room. The teachers completed the rating scale four times: prior to the start of the study, at the midpoint of the study, at the end of the study, and one month later. The scale asked teachers to rate the child's use of initiations with peers, responses to initiations from peers, responses to questions during interactions, asking questions of peers during interactions, and rating the amount of classroom time devoted to encouraging play between peers. The Likert-type scale ratings were the following: 1) the behavior never occurred; 2) the behavior rarely occurred; 3) the behavior sometimes occurred; 4) the behavior frequently occurred; and 5) the behavior always occurred.

Data Analysis

Each videotaped recording of the treatment session was coded for social interaction sequences by a data coder who had been trained using written explanations of the behavior and videotaped scenarios. The coder obtained a 90% accuracy level during training. Coded social interactions consisted of verbal continuations produced by either member of the dyad. A verbal continuation was defined as a word, phrase, or sentence produced by either member of the dyad following an initial initiation/response sequence. The presence of a verbal continuation indicated a more sustained verbal, social interaction beyond a simple verbal initiation and verbal response sequence which was the goal of therapy. The data coder also tracked who produced a continuation in each interval to determine the balance in maintaining ongoing verbal interactions. The data were collected using a partial interval recording method in which

10 seconds of observation are followed by five seconds to record the data, and an audiotape was used to cue the observation and record intervals for the data coder. Partial interval recording is utilized in single subject design as an estimate of frequency (Richards et al., 1999).

The percentage of intervals that contained continuations for each treatment session were charted using Microsoft Excel software (see Figures 1, 2, and 3). A visual analysis of the data was conducted to determine if changes in percentages of intervals containing continuations occurred over the course of treatment in the live animal condition and if there were differences between the three treatment conditions for each participant (O'Neil, McDonnell, Billingsley, & Jenson, 2011). Visual analysis is used in single subject design to analyze study outcomes by examining level or performance on the dependent variable and trend of the data paths (Richards et al., 1999). For this investigation, level and trend will be compared across the three treatment conditions for each participant enabling each participant to be compared to their own performance weekly and over the course of the 12 weeks. The differences in the range of values can be seen as a degree of separation between the intervention data paths, and thus a measure of comparative effectiveness for each treatment condition is revealed.

In order to assess inter-rater agreement, 33% of all observations were simultaneously but independently coded by two observers. After each session the data sheets were compared to determine the percentage of agreement between observers using the traditional agreements/ agreements + disagreements $\times 100$ for each behavior code (O'Neil et al., 2011). Inter-rater agreement for continuations was 95%.

Intervention

Preference Assessment. Prior to beginning data collection, a preference assessment was conducted in order to identify the toy to be used in the third treatment condition for each of the three participants with language impairment. Because communication is assumed to be more difficult for these participants, identifying a motivating play activity was important for encouraging continued participation in the interaction. Items presented in the preference assessment were all identified as a preferred toy of the child by either the classroom teacher or the speech pathologist. A three-item panel was presented to the child on three different occasions during a single week. On each occasion, the child was asked to show the clinician the toy the child most wanted to play with, and the toy with

the highest average rating across the three trials was the toy selected for treatment condition C. One participant selected Barbie dolls, one participant selected a sensory table (i.e., container of tangible objects such as beans, rice, or sand that stimulate a sensory response), and one participant selected a kitchen set.

Condition A. The toy animal condition consisted of activities that focused on play and caretaking with a toy cat. The specific activities included grooming, handling, playing with, feeding, and dressing the toy cat, all of which are suggested for animal-assisted therapy by the Delta Society, a recognized leader in the field of AAT. The toy cat was given the name Ellie, and the name was used consistently to provide that cat with an individual identity.

Condition B. This condition was identical to condition A with the exception that a live cat, Abby, was used. The live cat and toy cat resembled each other in appearance; their names were both female, and identical in syllable structure. All participants had a cat at home and had either talked about their cat in therapy, or the child's family had indicated that the child enjoyed interacting with the family cat. The live cat used in this investigation was over a year old and had a history of interacting with both adults and children in a variety of settings.

Condition C. The preferred toy or activity identified by the participants with LI during the preference assessment was used to provide a comparison between the use of animal conditions with a play-based treatment condition. The toy selected by each of the three participants (i.e., Barbie dolls, sensory table, kitchen set) was used throughout the study, and new related components were incorporated weekly just as different related items were incorporated into conditions A and B.

Procedures. The S-LP provided the structure of the therapy session, including starting and ending times for activities, prompting during the interactions, and monitoring behavior during sessions. At the onset of the 15-minute sessions, the S-LP introduced the children to the activity of the day. The first time meeting both the live and toy cat, the children were instructed to be gentle, petting her softly and holding her with two hands. As well, they were provided with guidance on not poking or pulling her hair to prevent from scaring her. Activities with the animals included taking the cats on wagon rides, taking pictures with them, dressing them, brushing them, and playing with them with toys.

If the children did not interact with each other within a minute following the introduction, the clinician would provide a prompt to facilitate interaction. A least-to-most

prompting hierarchy was used across the treatment conditions that progressed from verbal prompts, to visual prompts in the form of gestures or manual signs, and finally to a verbal model. A verbal prompt example included the clinician saying "The two of you can decide what Abby should wear today and get her dressed." A visual prompt would include the previous verbal prompt plus the clinician pointing to a specific clothing item for the cat. Finally a verbal model would model specifically a verbalization to initiate interactions such as "I want Abby to wear shoes". A fading procedure was used to decrease the likelihood of dependency upon clinician prompts during interactions, with a model faded after week four and the visual prompt faded after week seven. The S-LP monitored the time of the session and concluded each session at 15 minutes at which time the children returned to their classrooms.

Results

Data are presented in the figures below for the three participants. Clear benefit of AAT should be visible in the graph as a data line increasing throughout the intervention period. Comparative benefit is demonstrated by an AAT data point above the remaining two conditions, and trend is demonstrated when successive data points yield separation from the comparison treatment conditions. Both Joy and her peer partner experienced illnesses during the treatment phase resulting in absences. Joy's peer partner also had a death in the family requiring absence to travel for the funeral. Because 30% of treatment condition sessions were missed due to absence by either Joy or her peer partner, a comprehensive visual analysis of her data was not possible. Each of the remaining participants missed five sessions or fewer.

Did Social Communication Increase with AAT?

The first hypothesis focused on determining if using AAT would improve verbal, social communication. When examining overall continuations, both the Jasmine and June dyads produced continuations in a greater percentage of intervals in the final week than at the onset of therapy in the live animal condition. For both participants, these interval increases were greater than 10% increase in intervals containing continuations between the first and final sessions.

Each dyad also showed wide fluctuations within the study's timeframe. Jasmine and her peer produced continuations in 65% of the intervals at the onset of the intervention, for example, but in 10% of the intervals during week seven. Nonetheless, Jasmine and her peer partner concluded with continuations in 77% of intervals in the final week, a 12% increase from week one. June and her

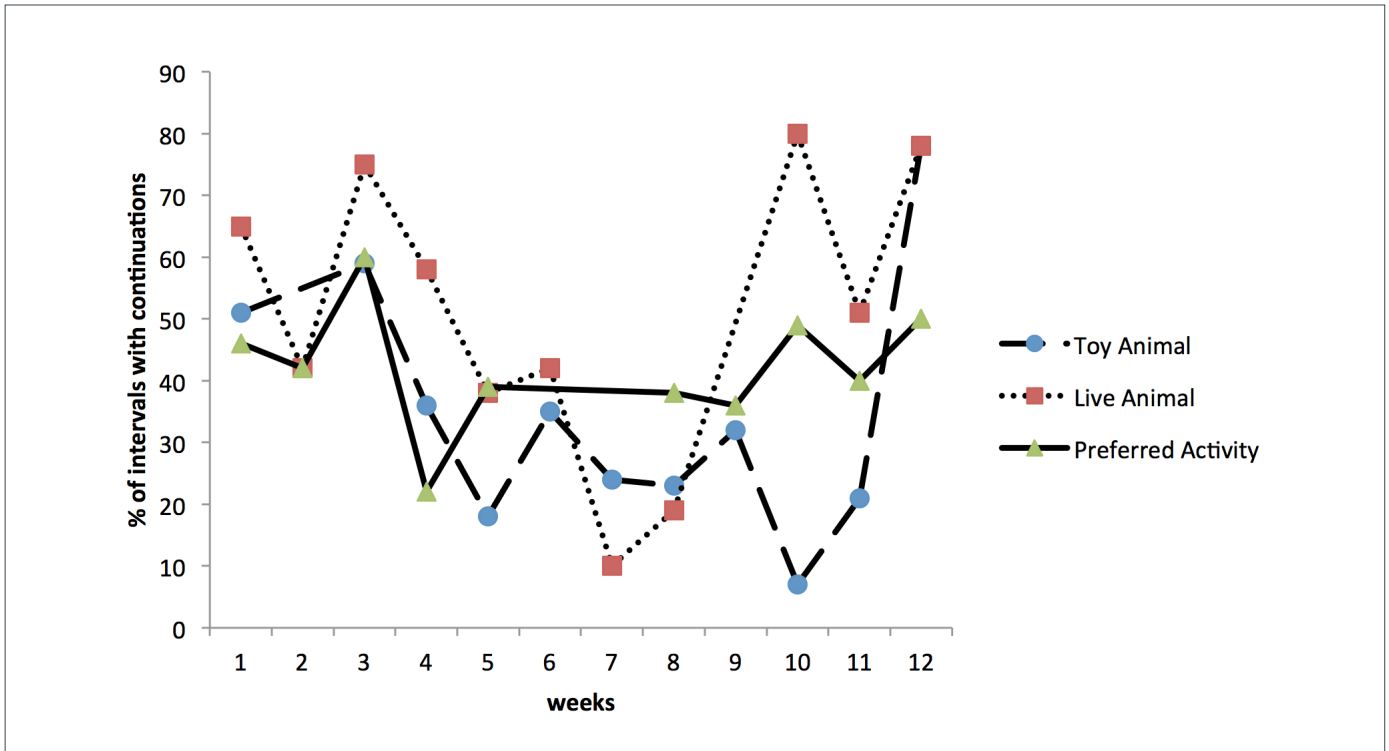


Figure 1. Continuations between Jasmine and a Peer

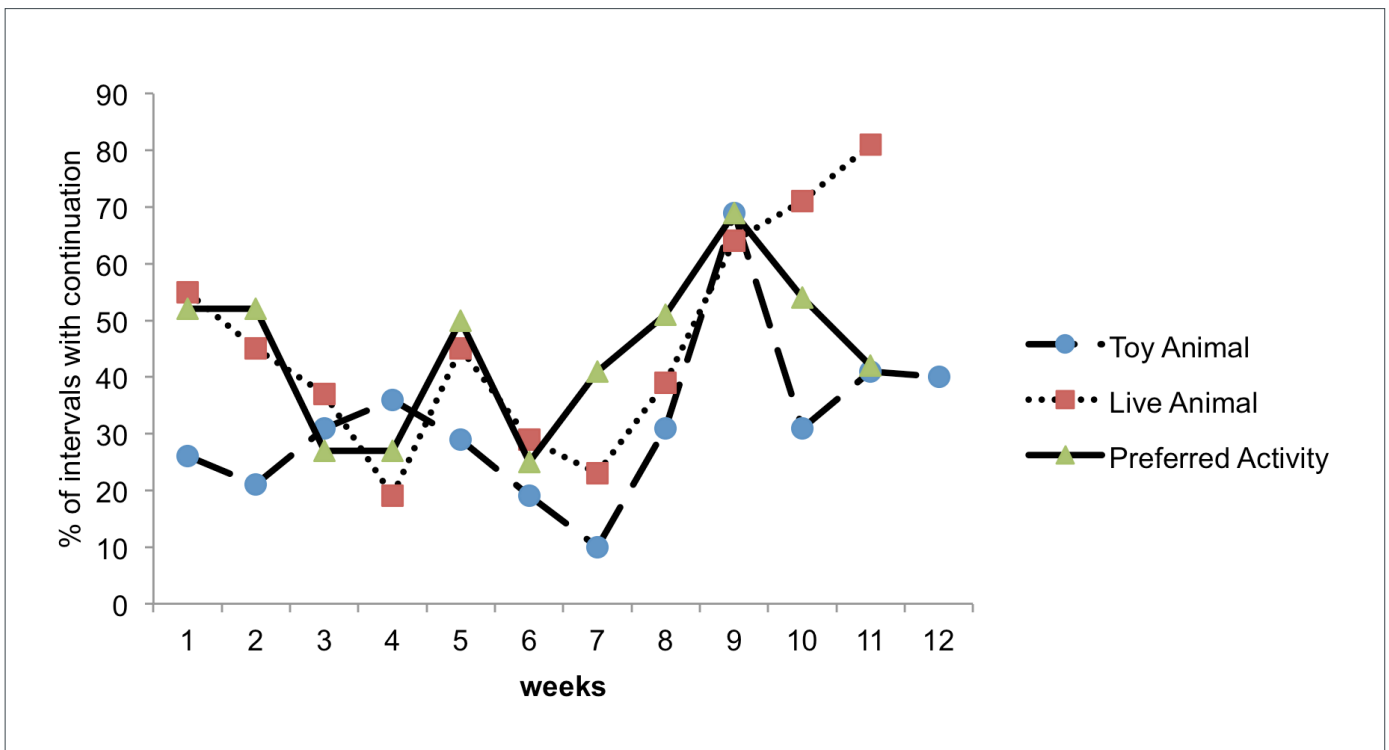


Figure 2. Continuations between June and a Peer

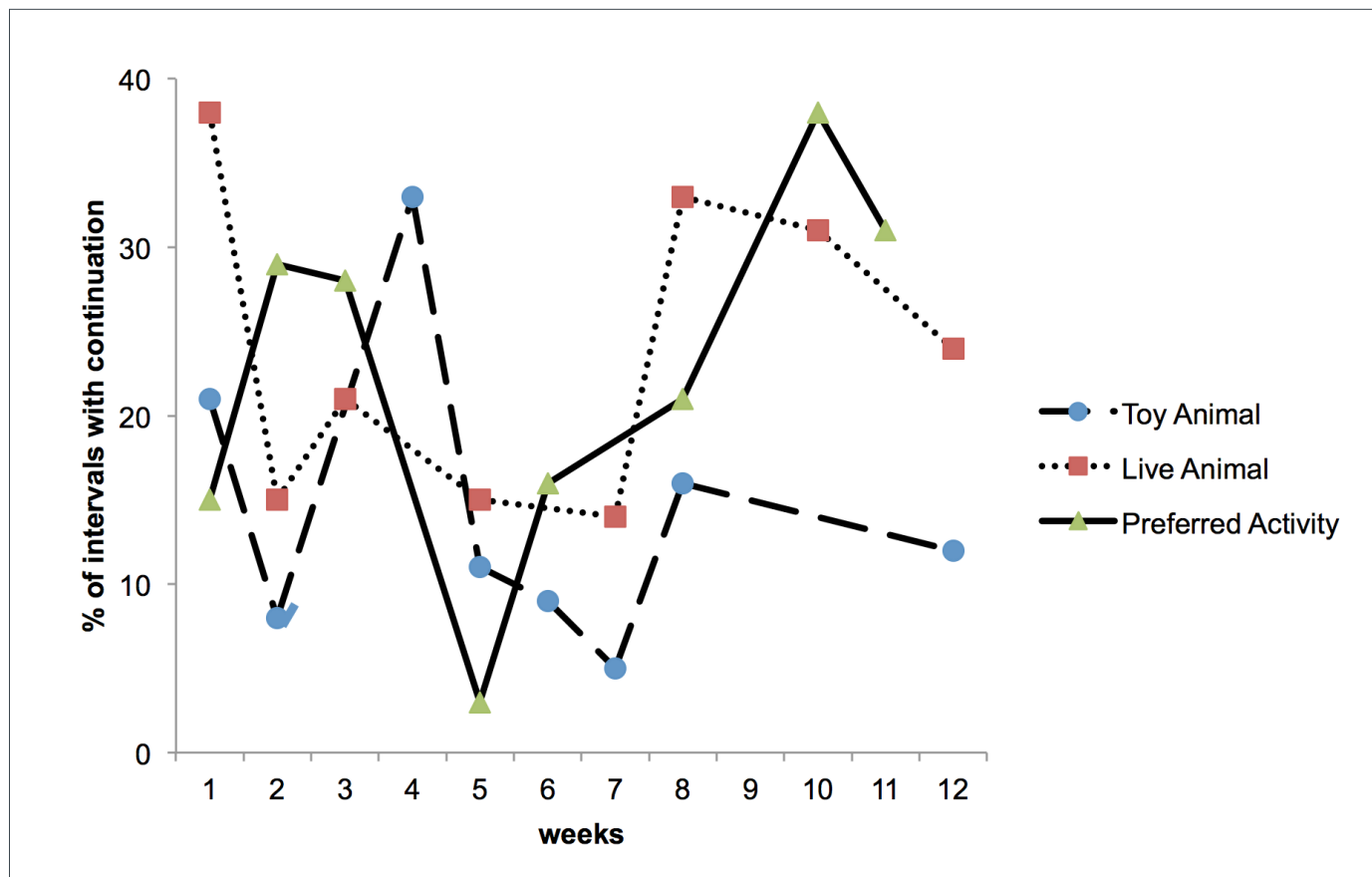


Figure 3. Continuations between Joy and a Peer

peer began week one with 55% of the intervals containing a continuation, and dropped to their lowest in week four, 18% of intervals. June and her peer reached 82% of intervals in week 11, an increase of 27% from week one. Due to the absence of the peer partner, week 11 was the final week of June’s AAT.

Joy’s dyad did not to show overall increase in continuations in the AAT treatment condition over the course of the investigation. Joy’s initial week included a high of 38% of intervals containing a continuation. There are likely multiple factors involved including the novelty of the animal present, the clinician’s use of maximum prompts, and also the lack of consistency in attendance.

To determine if generalization of socialization behavior occurred in the classroom setting, a teacher rating scale was used as a gross estimate of social interactions that occurred in the inclusive classroom. Teachers were asked to rate Jasmine, June, and Joy on the following five areas: (1) The child initiates interactions with peers; (2) The child responds to initiations from peers to participate in play

activities; (3) The child responds to questions including what, who, and where questions; (4) The child asks questions when necessary rather than simply guessing at what he/she should do next; and (5) There is classroom time devoted to encouraging interactive play between peers. A five-point rating scale was used with the following values: 1 = never, 2= rarely, 3= sometimes, 4= frequently, 5= always. Results are listed in Table 1 and indicate changes reported between the onset and the final week of therapy for both Jasmine and June. The teacher’s report indicates that Jasmine progressed from “sometimes continuing interactions” (Q3, Q4) at the onset of the investigation to “always continuing interactions” (Q3, Q4) during the final week. June’s classroom teacher did not report progress for continuing social interactions with peers during the investigation, but did report that June increased verbal initiations with peers. Joy’s classroom teacher reported only maintenance of ratings during the intervention but reported Joy frequently responded to questions and asked questions at one-month post intervention.

Table 1. Teacher Rating Scales for Social Skills

Date	Child	Initiation	Response	Asking WH ?'s	Answering WH ?'s	Time in Class
Week One	Jasmine	4	4	3	3	4
Week Eight	Jasmine	4	4	3	4	5
Final Week	Jasmine	5	5	5	5	5
One month post	Jasmine	5	5	4	4	5
Week One	June	3	4	4	3	5
Week Eight	June	4	5	4	3	5
Final Week	June	5	4	4	3	5
One month post	June	4	5	4	3	5
Week One	Joy	4	4	3	2	5
Week Eight	Joy	4	3	3	2	5
Final Week	Joy	4	4	3	2	5
One month post	Joy	2	4	4	4	5

1 =behavior never occurred; 2 =behavior rarely occurred; 3 =behavior sometimes occurred; 4 = behavior frequently occurred; and 5 =behavior always occurred.

How does AAT compare?

The second hypothesis examined the comparative benefit of AAT. Visual analysis of the continuation data shows Jasmine and her peer partner demonstrated some separation between treatment conditions. Figure 1 shows that in seven of the ten weeks in which Jasmine was present for both the live animal and toy animal treatment conditions, the live animal condition resulted in a greater percentage of intervals with continuations than did the toy animal condition. The AAT treatment condition recorded an increase of 10% over the toy animal condition in six of the ten weeks compared. During six of the nine weeks in which AAT could be directly compared with a preferred activity, continuation percentages in the AAT treatment condition were larger than the preferred activity condition.

An improvement of more than 10% in the AAT treatment condition compared with the preferred activity condition was recorded during all six weeks. In sum, the data indicated that in the majority of therapy sessions, the AAT condition produced more social, verbal continuations between Jasmine and her peer than the other two conditions.

Visual analysis for June demonstrated separation for the live animal condition and the remaining two conditions in weeks 10 and 11, the final two weeks in the investigation because of her absence in week 12. When comparing the live animal and toy animal conditions as shown in Figure 2, June and her peer demonstrated more frequent continuations in nine weeks in the AAT treatment condition, with separation greater than 10% in seven of those nine

weeks. The separation between the live animal condition and the preferred activity condition began in week 10 with a greater percentage of continuations produced in the live animal condition.

Discussion

Recall the aims of the study were to assess if social communication improved between a child with language impairment and a typical peer when a live animal was present, and to compare the benefits of AAT with other modalities. Two participants increased use of social communication in the form of longer, social interactions with a peer. Jasmine and June both produced gains over the course of the treatment in the live animal condition. Jasmine improved her social interactions in all treatment conditions. June also demonstrated gains in social communication in multiple treatment conditions. Purposeful opportunities to participate in play-based interactions including those with an animal resulted in gains in social interaction which is critical for children with language impairments to use language effectively. The fact that both participants made gains in each of the treatment conditions is consistent with research demonstrating gains in both AAT and compared treatment conditions (Curtright & Turner, 2002; Limond et al., 1997; Macauley, 2006).

Comparative benefit is important in determining when AAT can be more efficient and effective than traditional speech therapy. Using a live animal requires additional resources and logistical planning, so it is important that we document comparative benefit. Jasmine and her peer demonstrated a greater percentage of intervals containing continuations in the AAT treatment condition, although there were inconsistencies during weeks seven and eight when data points for AAT drop below the toy animal and preferred activity treatment conditions. Jasmine's four absences across the 36 sessions also complicated direct comparisons between all treatment conditions every week, but the data do suggest comparative benefit for Jasmine and her peer when participating in AAT. Independent communication is the goal, and Jasmine's dyad demonstrates the value of the live cat in achieving ongoing spontaneous communication between peers.

June and her peer demonstrated more separation between the live animal and toy animal conditions which is consistent with benefits reported by other investigators using AAT to facilitate language (Limond et al., 1997; Martin & Farnum, 2002). Limond and colleagues (1997) observed benefits in quality but not quantity of verbal productions in the live animal treatment condition, but June and her peer demonstrated increased quantity of verbal continuations

as well. The results of this investigation suggest that children do respond more to a live animal when compared with an inanimate representation.

The benefit of AAT was less apparent when compared with the preferred activity condition for June and her peer, as they demonstrated significant benefits with a live animal only in the final two weeks of treatment. This may indicate that other treatment modalities lose effectiveness in promoting social interaction over time, but that the presence of a live animal is dynamic enough to maintain motivation to interact. Increasing the length of the treatment conditions in future research would help to determine if motivation is maintained more effectively in the live animal treatment condition. Past reports from Macauley and Gutierrez (2004) that participants report sustained, high motivation for AAT indicate that motivation might be an advantage to this form of therapy.

Future Directions

There was both variability within each participant's data and individual differences in response to the treatment conditions. AAT seemed most beneficial for Jasmine and less beneficial for June and Joy. Jasmine had language impairment without co-morbidity and therapy was largely focused on pragmatics, perhaps making her more responsive to intervention. Prior success of AAT with individuals with developmental delay and Down syndrome may not be an indication that AAT will always yield comparative benefit for similar individuals. It also may be necessary to sustain intervention longer with individuals with co-morbidity as June's data seemed to indicate separation between treatment conditions during the final two weeks. Individual differences in response to AAT should be explored further, and clinicians using AAT should continue monitoring changes in response to AAT.

The preferences of Jasmine, June, and Joy determined the preferred activity, as we did not incorporate the preferences of the typically-developing peer. These benefits were reported to be related to a sense of well-being and to behavioral changes, and were consistent with anecdotal observations of preference during the current investigation. During the live cat treatment condition days with Abby, the matched peer was excited about participation and was quick to leave the classroom to participate. While the peers' verbal productions to continue an interaction were included in the data, their preferences for a toy were not, and those preferences might be an area of future research in the comparative benefit of AAT when trying to promote social interactions in an inclusive environment.

The animal utilized in this investigation was a domesticated female cat with a strong affinity for interacting with others. She attracted the attention and interest of others due to her disability -an amputated rear leg. It also helped that Joy, June, and Jasmine had a cat as a family pet. Nimer and Lundahl (2007) reported more consistent treatment effect sizes using dogs in AAT than other animal groups, specifically horses and aquatic animals, but both horses and aquatic animals have been documented as beneficial adjuncts in AAT. Macauley (2006) recommended exploring whether or not the type of animal incorporated into the therapy sessions matters. One method to address this question would be to alternate sessions with different live animals, including dogs and cats, to determine if there is comparative benefit with either.

For June and Jasmine, the presence of a cat was clearly beneficial to promote conversation. To further examine the linguistic benefit of animals, language sampling procedures could be utilized to determine if the complexity of language is improved and enable qualitative analysis of language utilized. For the SLP, increasing verbal communication by a child with language impairment is a crucial goal of therapy, so future studies should describe if the child with the language impairment was maintaining the interaction equally with the typically developing peer and not simply that the interaction was maintained. In addition, transitioning the setting of intervention into a classroom would also be useful in examining linguistic interactions in a group larger than a dyad. Finally, absences impeded analysis for Joy and her peer, and both June and Jasmine missed treatment sessions which also made direct comparisons between treatment conditions more difficult. Increasing the length of intervention beyond 12 weeks would enable a greater analysis of the comparative benefit of the animal and might also assist in compensating for absences that are inevitably going to occur.

Conclusion

Results of this investigation indicated modest overall benefit in using AAT in speech-language therapy focused on social interactions. Both Jasmine and June were participating in more frequent social interactions at the end of the investigation than at the onset for two of the treatment conditions. The AAT treatment condition resulted initially in the most frequent intervals with continuations for both participants, which might be due to the novelty of having a live animal present, as intermittent declines indicate that the novelty effect faded. The fact that both participants were able to achieve even higher levels of continuations at the conclusion of the treatment

is testament to the impact of AAT on encouraging social communication. Finding methods of encouraging lengthier exchanges between typically developing children and children with language impairments provides S-LPs with functional means of promoting generalization of communication to natural interactions. Using AAT appears to have some potential for promoting those natural interactions which would be especially useful in an inclusive classroom situation where social interaction between children with language impairments and typically developing peers is crucial.

Reports documenting the use of AAT will enable this treatment modality to be further refined and expanded so that it is used in a more meaningful and beneficial way. In the end, therapy is about efficiency and functional outcomes. For AAT to become a more widely accepted therapy modality it is important to determine how and when the use of an animal is a more efficient treatment modality that will result in functional benefit for the clients we serve. This investigation took some important steps in the right direction.

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End Notes

¹All names have been changed to protect identity of participants.

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Outil de dépistage des troubles du développement des sons de la parole : bases théoriques et données préliminaires



Screening tool for speech sound development disorders: Theoretical bases and preliminary data.

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Abrégé

Le but de cette étude est de présenter un outil de dépistage des troubles du développement des sons de la parole pour les enfants franco-canadiens d'âge préscolaire. Présentement, il n'existe pas d'outil appuyé par des données normatives pour évaluer la production des consonnes chez les enfants francophones d'âge préscolaire. L'outil de dépistage décrit dans cette étude comprend 40 mots. Les données normatives préliminaires sont basées sur les productions de 243 enfants âgés de 20 à 53 mois. De plus, une analyse de spécificité et de sensibilité a été complétée avec un groupe de 10 enfants ayant un trouble du développement des sons de la parole. Les résultats indiquent que cet outil est prometteur pour le dépistage des troubles du développement des sons de la parole pour les enfants francophones d'âge préscolaire.

Abstract

The goal of the present study is to present a tool for screening speech sound disorders among French-speaking preschool-aged children. Presently, there are no tools supported by research and normative data available to evaluate consonant production in French-speaking preschool-aged children. The present screening tool consists of 40 words. The preliminary normative data is based on the productions of 243 children aged 20 to 53 months. In addition, a specificity and sensibility analysis was conducted based on a group of 10 children who were identified as having a speech sound disorder. The results from the present study indicate that this promising tool for the screening of French-speaking children with speech sound disorders.

Introduction

Depuis la dernière décennie, l'évaluation du langage chez les enfants francophones bénéficie de l'augmentation du nombre d'outils standardisés. Or, le domaine de la phonologie demeure peu développé et il y a peu d'outils standardisés d'évaluation de la phonologie. Ceci rend difficile l'évaluation du développement phonologique et l'identification des enfants présentant un retard ou un trouble phonologique. Par conséquent, il arrive que les enfants ayant un retard ou un trouble phonologique ne reçoivent pas de suivi orthophonique, surtout dans un contexte où les services orthophoniques sont limités.

Trouble du développement des sons de la parole

Le développement des représentations phonologiques se fait graduellement, débutant avec le babillage et se peaufinant durant les années scolaires. Pendant cette période, l'enfant construit une représentation phonologique multidimensionnelle (Munson, Edwards, et Beckman, 2005; Pierrehumbert, 2003). Cette représentation inclut les informations suivantes: (a) de l'information articulatoire, ce qui comprend l'information sur comment placer ses articulateurs et coordonner sa respiration pour produire les sons de la parole; (b) de l'information acoustique sur les indices acoustiques importants pour distinguer les sons de la parole; (c) de l'information linguistique sur les phonèmes et les traits distinctifs du son ainsi que les règles phonotactiques; (d) de l'information prosodique, telle que l'accentuation, le rythme et le débit; et (e) de l'information socio-linguistique, ce qui inclut les différences dans la production des sons de la parole et de la prosodie qui sont dues aux variations régionales et dialectales, au genre et à l'âge du locuteur.

La majorité des enfants suivent un rythme de développement de l'intelligibilité relativement rapide et vers cinq ans leur parole est intelligible à plus de 90% (Flipsen, 2006). Par contre, certains enfants éprouvent des difficultés pendant ce développement. Pour les enfants présentant un trouble du développement des sons de la parole (TDSP), l'intelligibilité de la parole est réduite compte tenu des omissions ou des erreurs de production des consonnes et des voyelles. L'intelligibilité réduite est un indice que le développement de la représentation multidimensionnelle ne suit pas le parcours normal et que l'enfant a une défaillance dans l'une ou plusieurs de ces dimensions. Un système de catégorisation utilisé pour décrire les enfants ayant une intelligibilité réduite a été développé par Shriberg et ses collègues en se basant sur plusieurs centaines d'enfants ayant une intelligibilité réduite (Shriberg, Austin, Lewis, McSweeney, et Wilson, 1997; Shriberg

et al., 2010). Leur système englobe les enfants avec un TDSP causé par une lésion dans le système neuromoteur (ex., dysarthrie en lien avec une déficience motrice cérébrale), un déficit sensoriel (ex., enfant ayant une atteinte auditive), un syndrome (ex., syndrome de Down), ou une différence anatomique (ex., fente palatine). Selon ces chercheurs, quatre sous-groupes d'enfants ayant un TDSP de cause inconnue ont été identifiés : les enfants ayant un « trouble phonologique » (56% à 60% des enfants avec un TDSP de cause inconnue), les enfants ayant un historique d'otite à répétition (30% des enfants avec un TDSP de cause inconnue), ceux ayant une « dyspraxie verbale » (1% à 5% des enfants avec un TDSP de cause inconnue), et ceux ayant un trouble psychosocial (5% à 12% des enfants avec un TDSP de cause inconnue) (Shriberg 2002; Shriberg, 2004).

Les TDSP compte parmi les cas cliniques les plus communs. Une étude des enfants d'âge préscolaire suivis par des orthophonistes en Grande-Bretagne a démontré que les enfants ayant un TDSP représentent jusqu'à 30% des cas suivis (Broomfield et Dodd, 2004). Les données de prévalence soutiennent ce taux élevé de cas de TDSP avec une cause inconnue; jusqu'à 15,6% des enfants de trois ans ont un retard ou un trouble qui touche la production des sons de la parole (Campbell et al., 2003). La prévalence des TDSP diminue avec l'âge passant de 3,8% des enfants à six ans (Shriberg et al., 1999), à moins de 0,5% en cinquième année du primaire (McKinnon, McLeod, et Reilly, 2007). Cette diminution peut s'expliquer par la maturation des systèmes phonologique, perceptuel et moteur de l'enfant et par l'intervention orthophonique reçue par l'enfant.

Même si les symptômes d'un TDSP diminuent avec l'âge, l'importance de poser ce diagnostic et d'intervenir tôt ne doit pas être sous-estimée compte tenu de l'impact à court et à long terme sur le devenir de l'enfant, notamment en ce qui concerne l'apprentissage du langage écrit (Pennington & Bishop, 2009; Peterson, Pennington, Shriberg, et Boada, 2009). Lorsqu'ils sont comparés avec les enfants ayant un développement typique, les enfants avec une histoire de TDSP ont deux fois plus de risque de présenter un trouble de lecture à neuf ans (Pennington et Bishop, 2009). De plus, les études épidémiologiques indiquent que les enfants avec un TDSP ont deux à six fois plus de risque de présenter un trouble primaire du langage (Beitchman, Wilson, Brownlie, Wlater, et Lancee, 1996; Peterson et al., 2009; Shriberg et al., 1999) et les enfants qui présentent un TDSP et un trouble primaire du langage sont quatre à cinq fois plus à risque de développer un trouble de lecture que leurs pairs au développement typique (Peterson et al., 2009). Finalement, quand les adultes qui ont eu un

TDSP pendant leur enfance sont comparés à un groupe témoin, ils obtiennent des notes plus basses au secondaire, ils atteignent un niveau de scolarité inférieur à celui de leurs pairs, et un plus petit nombre d'entre eux occupe des emplois professionnels (Felsenfeld, Broen, et McGue, 1994). Ces recherches soulignent l'importance d'avoir des outils de dépistage et d'évaluation qui sont sensibles et spécifiques pour mieux identifier les enfants qui ont des difficultés, cibler nos interventions et répondre aux besoins des enfants de nos communautés.

Caractéristiques de la phonologie du français canadien

Les outils de dépistage doivent tenir compte du contexte linguistique et culturel de la population ciblée. Plus de 20% des enfants canadiens apprennent le français comme langue maternelle et 90% de ceux-ci vivent au Québec (Statistiques Canada, 2006). Tel que décrit par Picard (1987) et Walker (1984), le français canadien a un inventaire consonantique relativement important qui compte 20 consonnes: les consonnes sourdes non aspirées /p, t, k/; les consonnes pré-voisées /b, d, g/; les fricatives sourdes /f, s, ʃ/; les fricatives voisées /v, z, ʒ/; la liquide /l/; la fricative uvulaire rhotique /ʁ/; les semi-consonnes ou « glides » /w, j, ɥ/; et les nasales /m, n, ŋ/. L'inventaire vocalique est composé de 16 monophthongues qui diffèrent selon la hauteur de la langue, l'avancement de la langue, l'arrondissement des lèvres et la nasalité. De plus, il existe trois processus allophoniques qui sont communs dans plusieurs dialectes du français canadien (Martin, 2002; Picard, 1987; Walker, 1984). Premièrement, les consonnes coronales (c.a.d., /t, d/) deviennent affriquées (c.a.d., [ts, dz]) devant les voyelles fermées et antérieures (c.a.d., /i, y/). Par exemple, "petit" est produit [pətʰsi] et "diner" est produit [dzine]. Deuxièmement, les voyelles fermées tendues ont un allophone relâché dans certains contextes phonétiques: les voyelles fermées tendues sont limitées à des syllabes ouvertes ou à une fricative voisée dans la coda (ex., fiche [fiʃ] vs fige [fiʒ]; petite [pətʰit] vs petit [pətʰsi]). Finalement, il existe des diphtongues allophoniques produites pour les voyelles mi-fermées (ex., fleur [flœʁ], fête [fɛt]).

La structure syllabique du français permet minimalement une seule voyelle, et au maximum jusqu'à trois consonnes dans l'attaque ou la coda d'une syllabe et jusqu'à quatre consonnes dans la position médiane du mot (Rose et Wauquier-Gravelines, 2007). Par contre, seulement certaines consonnes sont permises dans les structures syllabiques plus complexes (ex., /s/ + occlusives + liquide ou glide). Deux particularités du français peuvent influencer l'analyse de la structure syllabique: le statut des glides et la production de consonnes finales. Le statut des glides

en français est un sujet de recherche courant. Certaines recherches démontrent qu'un groupe consonantique composé d'une consonne+glide est syllabifié comme une attaque branchante contenant deux consonnes (c.-à.-d., la syllabification de "moi" serait: /mw/ dans l'attaque et /a/ dans le noyau) (Kehoe, Hilaire-Debove, Demuth et Lleo, 2008). Par contre, d'autres recherches suggèrent que ces groupes consonantiques sont syllabifiés comme une consonne avec une diphtongue (ex., la syllabification de "moi" serait: /m/ dans l'attaque et /wa/ dans le noyau) (Rose, 2000). Dans cet article, nous allons traiter les glides comme des consonnes, puisque les données développementales en français soutiennent plus fortement cette hypothèse (Kehoe et al., 2008). Le deuxième défi pour comprendre la structure phonologique du français est la production optionnelle de la dernière consonne dans les groupes consonantiques en position finale du mot. Ces consonnes sont fréquemment omises en langage familier et plusieurs hypothèses ont été proposées pour mieux comprendre le statut de ces groupes consonantiques en position finale (pour plus d'information, consulter Demuth et Kehoe, 2006; Hilaire-Debove et Kehoe, 2004; Rose, 2000; Rose et dos Santos, 2010). L'outil de dépistage comprend seulement un mot avec un groupe consonantique en position finale (« zèbre ») et les enfants devaient prononcer les deux consonnes du groupe consonantique.

Quatre processus phonotactiques caractérisent le français, incluant les variétés canadiennes (Rose et Wauquier-Gravelines, 2007; Tranel, 1995; Tranel, 2000): la liaison, l'enchaînement, l'élision et la loi de position. La liaison décrit la production d'une consonne en position finale "silencieuse" comme consonne initiale du mot suivant, si ce mot commence avec une voyelle (ex., la liaison pour "les amis", /le.za.mi/, mais pas de liaison pour "les chats", /le.ʃa/). L'enchaînement décrit la re-syllabification d'une consonne audible en position finale de mot lorsqu'elle précède un mot qui commence par une voyelle. Le résultat de cette re-syllabification est que la consonne est produite en tant qu'attaque de la syllabe suivante (ex., "jeune enfant", /ʒœ.nã.fã/). L'élision décrit l'omission de la voyelle dans un clitique lorsque le clitique apparaît devant un mot qui commence par une voyelle. Ce processus est commun et est intégré à l'orthographe du français (ex., *le ami vs l'ami, /la.mi/). Finalement, la loi de position décrit un patron qui favorise la production de voyelles relâchées en syllabes fermées par rapport aux voyelles tendues en syllabes ouvertes (ex., jeu, /ʒø/, vs jeune, /ʒœn/).

Au niveau de la prosodie, le français est classifié comme une langue avec une accentuation syllabique. Le lieu d'accent le plus commun est sur la dernière syllabe du mot

ou de l'énoncé (ou l'avant-dernière syllabe lorsque la syllabe finale contient un schwa) (DiCristo, 1999; 2000). Finalement, l'intonation en français est associée aux syllabes accentuées et varie selon l'intention du locuteur (ex., une interrogation, une déclaration, un ordre) (DiCristo, 1999).

Un locuteur adulte francophone maîtrise ces différents niveaux du système phonologique : le niveau segmental, syllabique, phonotactique et prosodique. Par contre, peu de recherches existent sur le développement de ces niveaux de la petite enfance à l'adolescence chez les locuteurs francophones. Idéalement, une évaluation du système phonologique d'un enfant devrait inclure ces différents niveaux, mais jusqu'à ce jour les outils développés pour évaluer la phonologie dans le domaine de l'orthophonie dans différentes langues privilégient le niveau segmental.

Développement d'un nouvel outil de dépistage

Dans le contexte francophone du Canada, la pratique courante en orthophonie est d'appliquer les données normatives développées en anglais lors de l'évaluation de la phonologie chez les enfants francophones. Cette pratique s'explique par l'absence de tâches accompagnées de données normatives pour évaluer la phonologie chez les enfants francophones. Plusieurs outils ont été développés par des orthophonistes en commissions scolaires ou en centres de réadaptation pour évaluer la parole chez les enfants francophones. Ces outils permettent une évaluation qualitative des forces et des faiblesses de l'enfant, mais l'absence de données normatives ne permet pas l'identification des enfants qui, se situant sous la norme, requièrent une évaluation plus approfondie ou une intervention.

Or, depuis 2011, il existe des données sur l'acquisition des consonnes basées sur les productions de 156 enfants francophones de 20 à 53 mois (MacLeod, Sutton, Trudeau, et Thordardottir, 2011). Certaines différences observées entre le développement de ces enfants et celui des enfants anglophones peuvent s'expliquer par les particularités des systèmes phonologiques de ces deux langues (MacLeod et al., 2011). Par exemple, certaines consonnes existent dans une seule des deux langues (ex., /θ, ð, dʒ, tʃ, ŋ, ɹ/ en anglais, et /ɸ, β, ɲ/ en français). Il existe aussi d'autres différences au niveau segmental, telles que la production phonétique des phonèmes ou la fréquence de certains phonèmes, ainsi qu'au niveau suprasegmental, telles que la structure syllabique des premiers mots et le système d'accentuation. L'effet cumulatif de ces différences peut influencer l'ordre d'acquisition de certains phonèmes tel que démontré par MacLeod et al. (2011). Ces différences soutiennent

la nécessité de développer des outils de dépistage et d'évaluation qui sont propres à la langue cible.

Le but d'un outil de dépistage est d'établir si le niveau de développement d'un enfant requiert une évaluation plus approfondie ou s'il se situe à l'intérieur d'une variation normale. Le développement d'un outil clinique comprend plusieurs étapes incluant le choix des items, le protocole pour la passation de la tâche, le développement de données normatives et l'évaluation de la sensibilité et de la spécificité de l'outil. Un exemple d'un tel outil d'évaluation est le sous-test « phonologie et articulation » de la batterie Nouvelles Épreuves pour l'Examen du Langage (N-EEL, Chevrie-Müller et Plaza, 2001) qui permet une évaluation systématique de la phonologie des enfants francophones dans un contexte de répétition de mots. Ce sous-test contient 22 mots monosyllabiques simples, 14 mots monosyllabiques qui contiennent des groupes consonantiques et 25 mots multisyllabiques. L'échantillon normatif pour ce test est composé d'enfants francophones de la France âgés de 4 à 8 ans. Ainsi, il n'inclut pas de données normatives pour les enfants de moins de 4 ans, malgré le fait que les enfants ayant un retard ou un trouble des sons de la parole peuvent être identifiés avant cet âge. Un outil de dépistage développé pour évaluer les sons de la parole parmi la population francophone du Canada comblerait donc un besoin important pour soutenir la pratique clinique.

L'outil de dépistage que nous avons développé se base sur les mots utilisés dans le Casse-tête d'évaluation de la phonologie (CTEP, Auger, 1994). Le CTEP, qui n'est plus disponible sur le marché, consiste en une évaluation de la phonologie sous la forme d'un jeu de casse-tête amenant l'enfant à nommer les morceaux du casse-tête avant de les insérer à leur place. L'intégration de ce jeu à l'intérieur du CTEP peut comporter certains défis pour les enfants plus jeunes puisqu'il requiert la coordination d'une tâche motrice (placer les morceaux de casse-tête à leur place), d'une tâche visuelle (trouver les images qui correspondent sur le casse-tête), et d'une tâche langagière (nommer les morceaux). L'outil était accompagné d'une grille pour guider l'analyse des processus phonologiques. Par contre, il n'existe pas de données normatives sur l'outil dans sa forme originale.

Les mots du CTEP ont été utilisés dans 3 études qui ont eu lieu dans la province de Québec durant les 10 dernières années. Le choix de ces mots était en partie basé sur la disponibilité de l'outil, le court temps de passation et l'obtention d'un survol de la production de toutes les consonnes du français en position initiale, médiane et finale de mots. Ainsi, ces mots étaient un bon choix pour

l'évaluation de la phonologie telle que mesurée par les consonnes correctes dans des mots produits isolément chez des enfants d'âge préscolaire.

Malgré ces forces, le choix des mots de cet outil n'est pas parfait : les trois faiblesses principales sont les suivantes (voir annexe 1 pour la liste complète des mots cibles). Premièrement, le nombre de contextes pour chaque phonème n'est pas équivalent, par exemple il y a cinq opportunités pour produire le /b/ en position initiale, 2 pour le /k/, et seulement une pour le /v/. Deuxièmement, la variété de la longueur des mots ne représente pas la distribution observée en français. Dans les premiers mots produits par les enfants selon la version franco-québécoise du MacArthur-Bates (Trudeau, Frank & Paulin-Dubois, 1997), 34% des mots sont monosyllabiques et 66% sont multisyllabiques. La distribution dans le test est la suivante : 42% de mots sont monosyllabiques et 58% sont multisyllabiques (50% bisyllabiques; 8% trisyllabiques). Finalement, les mots cibles sont tous des noms qui peuvent être imaginés, mais ils ne sont pas tous bien connus par les enfants d'âge préscolaire. Par conséquent, certains mots (particulièrement « persil » et « viande ») demandent presque toujours un indice pour obtenir la production du mot par l'enfant donc ces deux mots sont souvent produits en contexte de répétition et non pas de dénomination. Il est important de noter que plusieurs études normatives et tests de phonologie chez les enfants anglophones ont des limites similaires, telles qu'un nombre inégal d'occasions pour produire différentes consonnes (Hodson Assessment of Phonological Processes-3 (HAPP-3), Hodson, 2004; Smit, Hand, Freilinger, Bernthal, et Bird, 1990), une distribution de longueur de mots qui ne reflète pas la langue cible (voir James, 2006 pour une discussion sur le sujet), et des mots qui peuvent être plus difficiles à identifier pour un enfant (ex., « vase », « music box » du HAPP-3; « bathtub », « jumping » du Goldman-Fristoe Test of Articulation-2 (GFTA-2), Goldman et Fristoe, 2000).

Par contre, les mots cibles inclus dans cette tâche de dépistage contiennent toutes les consonnes du français en position initiale, médiane et finale et plusieurs groupes consonantiques sont ciblés. Mis à part les deux mots notés ci-dessus, les mots sont facilement identifiables par des enfants de deux ans. Finalement, le temps de passation est relativement court. Pour ces raisons, nous proposons que les mots cibles du CTEP puissent servir de base pour le développement de l'outil de dépistage, c'est-à-dire, un outil avec lequel on peut rapidement cerner les habiletés de production de consonnes de l'enfant. Un enfant qui obtient un score faible à ce dépistage devrait être évalué plus en

profondeur avec une liste de mots qui donne plusieurs opportunités de produire chaque phonème, qui évalue la production d'un plus grand nombre de mots bisyllabiques et multisyllabiques et qui requiert la production de mots dans des phrases.

Les prochaines étapes du développement de cet outil sont la présentation des données normatives et une évaluation de la sensibilité et de la spécificité de cet outil. Les données normatives devraient être basées sur un échantillon qui répond aux critères suivants (Dodd, Holm, Hua, et Crosbie, 2003). Premièrement, l'échantillon devrait être d'une taille qui permet un niveau de puissance statistique suffisante et qui est représentatif du développement typique. Deuxièmement, l'échantillon devrait inclure différents groupes d'enfants qui apprennent la même langue pour bien représenter les facteurs sociolinguistiques tels que le genre, la variété régionale de la langue, le bilinguisme et le statut socio-économique. Troisièmement, l'échantillon devrait être représentatif de toute la population, incluant les enfants ayant un retard ou un trouble. La collecte de données normatives est un projet de grande envergure qui requiert la collaboration de plusieurs chercheurs et cliniciens.

La sensibilité et la spécificité d'un outil donnent au clinicien de l'information directe sur la capacité de l'outil à différencier les enfants ayant un trouble de ceux ayant un développement typique (Spaulding, Plante, et Farinella, 2006). La sensibilité d'un outil fait référence à sa capacité à identifier correctement les enfants avec un trouble. La spécificité d'un outil fait référence à sa capacité d'identifier correctement les enfants avec un développement typique. Un outil diagnostique idéal a une sensibilité maximale, donc détecte tous les cas du trouble en question, et aussi une spécificité maximale, donc identifie tous les cas exempts de ce trouble. En réalité, il est souvent nécessaire de faire un compromis entre ces deux buts puisqu'un outil très sensible peut engendrer des cas de faux positifs (c.-à.-d., le cas d'un enfant sans le trouble en question qui est identifié comme ayant ce trouble) ou un outil très spécifique peut engendrer des cas de faux négatifs (c.-à.-d., le cas d'un enfant avec le trouble en question qui n'est pas identifié). Dans une démarche de dépistage, il est habituel de maximiser la sensibilité, quitte à réduire la spécificité. En autres mots, le but est d'identifier le plus possible les enfants avec un retard ou trouble pour ensuite distinguer les vrais et les faux positifs lors de l'évaluation approfondie qui suit. La probabilité qu'un résultat donné sur le test diagnostique identifie un patient avec un trouble s'exprime par le calcul des rapports de vraisemblance (Akobeng, 2005; Dolloghan, 2004). Par exemple, un

rapport de vraisemblance positif de cinq indique qu'il est cinq fois plus probable que ce score provienne d'un enfant ayant un trouble ou un retard. Par opposition, un rapport de vraisemblance négatif de 0,2 (ou 1/5) indique qu'il est cinq fois moins probable que le score vienne d'un enfant ayant un trouble ou un retard (Shriberg, Flipsen, Kwiatkowski, et McSweeny, 2003). Pour déterminer les rapports de vraisemblance, il est nécessaire d'identifier un seuil, c.a.d., un score sous lequel il est déterminé que l'enfant démontre possiblement un trouble. Nous allons évaluer trois seuils dans cette étude pour identifier celui qui sera le plus sensible et donc permettra d'identifier la plupart des enfants ayant un trouble du développement de la phonologie.

Le but de cette étude est de décrire les données préliminaires dans le développement de l'outil de dépistage. Nous répondons au premier critère d'échantillonnage décrit par Dodd et ses collègues (2003) : cette étude comprend un échantillon d'une taille importante. Par contre, à ce stade préliminaire, l'échantillon comprend seulement les enfants francophones unilingues ayant un développement typique. Nous avons inclus un sous-groupe d'enfants ayant un trouble ou un retard des sons de la parole pour évaluer la spécificité et sensibilité de l'outil.

Méthodologie

Participants

Les données préliminaires normatives ci-dessous viennent de trois études indépendantes menées au Québec par des auteurs différents visant des objectifs distincts. La première étude menée par les chercheurs Sutton, Thordardottir, et Trudeau entre les années de 2004 à 2008 avait pour but de développer des données normatives en français québécois pour plusieurs tâches langagières. Cette étude ciblait des enfants francophones de la région de Montréal (n=158). La deuxième étude menée par les chercheurs Sylvestre, Meyer, Bairati, Rouleau et Desmarais entre les années de 2005 à 2009 avait pour but de mieux comprendre le développement des enfants présentant un retard de langage à 2 ans en les comparant avec des enfants ayant un développement typique. Cette étude ciblait des enfants francophones de la région de Québec. Seule la cohorte d'enfants typiques de cette étude a été incluse dans la présente étude (n=41). La troisième étude menée par MacLeod entre les années de 2008-2011 avait pour but de décrire le développement des dimensions acoustiques et phonologiques des enfants francophones. Cette étude ciblait des enfants francophones de la région de Québec (n=44). Les critères d'inclusion étaient

Tableau 1. Nombre de participants, le nombre de filles et la la moyenne d'âge et l'écart-type (en mois) en fonction du groupe d'âge.

Groupe d'âge	Nombre total (nombre de filles)	Moyenne d'âge en mois Écart-Type
20-23 mois	18 (13)	22 1,1
24-29 mois	33 (15)	27 1,6
30-35 mois	47 (19)	33 1,8
36-41 mois	51 (18)	39 1,7
42-47 mois	58 (22)	45 1,7
48-53 mois	36 (15)	50 1,7
<i>Total</i>	<i>243 (102)</i>	

comparables dans les trois études: les enfants devaient avoir un développement cognitif¹, auditif², et linguistique³ typique, et ils devaient être des locuteurs unilingues du français.

La répartition des enfants entre les différentes tranches d'âges varie dans les trois études. Pour la présente étude, des groupes d'âge à des intervalles de six mois ont été formés en combinant les enfants des trois études, sauf pour les plus jeunes enfants, qui forment un groupe avec un écart de 4 mois. Le tableau 1 présente, par groupe d'âge, le nombre de participants, le sexe et la moyenne d'âge des enfants.

De plus, dix enfants âgés de 30 à 54 mois ayant un TDSP d'origine inconnue ont été recrutés pour cette étude. Ces derniers ont été recrutés par le biais de quatre orthophonistes travaillant en Centre de Réadaptation au Québec. En l'absence de normes de référence pour identifier les troubles, il était nécessaire de se fier à l'évaluation de l'orthophoniste pour la catégorisation de ces enfants. Avant de participer à l'étude, les enfants

avaient une hypothèse de retard ou trouble au niveau de la phonologie ou une dyspraxie verbale selon l'évaluation de l'orthophoniste en charge du dossier. Ces enfants avaient également un développement cognitif et auditif typique selon leurs parents et l'orthophoniste et ils étaient des locuteurs unilingues du français. Ces enfants recevaient un traitement orthophonique comprenant des buts en lien avec la phonologie.

Pour les buts de cette étude, ces enfants ont complété la tâche de dépistage de phonologie et l'Échelle de vocabulaire en images de Peabody (ÉVIP) pour évaluer leur vocabulaire réceptif. Les résultats de l'ÉVIP démontrent que trois des enfants ont un score standard légèrement inférieur à 1 écart-type de la moyenne lorsque comparés aux données normatives de l'outil; et 1 enfant a un score 1 écart-type sous la moyenne lorsque comparé aux données normatives d'un échantillon d'enfants franco-québécois de 49 à 71 mois (Thordardottir, Keheyia, Lessard, Sutton, & Trudeau, 2010). Le tableau 2 présente les participants selon leur âge, leur sexe, leur score à l'ÉVIP, et le sous-type de TDSP qu'ils présentent.

Tableau 2. Le tableau 2 décrit les participants par leur âge en mois, leurs sexe et leurs scores sur l'EVIP et le sous-type de TDSP.

Participant	Âge (mois)	Sexe	EVIP	Sous-Type de TDSP
1	30	Garçon	78*	Trouble Phonologique
2	30	Garçon	81*	Trouble Phonologique
3	42	Fille	136	Trouble Phonologique
4	42	Garçon	94	Trouble Phonologique
5	42	Garçon	78*	Trouble Phonologique
6	48	Garçon	91	Dyspraxie Verbale
7	54	Fille	93	Trouble Phonologique
8	54	Garçon	97	Trouble Phonologique
9	54	Garçon	89**	Trouble Phonologique
10	54	Fille	106	Trouble Phonologique

*1 Écart-type sous la moyenne lorsque comparer aux données normatives de l'ÉVIP

**1 Écart-type sous la moyenne lorsque comparer aux données normatives de Thordardottir et al., (2010)

Passation de la tâche

Des auxiliaires de recherche francophones ont évalué les enfants individuellement dans un espace tranquille. La durée de cette tâche était d'environ 10 à 20 minutes. La tâche consistait à présenter une image à l'enfant en disant « Qu'est-ce que c'est? » pour lui demander de la nommer. Dans l'étude de Sutton, Thordardottir et Trudeau, les enfants devaient appairer l'image avec une autre identique sur un tableau en feutre. Dans les autres cas, la tâche consistait simplement à nommer les images présentées dans un livret. Dans le cas où l'enfant ne nommait pas l'image de façon spontanée, l'auxiliaire de recherche produisait le mot et demandait à l'enfant de le répéter. Dans une étude précédente qui portait sur un sous-groupe des enfants de cette étude, la fréquence de la répétition variait selon l'âge avec une plus haute fréquence de répétition de mots par enfant : 70% à 20-23 mois, 40% à 24-25 mois, 28% à 36-41 mois, 8% à 42-47 mois, et 5% à 48-53 mois. En incluant les productions en répétition, le pourcentage de mots produit par les enfants était de 90% pour tous les groupes d'âges. Toutes les productions étaient enregistrées sur support audio ou vidéo.

Analyse de la tâche

Sur la base des enregistrements audio et vidéo, une transcription phonétique a été complétée en utilisant l'alphabet phonétique international (API). Les réponses des enfants ont été transcrites en API au lieu d'être codées avec un système binaire de type «correcte/incorrecte». La fidélité des transcriptions a été évaluée pour chaque sous-groupe d'enfant. Pour l'étude de Sutton, Thordardottir et Trudeau, deux auxiliaires de recherche ont complété la transcription en API de chaque session de manière indépendante et par la suite ils ont comparé les transcriptions. Lors d'une différence dans la transcription, ils se sont retournés à l'enregistrement pour atteindre un consensus. Pour les deux autres études, 10% des transcriptions ont été reprises de façon aléatoire par une auxiliaire de recherche. La fidélité de la transcription des consonnes était de plus de 85% pour les trois études.

En se basant sur cette transcription, nous avons calculé le ratio de consonnes produites correctement par rapport au nombre de consonnes dans les cibles produites (voir l'annexe 2 pour deux exemples de ce calcul). Le choix d'utiliser ce ratio, et non pas le ratio du nombre de consonnes produites correctement par rapport au nombre total de consonnes, est dû au fait que certains enfants n'ont pas produit la totalité des mots.

Par la suite, une analyse de la sensibilité et de la spécificité de la tâche a été complétée. Pour la sensibilité, nous avons calculé le pourcentage d'enfants identifiés avec un TDSP qui se situaient sous le seuil pour leur groupe d'âge. La spécificité de la tâche de dépistage a été estimée en calculant le pourcentage d'enfants avec un développement typique qui se situaient au-dessus du seuil pour leur groupe d'âge. Par la suite, les rapports de vraisemblance positifs (sensibilité/1-spécificité) et négatifs (1-sensibilité/spécificité) ont été calculés.

Résultats

Données normatives préliminaires

Les résultats des transcriptions phonétiques des productions des enfants démontrent un changement graduel du ratio de consonnes produites correctement par rapport au nombre de consonnes dans les cibles allant de 0,56 entre 20 et 23 mois jusqu'à 0,90 entre 48 et 53 mois. Le tableau 3 présente la moyenne et l'écart-type en fonction du groupe d'âge pour les garçons, les filles et l'ensemble de l'échantillon. La figure 1 présente les ratios de consonnes correctes individuels et de groupe, en fonction du groupe d'âge.

Pour évaluer la présence d'une différence significative en fonction du sexe de l'enfant, une ANOVA simple a été effectuée. Les résultats ne démontrent pas d'effet pour le sexe: $F(1, 242)=1.484, p=0,224$. Par contre, une ANOVA simple révèle une différence significative pour le groupe d'âge: $F(6, 237)=21.286, p<,0001$. Les différences entre les groupes d'âge ont été évaluées par le biais d'une série de tests t avec une correction de Bonferroni (15 comparaisons : $0,05/15 : p<,003$). Les résultats présentés dans le Tableau 4 indiquent que les enfants des trois groupes d'âge les plus jeunes n'étaient pas significativement différents de ceux des groupes d'âge voisins, mais significativement différents de ceux des autres groupes d'âge. Pour les enfants de plus de 36 mois, nous observons une forte ressemblance entre les trois groupes d'âge et aucune différence significative entre eux.

Enfants ayant un trouble du développement des sons de la parole

Les résultats des transcriptions phonétiques des productions des enfants ayant un TDSP démontrent que le ratio de consonnes correctes par rapport au nombre de consonnes dans les cibles produites varie selon l'enfant. Généralement, il y a une augmentation du ratio avec l'âge, mais ceci n'est pas systématique. Neuf des dix enfants

Tableau 3. Moyenne et écart-type du ratio de consonnes correctes pour chaque groupe d'âge pour les garçons, les filles et l'ensemble de l'échantillon.

Groupe d'âge	Garçons		Filles		Total		
	Moyenne du ratio de consonnes correctes	Écart-Type	Moyenne du ratio de consonnes correctes	Écart-Type	Moyenne du ratio de consonnes correctes	Écart-Type	Intervalle de confiance à 95%
20-23 mois	0,41	0,14	0,61	0,13	0,56	0,16	(0,48;0,64)
24-29 mois	0,66	0,15	0,64	0,20	0,65	0,17	(0,59;0,72)
30-35 mois	0,73	0,21	0,72	0,19	0,73	0,20	(0,67;0,79)
36-41 mois	0,85	0,09	0,83	0,12	0,84	0,10	(0,81;0,87)
42-47 mois	0,86	0,13	0,82	0,18	0,85	0,15	(0,81;0,89)
48-53 mois	0,89	0,13	0,92	0,09	0,90	0,12	(0,86;0,94)

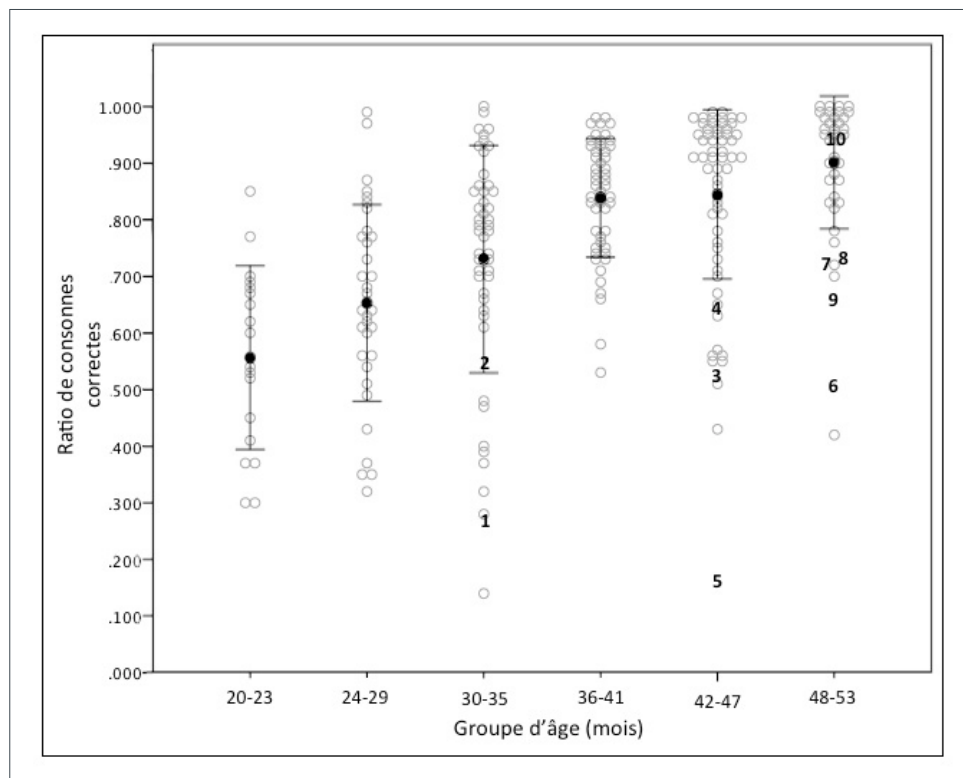


Figure 1. Ratio de consonnes correctes pour chaque enfant typique (points non remplis), moyenne (points remplis) et écart-type (lignes verticales) pour chaque groupe d'âge et le ratio pour chacun des enfants ayant un TDSP (chiffre).

Tableau 4. Résultats des tests t pour évaluer les différences entre les groupes d'âges.

Group	Group					
	20-23 mois	24-29 mois	30-35 mois	36-41 mois	42-47 mois	48-53 mois
20-23 mois	-	,489	,001 *	,0001 *	,0001 *	,0001 *
24-29 mois		-	,413	,0001 *	,0001 *	,0001 *
30-35 mois			-	,008	,003 *	,0001 *
36-41 mois				-	1,00	,921
42-47 mois					-	1,00
48-53 mois						-

*indique une différence significative (p<,003)

Tableau 5. Moyenne du ratio de consonnes produites correctement par rapport au nombre de consonnes dans les cibles produites pour les enfants ayant un trouble des sons de la parole et la moyenne pour le groupe d'âge correspondant ayant un développement typique.

Participant	Âge (mois)	Ratio de consonnes correctes	Moyenne du ratio de consonnes correctes des enfants typiques
1	30	0,383	0,730
2	30	0,552	0,730
3	42	0,510	0,846
4	42	0,653	0,846
5	42	0,182	0,846
6	48	0,509	0,846
7	54	0,717	0,902
8	54	0,734	0,902
9	54	0,670	0,902
10	54	0,940	0,902

Note : Les ratios en gras indiquent les enfants avec un ratio qui se trouvait à plus d'un écart-type sous la moyenne des enfants typique de leur groupe d'âge.

avaient un ratio de consonnes produites correctement par rapport au nombre de consonnes dans les cibles produites qui était sous la moyenne pour leur groupe d'âge. Le tableau 5 résume le ratio pour chaque enfant et la figure 1 présente les ratios de chacun des enfants (identifiés par un chiffre).

Sensibilité, spécificité et rapports de vraisemblance

Pour chaque groupe d'âge, la moyenne et l'écart-type ont été calculés pour les ratios de consonnes produites correctement par rapport au nombre de consonnes dans les cibles produites afin d'établir le seuil de réussite à la tâche. Nous avons évalué trois seuils : -1 écart-type, -1,5 écart-type et -2 écarts-types. Par la suite, les ratios de chaque enfant typique et ayant un TDSP ont été comparés à chaque seuil pour classer les enfants en deux catégories : score sous le seuil comparativement au score au-dessus du seuil (voir Tableau 6 pour un exemple).

Pour le seuil de -1 écart-type, les résultats démontrent que huit des dix enfants identifiés avec un TDSP se situent sous le seuil de réussite (ratio de sensibilité de 0,80). Pour le seuil de -1,5 écart-type, cinq des dix enfants identifiés avec un trouble des sons de la parole se situent sous le seuil de réussite (ratio de sensibilité de 0,50). Finalement, pour le seuil de -2 écarts-types, 3 des 10 enfants identifiés avec un trouble des sons de la parole se situent sous le seuil de réussite (ratio de sensibilité de 0,30). Pour les enfants identifiés comme typiques, le nombre d'enfants qui se situent sous le seuil correspond au nombre d'enfants au-dessus du seuil de l'écart-type en question donc : 203 des 243 enfants se situent au-dessus du seuil de -1 écart-type (spécificité de 0,84); 217 au dessus du seuil de -1,5 écart-type (spécificité de 0,89); et 235 au dessus du seuil de -2 écarts-types (spécificité de 0,97). À partir de ces informations, les rapports de vraisemblance ont été calculés pour chaque seuil et sont présentés dans le tableau 7.

Tableau 6. Exemple de la relation entre le score à la tâche de dépistage et le diagnostic de l'enfant pour le seuil de -1 écart-type.

	Enfants ayant un développement typique	Enfants ayant un trouble des sons de la parole
Score sous le seuil (<-1 écart-type)	40/243 <i>Erreur de type Faux Positif</i>	8/10
Score au-dessus du seuil (>=-1 écart-type)	203/243	2/10 <i>Erreur de type Faux Négatif</i>

Tableau 7. Rapports de vraisemblance pour le rapport de vraisemblance positif et négatif pour les 3 seuils.

Seuil	Rapport de vraisemblance positif	Rapport de vraisemblance négatif
-1 écart-type	4,86	0,24
-1,5 écart-type	4,67	0,56
-2 écarts-types	9,11	0,72

Discussion

Le but de cette recherche était de développer un outil de dépistage pour le développement de la phonologie, c'est-à-dire un outil qui soutient l'orthophoniste dans la décision objective de faire ou non une évaluation plus complète des habiletés phonologiques d'un enfant. Pour atteindre ce but, nous avons complété une analyse des productions de 243 enfants francophones du Québec entre les âges de 20 à 53 mois. De plus, nous avons évalué la sensibilité et la spécificité de cet outil en incluant un groupe de dix enfants qui ont été identifiés avec un TDSP par une orthophoniste avant de participer à l'étude.

Comme décrit dans l'introduction, un échantillon normatif devrait comprendre un grand nombre de participants qui proviennent de différents groupes sociolinguistiques et être représentatifs de la population (Dodd et al., 2003). Sous cet angle, l'échantillon inclus dans la présente étude peut être considéré comme préliminaire puisque sa taille et sa diversité sociolinguistique étaient limitées. Selon ces données normatives préliminaires, les transcriptions phonétiques des productions des enfants ayant un développement « typique » montrent que le ratio de consonnes produites correctement par rapport au nombre de consonnes dans les cibles produites augmente graduellement entre 20 et 53 mois. Les différences entre les filles et les garçons sont minimales, tel que l'indique le résultat non significatif de l'analyse statistique. La moyenne du ratio augmente avec chaque tranche d'âge allant de 0,56 pour les enfants de 20 à 23 mois à 0,90 pour les enfants de 48 à 53 mois. L'écart-type est plus élevé pour les enfants de moins de 36 mois (entre 0,16 et 0,20) et diminue légèrement pour les enfants plus âgés (entre 0,10 et 0,15). En général, nous pouvons conclure que la production fidèle des consonnes se développe plus rapidement entre les âges de 30 et 41 mois et qu'elle n'est pas encore terminée à l'âge de 53 mois pour certains enfants. Il est important de noter que cette tâche de dépistage est plus facile que la parole spontanée puisque cet outil contient un grand nombre de mots monosyllabiques et que les mots n'étaient pas produits en discours continu. Donc, il est possible que les ratios de consonnes produites correctement par rapport au nombre de consonnes dans les cibles produites soient moindres lorsque l'enfant tente de produire des mots plus complexes ou des énoncés de plus d'un mot. De plus, il est possible que le groupe d'enfants ayant un développement typique ait inclus des enfants avec TDSP léger non identifiés puisque le constat de développement typique était basé sur les rapports des parents.

L'analyse des résultats provenant d'enfants ayant été identifiés avec un TDSP a indiqué que la majorité d'entre

eux (huit des dix enfants) avaient des scores à plus d'un écart-type sous la moyenne de leur groupe d'âge. En général, les enfants plus âgés avaient des scores plus élevés. Ceci démontre que même dans le contexte d'un TDSP, les enfants améliorent leurs productions avec l'expérience. Le cas des deux enfants ayant des scores à l'intérieur d'un écart-type de la moyenne peut s'expliquer de deux façons. Il est possible que pour ces deux enfants une hypothèse de trouble ou de retard soit formulée alors que l'enfant a plutôt un développement typique ce qui correspond à un faux positif. Ce problème peut se présenter lorsque l'évaluation des habiletés phonologiques se fait sans référence quantitative en se fiant aux données normatives d'une autre langue (principalement l'anglais) et au jugement clinique. Il est aussi possible que les faiblesses au niveau phonologique ne soient pas mesurées dans cette tâche de dépistage qui met l'accent sur la production de consonnes dans des mots isolés. Par exemple, il se peut que la parole de ces enfants soit moins intelligible en discours spontané, ou lorsqu'ils produisent des mots plus complexes au niveau syllabique.

L'analyse de la sensibilité et de la spécificité de cette tâche a évalué trois seuils de réussite : en haut de -1 écart-type, en haut de -1,5 écart-type et en haut de -2 écarts-types. Pour une tâche de dépistage, il est important d'identifier un seuil de réussite qui permet un haut taux de sensibilité et de spécificité. Les résultats de cette analyse démontrent que le seuil de réussite en haut de 1 écart-type produit le meilleur équilibre entre la sensibilité et la spécificité. Les seuils de -1,5 et -2 écarts-types augmentent la spécificité, mais diminuent de façon importante la sensibilité de l'outil. Donc, avec un seuil de réussite en haut de -1 écart-type, la sensibilité de l'outil est de 0,80, ce qui indique que 80% des enfants qui avaient été identifiés par une orthophoniste comme ayant un TDSP, étaient aussi identifiés comme ayant besoin d'une évaluation plus complète des habiletés phonologiques par notre outil. La spécificité de l'outil est de 0,84. Ainsi, 84% des enfants qui avaient un développement typique étaient identifiés comme n'ayant pas besoin d'une évaluation plus complète de leurs habiletés phonologiques. Un enfant qui obtient un score sous le seuil d'un écart-type aurait 5 fois plus de risque d'avoir un trouble des sons de la parole (rapport de vraisemblance positif de 5), et un enfant qui obtient un score au-dessus du seuil aurait environ 4 fois moins de risque d'avoir un trouble (rapport de vraisemblance négatif de 0,24). Finalement, les rapports de vraisemblance positifs et négatifs obtenus dans la présente étude ressemblent à ceux obtenus dans une étude sur une mesure d'intelligibilité des enfants ayant un TDSP qui était rapportée comme « prometteuse » (Shriberg et al., 2003).

Applications cliniques

La prévalence élevée de comorbidité entre les TDSP et les troubles primaires du langage (Beitchman, Nair, Clegg & Patel, 1986); Peterson et al., 2009; Shriberg et al., 1999) et le bégaiement (Coulter, Anderson et Conture, 2009) souligne les interrelations entre les différentes composantes dans le développement linguistique. Il est donc important d'intégrer un outil de dépistage des habiletés phonologiques en français dans notre pratique clinique au Canada. Puisque le temps de passation est relativement rapide avec une durée de 10 à 20 minutes pour compléter la tâche, nous proposons le dépistage de ces habiletés pour tous les enfants lors d'une évaluation orthophonique. L'outil de dépistage est disponible en contactant la première auteure. Ce dépistage contribuera à mieux connaître les forces et les faiblesses de l'enfant dans différents domaines de la parole et du langage, de mieux adapter l'intervention aux besoins de l'enfant et d'anticiper les défis auxquels il pourrait faire face dans le futur.

Pour l'enfant obtenant un score sous 1 écart-type avec cet outil, une évaluation plus complète de sa phonologie sera nécessaire pour (1) confirmer la présence d'un TDSP, (2) tenter d'identifier le sous-type de TDSP et (3) prioriser les objectifs d'intervention basés sur les forces et les faiblesses de l'enfant. L'évaluation approfondie devrait présenter plusieurs occasions de produire chaque phonème en position initiale, médiane et finale de mots afin d'identifier la stabilité des erreurs et les contextes phonologiques facilitants. L'outil en développement, le Test de la phonologie du français (Bérubé, Bernhardt & Stemberger, 2013), sera très intéressant pour ces buts. De plus, il serait important d'évaluer la constance des erreurs dans le même contexte lexical en comparant la production multiple (trois à cinq fois) de certains mots. Finalement, une tâche de narration ou de description d'erreur permettrait d'évaluer la production de phonèmes et de la prosodie dans le discours continu. Les buts de cette évaluation approfondie sont alors de confirmer ou non la présence d'un TDSP, d'identifier les caractéristiques du TDSP que présente l'enfant et de cerner les forces et les faiblesses de sa phonologie – des objectifs plutôt qualitatifs.

Conclusion

La collaboration de trois équipes de chercheurs a permis le développement des données normatives préliminaires pour soutenir cet outil de dépistage. Les prochaines étapes dans la démarche de développement de l'outil sont l'élargissement de la base normative pour inclure plus d'enfants francophones et des enfants bilingues du Québec et des autres provinces. De plus, nous aimerions obtenir des

résultats pour une plus grande cohorte d'enfants ayant un TDSP afin de mieux comprendre les forces et les faiblesses de l'outil.

En ayant une vision à plus long terme, il est clair que la pratique orthophonique franco-canadienne a aussi besoin d'un outil pour l'évaluation approfondie de la phonologie. Le développement d'un tel outil contribuerait à améliorer nos capacités à identifier les TDSP et à en distinguer les types, comme les troubles phonologiques et la dyspraxie verbale. Cet outil demandera une collaboration étroite entre les experts suivants: les phonologues pour établir les choix de mots sur la base de critères linguistiques stricts; les chercheurs en orthophonie pour guider le choix des mots sur la base de critères fonctionnels et cliniques, la passation de l'outil, la collecte et l'analyse des données; et les orthophonistes pour collaborer à l'évaluation de l'outil et à la collecte des données. Un esprit de collaboration permettra le développement d'un outil robuste dans un délai plus court, ce qui contribuera à mieux servir les enfants francophones du Canada.

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Annexe 1.

Mots de la tâche de dépistage phonologique avec transcription en API

<i>Mot Cible</i>	<i>API</i>	<i>Nombre de consonnes dans le mot cible</i>
bague	/bag/	2
banane	/banan/	3
beigne	/beɲ/	2
bijoux	/bizu/	2
biscuit	/biskɥi/	4
bloc	/blɒk/	3
canard	/kanɑʁ/	3
champignon	/ʃɑpiɲɔ̃/	3
chandail	/ʃɑdaj/	3
cheval	/ʃœval/	3
chocolat	/ʃɔkɔlat/	3
cochon	/kɔʃɔ̃/	2
crayon	/kʁɛjɔ̃/	3
douche	/dɔʃ/	2
éléphant	/elefɑ̃/	2
fève	/fɑv/	2
fleur	/flœʁ/	3
fourchette	/fɥʁʃet/	4
framboise	/fʁɑbwaz/	5
gant	/gɑ̃/	1

girafe	/ʒiʁaf/	3
huit	/ɥit/	2
jupe	/ʒyp/	2
lapin	/lapɛ̃/	2
mouton	/mutɔ̃/	2
nid	/ni/	1
oiseau	/wazo/	2
persil	/pɛʁsi/	3
poisson	/pwasɔ̃/	3
pomme	/pɔm/	2
robe	/ʁɔb/	2
singe	/sɛ̃ʒ/	2
tambour	/tɑ̃buʁ/	3
tasse	/tas/	2
tomate	/tɔmat/	3
train	/tʁɛ̃/	2
valise	/valiz/	3
viande	/vjɑ̃d/	3
yogourt	/jɔguʁ/	3
zèbre	/zɛbʁ/	3

Annexe 2.

Exemples du calcul du ratio de consonnes produites correctement sur le nombre de consonnes dans les cibles produites

Jean a produit 32 des mots cibles de la tâche, pour un total de 77 consonnes cibles. Il a produit 12 erreurs dans la production de ces consonnes, donc 65 consonnes sont produites correctement. Le ratio de consonnes produites correctement (65) sur le nombre de consonnes dans les cibles produites (77) ce calcul en divisant le premier chiffre par le deuxième (65/77). Donc le ratio pour Jean serait de 0,84.

Suzie a produit tous les mots cibles de la tâche, pour un total de 103 consonnes cibles. Elle a produit 35 erreurs dans la production de ces consonnes, donc 68 consonnes sont produites correctement. Le rapport entre le nombre de consonnes produites correctement (68) le nombre de consonnes dans les cibles produites (103) donne un ratio de 0,66.

Notes marginales

¹Le développement cognitif « normal » selon les parents dans l'étude de MacLeod ; évalué par le Bayley Scales of Infant and Toddler Development dans l'étude de Sutton, Thordardottir et Trudeau ; et Sylvestre, Meyer, Bairati, Rouleau et Desmarais pour les enfants en bas de 3 ans ; évaluer par le Leiter International Performance Scale-Revised pour les enfants ayant plus de 3 ans dans l'étude de Sutton, Thordardottir et Trudeau.

²L'audition « normale » selon les parents pour les trois études.

³Le développement linguistique « normal » selon les parents et par un score à l'intérieur des normes sur les Échelles de vocabulaires en images Peabody dans l'étude de Sutton. Thordardottir & Trudeau ; et MacLeod; à l'intérieur des normes sur le Reynell Developmental Language Scales dans l'étude de Sylvestre, Meyer, Bairati, Rouleau et Desmarais.

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Démarche novatrice d'évaluation des besoins des enfants et adolescents dysphasiques et stratégies d'intervention



Innovative Evaluation Process of the Needs of Dysphasic Children and Adolescents, and Intervention Strategies

MOTS-CLÉS

DYSPHASIE

ÉVALUATION

BESOINS

STRATÉGIE
D'INTERVENTION

INSTRUMENT

Bernard Michallet
Paul Boudreault

Abrégé

Parents et intervenants sont directement interpellés par le soutien à apporter à l'enfant présentant une dysphasie. Une étude visant à connaître les besoins des jeunes dysphasiques de 4 ans à 15 ans est actuellement en cours au Québec. Dans le cadre de cette recherche, un instrument transdisciplinaire de mesure des habiletés et des besoins des enfants et adolescents dysphasiques a été élaboré. Ce texte a pour objectif de présenter cet instrument qui est utilisable tant pour la recherche que pour la clinique. Les 103 items de l'instrument sont répartis en sept domaines d'activités: autonomie personnelle; communication; comportement; autonomie scolaire; cognition, relations interpersonnelles; connaissance de soi. L'évaluation se fait conjointement par un intervenant et un parent (ou le jeune lui-même s'il en est capable), ce qui contribue à créer ou renforcer la relation de partenariat entre les divers acteurs. Le traitement des informations génère un profil individualisé faisant ressortir les forces, faiblesses et besoins en vue de la préparation d'un plan d'intervention pouvant impliquer des professionnels de plusieurs disciplines en plus des parents. À cet effet, des stratégies d'intervention sont associées à chacune des habiletés observées et des besoins identifiés afin de guider parents et intervenants. Un site Web permet de faire le lien entre les acteurs concernés afin d'offrir un suivi continu de l'évaluation et des stratégies d'intervention traduisant des besoins. Une recherche longitudinale se poursuit afin d'enrichir encore la base de données des stratégies.

Abstract

Parents and stakeholders are directly affected by the support required by a dysphasic child. Research is currently taking place in Quebec on the needs of dysphasic children and youth between 4 and 15 years of age. In the context of this research, an interdisciplinary tool has been developed to measure the skills and needs of dysphasic children and adolescents. The goal of this paper is to present this tool that can be used for both research and clinical intervention. The 103 elements of this tool evaluate seven areas of activities: personal autonomy; communication; behaviour; school autonomy; cognition, interpersonal relationships; self-awareness. The evaluation is done jointly by a caretaker and a parent (or the child if able to so), which contributes to the creation of or reinforcement of the partnership among the various parties. The analysis of the data generates an individual profile highlighting the strengths, weaknesses and needs, which is used to prepare an intervention plan that may involve various disciplines as well as the parents. To that effect, the intervention strategies are tailored to each of the observed skills and identified needs so as to guide the parents and caretakers. A web site facilitates communication between the parties involved and provides continuous follow-up of the evaluation and intervention strategies for the identified needs. A longitudinal study is being pursued to further enrich this data base of strategies.

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Les écrits scientifiques situent la prévalence de la dysphasie entre 5% et 10% de la population des enfants et des adolescents de 4 ans à 15 ans. En particulier, trois sources confirment cette situation. Tout d'abord, le site de l'Association québécoise de la dysphasie (2012) qui regroupe des parents et des intervenants mentionne qu'on ne connaît pas vraiment le pourcentage d'enfants au Québec atteints de dysphasie. Toutefois, les enquêtes réalisées dans d'autres pays et les données du gouvernement du Québec suggèrent que la prévalence pourrait se situer entre 1 % et 7 % selon les critères utilisés. Selon une étude de Tomblin et ses collaborateurs (1997a) ayant porté sur un échantillon de 7000 enfants américains, 7,4 % des enfants du niveau préscolaire présenteraient un « trouble spécifique du langage », lequel s'apparente à la dysphasie bien qu'avec des critères d'exclusion plus restrictifs. Des résultats semblables sont également rapportés en France (Agence Nationale d'Accréditation et d'Évaluation en Santé (ANAES). 2001). De nombreuses études démontrent une persistance de la dysphasie à travers le temps (Beitchman, Wilson, Brownlie, Walters, & Lancee, 1996a; Hall & Tomblin, 1978 ; Johnson et al., 1999; Nippold, 1998 ; Snowling, Bishop, Stothard, Chipchase, & Kaplan, 2006 ; Rice, Wexler, & Redmond, 1999 ; Tomblin, Zhang, Buckwalter, & O'Brien, 2003). De plus, une variabilité dans les perturbations langagières est observée avec l'évolution chez les individus atteints (Conti-Ramsden & Botting, 1999).

C'est avec plus de précisions que la page principale du site de l'ordre des orthophonistes et audiologistes du Québec, avance que « les troubles de la communication affectent une personne sur dix dans l'accomplissement de ses activités ». Sur une autre page du même site, un lien causal est confirmé entre les troubles de langage et les troubles d'apprentissage scolaire : « les troubles d'apprentissage touchent environ 10% de la population ou près de 700 000 Québécois. En milieu scolaire, 2 ou 3 enfants par classe auraient un trouble d'apprentissage. Ce trouble persiste à l'âge adulte. Bien sûr, les manifestations, le degré de sévérité et l'évolution varient beaucoup. Il s'agit toujours cependant d'un dysfonctionnement du système nerveux central chez une personne le plus souvent d'intelligence moyenne ou supérieure. Depuis plus d'une décennie, l'observation clinique de professionnels de l'éducation et de la santé ainsi que de plus en plus de recherches démontrent que la problématique langagière est très souvent liée au problème d'apprentissage, donnée qui était ignorée auparavant (Botting, 2005; McGrath et al., 2008; Rebok et al., 2001). En effet, il semblerait que 80% des enfants ayant des troubles d'apprentissage ont également des troubles de langage » (Ordre des orthophonistes et audiologistes du Québec, 1998).

Il ne fait donc pas de doute que cette population d'enfants et adolescents représente un pourcentage important de la clientèle scolaire et requiert des services appropriés pour répondre à leurs besoins qui se manifestent dans plusieurs sphères d'activités et plusieurs habitudes de vie. Dans le cadre d'une recherche visant à évaluer les besoins des enfants et adolescents dysphasiques et de leur famille (Boudreault, Michallet, Meilleur, & Banville 2007), un instrument d'évaluation a été élaboré. Cet instrument, nommé ÉBOS (**É**valuation des **B**esoins et **O**rganisation des **S**ervices), qui engage parents et intervenants dans une démarche d'évaluation des besoins et de leur mise en priorité sera présenté dans ce texte.

1. Les caractéristiques de la dysphasie

Les principales caractéristiques linguistiques et communicationnelles associées à la dysphasie ont fait l'objet de plusieurs recherches au cours des dernières années. Celles-ci se rapportent principalement à des atteintes au plan de la compréhension verbale, de l'expression ou de l'utilisation du langage (Dudley & Delage, 1990 ; Leonard, 1998; Wolf Nelson, 1993). En complément, des difficultés d'adaptation sociale sont mises en évidence, telles que des interactions moins harmonieuses avec les pairs (Brinton & Fujiki, 1999; Brinton, Fujiki, & Higbee, 1998; Fujiki, Brinton, Hart, & Fitzgerald, 1999; McCormack, McLeod, McAllister, & Harrison, 2009); une durée de jeu plus courte que celle de leurs pairs (Brinton, Fujiki, Spencer, & Robinson, 1997; McCormack, et al., 2009). En somme, leurs diverses difficultés semblent se traduire en effets directs sur leurs compétences sociales (Fujiki, Brinton, & Todd, 1996; McCormack, et al., 2009; Vallance, Cummings, & Humphries, 1998) et entraînent davantage de problèmes comportementaux observables notamment à l'école (Beitchman et al., 1996b; Botting, 2005; Coster, Goorhuis-Brouwer, Nakken, & Spelberg, 1999; Durkin & Conti-Ramsden, 2010; Jerome, Fujiki, Brinton, & James, 2002; Keegstra, Post, & Goorhuis-Brouwer, 2010; McCormack, et al., 2009; Snowling et al., 2006). Au plan des relations interpersonnelles, des études ont démontré que les enfants dysphasiques entrent moins facilement en interaction avec leurs pairs (Brinton, Fujiki, & Powell, 1997 ; Brinton, Fujiki, & McKee, 1998; Fujiki et al., 1996 ; Fujiki, Brinton, Morgan, & Hart, 1999), qu'ils sont plus isolés (Durkin & Conti-Ramsden, 2010 ; McCabe, 2005) et moins bien acceptés socialement (Brinton & Fujiki, 1999 ; Fujiki et al., 1996 ; Fujiki, Brinton, Hart, & Fitzgerald, 1999 ; Hart, Fujiki, Brinton, & Hart, 2004). Ils utilisent également moins de stratégies de résolution de conflits (Horowitz, Jansson, Ljungberg, & Hedenbro, 2005) et ont des rôles plus effacés que leurs pairs dans des tâches de collaboration (Brinton et al., 1998). Enfin,

ils présentent plus de difficultés à déduire des émotions en contexte social (Ford & Milosky, 2003; Spackman, Fujiki, & Brinton, 2006). Au plan de la communication, les travaux font ressortir entre autres que les enfants dysphasiques ont davantage de difficultés à maintenir un sujet de conversation que leurs pairs n'ayant pas de trouble de langage (Brinton, Fujiki, & Powell, 1997) et s'intègrent moins facilement à des conversations en cours (Brinton, Fujiki, Spencer, & Robinson, 1997). Ils ont moins d'habiletés de négociation (Brinton, Fujiki, & McKee, 1998) et répondent différemment à des demandes indirectes de clarification comparativement à leurs pairs (Brinton, Fujiki, & Sonneberg, 1988).

De plus, plusieurs conditions peuvent être associées au trouble de langage chez les personnes dysphasiques. Des difficultés motrices (Goorhuis-Brouwer & Wijnberg-Williams, 1996; Hill, 2001; McCormack, et al., 2009), cognitives (Das & Åystö, 1994; Ellis Weismer, 1993; McCormack, et al., 2009), perceptuelles (Ellis Weismer, 1993; McCormack, et al., 2009), attentionnelles sont relevées (Tetnowski, 2004). Ainsi, malgré la définition par exclusion qui prévaut encore dans les recherches, le caractère non-spécifique du trouble de langage dans la dysphasie est de plus en plus reconnu (Goorhuis-Brouwer & Wijnberg-Williams, 1996; Hill, 2001; McCormack, et al., 2009).

En ce qui concerne l'évolution des enfants dysphasiques, les études longitudinales réalisées au cours des vingt dernières années démontrent de façon unanime la persistance des difficultés aux plans social (Beitchman, et al., 1996b; Brinton, Fujiki, & Baldrige, 2010; Conti-Ramsden & Botting, 2008; Howlin, Mawhood, & Rutter, 2000), scolaire (Brinton, et al., 2010; Catts, Fey, Tomblin, & Zhang, 2002; Conti-Ramsden & Botting, 2008; Young et al., 2002), communicationnel (Beitchman, et al., 1996a; Brinton et al., 2010; Conti-Ramsden & Botting, 2008; Johnson, et al., 1999; Mawhood, Howlin, & Rutter, 2000) et comportemental (Beitchman, et al., 1996b; Brinton, et al., 2010; Conti-Ramsden & Botting, 2008; Coster et al., 1999). Ces études permettent d'identifier des éléments qui influencent de façon notable le fonctionnement et l'évolution des individus ayant une dysphasie. Ainsi, elles tendent à démontrer que les enfants qui présentent des difficultés touchant uniquement l'aspect expressif du langage auraient un pronostic plus favorable que les enfants ayant un profil mixte, soit réceptif et expressif. De même, les enfants qui ont un fonctionnement intellectuel non-verbal supérieur à leurs habiletés langagières auraient un meilleur pronostic et profiteraient davantage des interventions que les enfants présentant un trouble de langage associé à un retard cognitif (Billard, 2012; Goorhuis-Brouwer & Knijff, 2002;

Rice, Tomblin, Hoffman, Richman, & Marquis, 2004; Stothard, Snowling, Bishop, Chipchase, & Kaplan, 1998). Enfin, une sévérité plus grande du trouble de langage aurait des impacts plus importants sur la participation sociale de l'individu quel que soit son âge (Billard, 2012; Howlin et al., 2000; Mawhood, et al., 2000; Records, Tomblin, & Freese, 1992).

Bien que ces études aident à saisir l'impact de la dysphasie sur la participation sociale des enfants dans le temps, certains thèmes demeurent peu explorés, comme par exemple les loisirs, l'alimentation et la prise en charge de responsabilités. De plus, elles disent bien peu sur la perception des parents et de leurs enfants concernant leurs besoins. Selon Dunst, Trivette et Deal (1988) de même que Gilmore, Campbell et Becker (1989) et Pineault et Daveluy (1995), un besoin s'opérationnalise comme un jugement personnel d'un écart entre une situation actuelle et celle souhaitée. Or, cette connaissance du point de vue du client est incontournable pour favoriser l'appropriation (empowerment) de la personne et de sa famille au cours de sa réadaptation, telle que valorisée actuellement dans les centres de réadaptation en déficience physique du Québec. Seuls Markam et Dean (2006), dans une étude préliminaire de nature qualitative portant sur la qualité de vie, donnent certaines indications des besoins des enfants qui présentent un trouble de langage, tels que perçus par leurs parents, leurs orthophonistes et autres professionnels. Les thèmes dégagés, exprimés succinctement en terme de croyances, d'expériences ou de préoccupations, se rapportent à l'inclusion, aux comportements et réactions d'autrui, à l'éducation et à la conscience des difficultés, à l'amitié et aux relations familiales, aux besoins de l'enfant relatifs à l'anxiété, à la frustration et à la faible estime de soi qu'ils démontrent, à leur dépendance et indépendance vis-à-vis de leur parents et éducateurs, à la qualité des soins, à leur potentiel de choix et à la variabilité des soins nécessaires. Les perceptions des enfants n'ont pas été recueillies dans cette étude ; or, les recherches démontrent que la perception des besoins peut varier selon la personne qui est questionnée (Tétreault, 1998). Les perceptions de la principale personne concernée sont donc nécessaires pour avoir une compréhension juste et globale du problème vécu. Ressortent particulièrement de ces différentes études, certaines constantes : d'une part, il est difficile d'obtenir une vision globale de l'impact de la dysphasie sur les besoins de l'enfant selon différents points de vue; d'autre part, aucune des études recensées ne s'est attardée à définir l'impact de certaines caractéristiques propres sur l'évolution des besoins dans une perspective longitudinale et sous l'angle de la perception des enfants, de leurs parents et d'un de leurs intervenants. Or, cette notion de besoin est fondamentale pour bien planifier les activités

thérapeutiques à mettre en place afin de mieux desservir cette population. D'ailleurs, peu de centres de réadaptation du Québec offrent des services de réadaptation aux jeunes dysphasiques d'âge scolaire, ce qui participe à la méconnaissance de cette clientèle.

2. Les conséquences au plan social et scolaire

En lien avec l'ensemble de ces manifestations cliniques, les enfants dysphasiques deviennent à risque de vivre des perturbations de leur qualité de vie, notamment en raison d'entraves à leur participation sociale. À cet égard, leur cheminement scolaire, les relations interpersonnelles et divers aspects de leur communication ont été l'objet d'un nombre important d'études.

C'est souvent au moment de l'entrée scolaire que les manifestations apparaissent et que le premier dépistage est réalisé. Les recherches mettent en évidence des taux élevés de retards scolaires (Stothard et al., 1998; Young et al., 2002) et des niveaux de scolarisation moindres chez les jeunes adultes (Records et al., 1992). Elles démontrent également que bon nombre d'enfants dysphasiques présentent des difficultés d'apprentissage du langage écrit (Bishop & Adams, 1990 ; Catts, 1993; Catts et al, 2002 ; Tomblin et al, 1997b) et des mathématiques (Fazio, 1996, 1999). Une étude statistique du ministère de l'Éducation et des Loisirs du Québec (MELS) identifie d'ailleurs la dysphasie comme étant la problématique prédominante des élèves ayant des besoins spéciaux dans les écoles québécoises. En 2001-2002, les élèves dysphasiques comptaient pour une proportion de 19,8% de tous les élèves handicapés ou en difficulté d'adaptation ou d'apprentissage (EHDA) du Québec au préscolaire et au primaire. En 2002-2003 et 2003-2004, ces pourcentages sont passés à 24,4% et 27,5% respectivement (Ministère de l'Éducation du Québec., 2004). Différents facteurs peuvent expliquer cette vulnérabilité scolaire, dont l'importance du langage à la fois comme moyen et objet d'apprentissage, le manque d'adéquation entre les exigences linguistiques du programme scolaire et les capacités de l'enfant, l'effet cumulé des incapacités énoncées plus haut (Bashir & Scavuzzo, 1992) ainsi que l'effet défavorable d'une expérience réduite en lecture sur les apprentissages (Boudreault, Michallet, & Théolis, 2003; Stanovich, 1986).

Pour obtenir des services, c'est le même constat dans toutes les régions du Québec; les listes d'attente sont longues, autant dans les secteurs publics de l'éducation ou de la santé, que privés. Les parents attendent leur tour sur une liste d'attente, la plupart du temps sans aucun service, sinon quelques conseils d'un intervenant

proposés lors de la première visite prévue dans le Plan d'accès ministériel dans les 90 jours du dépôt d'une demande lorsque la priorité est élevée (ce qui est le cas des enfants dysphasiques de moins de 6 ans) et dans les 365 jours si la priorité est modérée (ce qui est le cas des enfants dysphasiques de plus de 6 ans) (Gouvernement du Québec., 2008, 2010). Lorsque cette première visite prévue au plan d'accès a eu lieu, l'attente pour des services plus spécialisés peut s'étendre au-delà de 2 ans.

La démarche proposée par ÉBOS offre aux intervenants des établissements la possibilité d'instaurer une mesure d'appoint qui pourrait permettre de répondre à divers besoins identifiés en attendant que les services thérapeutiques plus spécifiques soient disponibles, notamment en orthophonie.

3. Une réponse à des besoins des parents et des intervenants

Les centres de réadaptation en déficience physique (CRDP) responsables de cette clientèle sont à la recherche de moyens pour offrir un service de soutien aux parents dont l'enfant est sur une liste d'attente en raison du manque de ressources, surtout depuis la mise en vigueur du Plan d'accès ministériel. Il serait bénéfique pour ces enfants et leur famille de pouvoir profiter d'un premier service qui permettrait d'éviter une attente passive de leur part, tout en étant économe en termes de temps et d'énergies professionnelles.

Ainsi, même s'il leur est impossible d'assumer une prise en charge disciplinaire complète des nouveaux enfants qui s'inscrivent pour recevoir des services d'un établissement, les intervenants pourraient proposer d'accompagner les parents dans l'application de certaines stratégies éducatives à la maison afin de répondre à des besoins identifiés. Par exemple, il est réaliste d'estimer que deux périodes d'environ une heure pour un intervenant de l'établissement seraient suffisantes pour rencontrer les parents, compléter avec eux l'instrument d'évaluation, puis déterminer avec eux lesquelles parmi les stratégies générées pourraient être appliquées à la maison afin de répondre aux besoins les plus criants.

Étant donné qu'une intervention précoce constitue un meilleur gage de réussite pour tous les enfants ayant des besoins spéciaux, que ce soit à l'école ou en milieu de réadaptation, les gestionnaires de ces établissements manifestent de l'ouverture à envisager la possibilité d'offrir un tel service temporaire. Lorsque l'enfant aura son tour après plusieurs mois sur la liste d'attente, déjà bon nombre de stratégies auront été exercées à la maison et sans doute,

des améliorations de la situation auront été observées, facilitant la mise en place d'une intervention plus spécifique par les professionnels.

Il devient donc important de regrouper les forces autour des parents afin de couvrir tous les aspects affectés du développement de l'enfant ou de l'adolescent.

Par l'utilisation d'ÉBOS, la démarche proposée vise à favoriser cette collaboration inter-réseaux, inter-établissements et inter-disciplines. Ainsi, la porte d'entrée pourrait tout aussi bien être une école qu'un point de service d'un centre de réadaptation ou d'un centre local de services communautaires (CLSC). Peu importe, par la suite tous les intervenants concernés par un même enfant devraient avoir accès à son dossier pour mieux collaborer au processus de réadaptation.

Dans un document officiel produit conjointement par deux ministères du gouvernement du Québec (2003), il a été pris pour acquis que ce projet s'inscrivait dans l'optique décrite dans le document « Deux réseaux, un objectif : le développement des jeunes » alors qu'il est précisé que les deux ministères ont une responsabilité commune à l'égard des jeunes ayant des besoins spéciaux, ce qui explique le protocole d'entente.

L'entente sur la complémentarité des services dispensés par le réseau de l'éducation et le réseau de la santé et des services sociaux vise donc à obtenir une vision commune et globale des besoins des jeunes et de leur famille ainsi qu'à préciser les responsabilités spécifiques et communes des partenaires, et ce, dans une perspective de continuité et de coordination des interventions (p.2).

Tout au long de ce texte, il est fait référence à la nécessité de mettre en place des dispositifs permettant aux parents de jouer pleinement leur rôle de premiers responsables du développement de leur enfant. En particulier, l'accent est mis sur l'importance d'avoir « une lecture commune des capacités et des besoins du jeune, à partir d'une évaluation globale des besoins » (p.32). C'est l'objectif principal de la démarche ÉBOS qui se situe en aval pour permettre l'identification des besoins et même favoriser la mise en priorité des cas en attente de services.

Habituellement, le nom d'un nouvel inscrit dans un établissement est placé en queue sur une liste d'attente et son tour viendra suivant la séquence chronologique. Les gestionnaires des CRDP sont toutefois conscients du fait que la prise en charge d'un nouveau client implique la disponibilité d'au moins un professionnel de la discipline concernée.

Bien entendu, la démarche ÉBOS ne va pas directement réduire les listes d'attente mais y contribuera indirectement en soutenant les parents en attente de services et en leur fournissant des stratégies adaptées pour stimuler leur enfant jusqu'à ce qu'ils puissent recevoir les services spécialisés de la part des intervenants du CRDP ou de l'école, qu'ils soient orthophonistes, psychologues, ergothérapeutes, orthopédagogues ou psychoéducateurs.

Justement, il faut éviter que les parents attendent aussi longtemps, alors que les premières années sont cruciales dans le développement de l'enfant. Ce qui pose surtout problème dans les CRDP et dans les écoles, c'est la disponibilité de spécialistes de l'intervention auprès des enfants dysphasiques. Pour réaliser l'évaluation avec l'instrument ÉBOS en compagnie des parents, il n'est pas nécessaire de faire appel à un spécialiste de l'intervention thérapeutique car il s'agit d'un instrument transdisciplinaire conçu autour de plusieurs champs disciplinaires. Dans une perspective de dépistage, ce pourrait être un professionnel de l'éducation, de la psychoéducation ou du travail social qui serait formé à cette fin. La dispensation d'une telle formation auprès des personnes désignées par chacun des établissements revient aux chercheurs qui souhaitent que la fiabilité de l'instrument soit assurée par l'uniformisation des pratiques d'évaluation.

Il est réaliste de penser que les gestionnaires d'établissement vont trouver avantageux le fait d'avoir une personne responsable du soutien des parents en attente de services en dysphasie. Ainsi, une seule personne pourrait procéder à plusieurs évaluations chaque semaine et permettre à des parents d'amorcer l'aide à leur enfant, en attendant des services sur une base régulière.

4. La construction de l'instrument d'évaluation

Plusieurs étapes ont mené à la production de l'instrument d'évaluation ÉBOS. Après une revue exhaustive de la littérature scientifique sur le sujet ayant permis d'établir sur des bases solides le construit de l'instrument, les membres du comité de conception du projet ont opté pour l'enchaînement de deux chantiers majeurs : la consultation des premiers acteurs impliqués (enfants, adolescents, parents), ainsi que la mise en place d'un comité d'experts du domaine.

C'est d'abord à partir de trois groupes de réflexion qu'ont émergé les premiers énoncés de besoins. Organisés avec des parents, puis avec des intervenants, ces ateliers de réflexion ont permis de confirmer les domaines d'activités à observer tels que décrits dans la littérature. Ces deux perspectives ont ensuite été confrontées lors de la tenue

d'un autre atelier avec un groupe de jeunes dysphasiques de 8 à 12 ans. C'est avec beaucoup de franchise et d'authenticité qu'ils ont exprimé leurs besoins tout en mettant bien l'accent sur les indicateurs de problèmes rencontrés dans leurs activités quotidiennes, que ce soit à la maison, à l'école ou dans leurs loisirs.

Dans un deuxième temps, un comité d'experts a été mis sur pied pour alimenter une réflexion sur la meilleure façon d'aider les enfants dysphasiques âgés entre 4 et 15 ans. Parmi les dix membres permanents de ce comité, il y avait des orthophonistes, des psychologues, des ergothérapeutes du CRDP ainsi que deux orthopédagogues provenant de deux commissions scolaires différentes et deux parents délégués de chapitres régionaux de leur association.

Sans compter les rencontres informelles, quatre journées d'étude espacées d'environ deux mois ont été tenues pour arriver à la confection d'une version initiale de l'instrument d'évaluation. La première journée a permis d'abord de bien camper les concepts en lien avec la revue de littérature et les données issues des trois groupes de réflexion. Il en est ressorti une représentation assez claire de ce que devrait être une structure appropriée pour observer les forces, faiblesses et besoins des enfants et adolescents dysphasiques.

Dès la deuxième journée d'études, les membres qui avaient consulté leurs collègues sont arrivés avec des propositions du construit à retenir. Il devenait de plus en plus évident qu'il fallait prendre en compte les perspectives de plusieurs disciplines parce que les manifestations de la dysphasie peuvent être observées dans des activités traversant les limites habituelles des disciplines professionnelles des milieux scolaires ou de la réadaptation. C'est ainsi que les dimensions suivantes ont été retenues:

- Autonomie personnelle
- Communication
- Comportement
- Autonomie scolaire
- Cognition
- Relations interpersonnelles
- Connaissance de soi

Tous les membres de l'équipe se sont ralliés à l'idée d'emprunter une perspective transdisciplinaire pour réaliser ces observations de l'enfant en considérant qu'il représente plus qu'un ensemble de parties relevant de l'expertise de l'une ou l'autre discipline, mais bien un tout avec des

caractéristiques qui lui sont propres. Pour toutes ces dimensions, plus d'une discipline est touchée, alors que les parents sont concernés par chacune.

La troisième journée de travail a été riche en contenu d'idées alors que chaque expert est arrivé avec des énoncés inspirés de son champ disciplinaire. C'est ainsi qu'ont été colligés 530 items qu'il a fallu épurer en enlevant tous les doublons et autres énoncés difficilement observables, de sorte qu'il ne restait plus que 115 items.

À la suite d'une préexpérimentation de cette version préliminaire, un retour en atelier a généré un consensus pour conserver 103 items qui rencontraient les conditions de construit et de contenu selon les critères de scientificité. Cette version finale a ensuite été soumise à une expérimentation auprès de 132 jeunes dysphasiques dont l'âge variait entre 4 et 15 ans, de manière à bien camper les indices de fidélité et de validité de l'instrument.

5. Les critères de rigueur scientifique

Les modèles théoriques utilisés traditionnellement en recherche ont été respectés dans la vérification rigoureuse de la validité et de la fidélité de l'instrument, à la fois au plan quantitatif et au plan qualitatif.

La fidélité :

Plusieurs modalités ont été mises en œuvre pour vérifier la fidélité de l'instrument ÉBOS. Tout d'abord, cette fidélité est établie à partir de la méthode dite « interjuges », en considérant que l'évaluation de chaque item est faite par deux personnes qui s'entendent pour situer l'appréciation sur des échelles en quatre points. La constance de la mesure est aussi assurée par les échanges entre les deux personnes qui procèdent à l'évaluation en faisant référence à la connaissance qu'elles ont de l'enfant.

Les coefficients alpha de Cronbach montrent également un niveau considéré comme étant excellent par les spécialistes du traitement statistique de la fidélité des instruments de mesure (Fortin & Gagnon, 2010). Une analyse réalisée avec SPSS pour les sept dimensions de l'instrument donne les résultats suivants.

Il ne fait pas de doute que l'instrument ÉBOS rencontre des indicateurs éloquents d'une très grande homogénéité des items dans chaque dimension et d'une excellente cohérence interne pour l'ensemble des dimensions.

Parmi les caractéristiques de l'instrument qui confirment sa précision par des coefficients de corrélation élevés,

Tableau 1. Coefficients alpha selon les dimensions

DIMENSIONS	Coefficients Alpha
A. Autonomie personnelle	0,796
B. Communication	0,889
C. Comportement	0,879
D. Autonomie scolaire	0,866
E. Cognition	0,831
F. Relations interpersonnelles	0,835
G. Connaissance de soi	0,771
ENSEMBLE DES DIMENSIONS	0,908

il convient de noter le fait qu'il est constitué d'un grand nombre d'items avec 103 énoncés. Étant donné que l'instrument d'évaluation ÉBOS est associé aussi bien à une approche quantitative par ses mesures basées sur des échelles et ses représentations graphiques qu'à une approche qualitative par les compléments d'informations recueillies en cours d'évaluation, il convient d'en faire valoir également les qualités métrologiques sous cet angle. Les critères de scientificité décrits par Lincoln et Guba (1985) sont aussi respectés, démontrant ainsi la rigueur qui a guidé les membres de l'équipe de recherche. Ont aussi été démontrées dans un autre article à paraître, la crédibilité, la transférabilité, la fiabilité et la confirmabilité.

La validité :

Les deux types de validité des mesures les plus importants dans la construction d'un nouvel instrument concernent son construit et son contenu. Dans le cas de l'instrument ÉBOS, la validité a d'abord été établie au moment de sa conception aussi bien dans son construit que dans son contenu.

D'une part, la **validité de construit** repose sur trois sources de données: une revue de littérature sur le sujet, une analyse statistique mettant en relation les domaines d'activités observées et une analyse factorielle visant à vérifier la pertinence des facteurs choisis.

D'autre part, la **validité de contenu**, qui est essentiellement un processus subjectif, est garantie par la qualité des membres du comité d'experts, qui en tant que spécialistes du domaine, ont été en mesure de porter un jugement sur chacun des items. C'est par consensus que la banque initiale de 530 items a été ramenée à 103, pour constituer l'instrument actuel. Dans ce contexte, la composition même du comité représente un gage de validité du contenu des items parce que leurs expériences d'intervention avec des enfants dysphasiques et leurs connaissances théoriques leur confèrent une expertise dans le domaine. De même, la revue de littérature menée par les chercheurs a apporté bon nombre de suggestions d'aspects à observer dans les activités quotidiennes des enfants et adolescents dysphasiques (Boudreault & Michallet, sous presse). Ainsi, les items de l'instrument évaluent bien les différentes caractéristiques de l'enfant dysphasique, confirmant ainsi une cohérence avec les objectifs visés.

Il ne fait pas de doute que l'instrument développé rencontre les standards les plus élevés pour la fidélité et la validité, confirmant ainsi sa pertinence pour identifier et évaluer les besoins des enfants dysphasiques comme ceux de leurs parents.

Les échelles de mesure retenues permettent de nuancer le niveau de réalisation de chaque activité au-delà

d'un « oui, il le fait » ou bien « non, il ne le fait pas ». Est aussi disponible pour chaque item un espace pour inscrire des commentaires ou ajouter un complément d'information pour expliquer le jugement porté sur l'échelle, par exemple : « *il est capable de le faire, mais c'est pénible et il ne fait pas beaucoup d'efforts pour s'améliorer* ».

En résumé, tous les aspects importants d'une bonne validité et d'une bonne fidélité ont été pris en compte, tout spécialement pour l'observation des besoins dans la perspective de l'enfant lui-même ou de ses parents.

6. À la fine pointe de la technologie

La plupart des instruments d'évaluation utilisés aujourd'hui par les différents professionnels en sciences humaines bénéficient des technologies pour mettre en évidence les profils individuels ainsi que les données comparatives des groupes de sujets. Il s'agit souvent de la meilleure façon d'illustrer globalement les particularités des personnes évaluées et de faciliter le repérage des aspects à prioriser en intervention.

Outre la reproduction du questionnaire à des fins de saisie des valeurs attribuées devant générer un graphique comme le montre la figure 1, le logiciel comporte aussi d'autres fonctionnalités utiles qui permettent :

- d'associer des commentaires pour chacun des items;
- d'exclure les items qui ne s'appliquent pas pour diverses raisons dont très souvent le niveau d'âge de l'enfant qui ne correspond pas aux aspects observés;
- d'identifier rapidement les items devant faire l'objet d'un plan d'intervention interdisciplinaire;

- d'effectuer des regroupements de sujets pour fournir un portrait d'ensemble d'une classe d'élèves par exemple;
- d'assurer un suivi d'un nombre infini de dossiers dans une perspective de relance périodique à moyen ou long terme.

Toutes ces fonctionnalités peuvent être gérées au sein de chacun des établissements pour garantir d'une part la confidentialité des dossiers et offrir d'autre part aux professionnels la possibilité de suivre étroitement l'évolution de chacun de leurs clients. La souplesse du logiciel devient d'autant plus importante qu'à chaque item correspondent des stratégies visant à faciliter les interventions, utilisables par les parents et par les intervenants. Il importe de noter d'abord que le logiciel permet de distinguer nettement les forces, faiblesses et besoins à partir d'histogrammes basés sur une échelle en pourcentages s'appliquant à chacune des dimensions.

L'exemple de la figure 1 montre le profil d'un enfant qui présente à la fois des difficultés et des besoins dans plusieurs dimensions. Les trois sections en ordonnée indiquent le niveau de difficulté selon que les activités observées sont réalisées avec des petites, moyennes ou grandes difficultés. Lorsqu'il s'agit du niveau des besoins de l'enfant ou des parents, l'échelle indique plutôt l'importance relative de ces besoins pour eux, soit petits besoins, moyens besoins ou grands besoins, aussi estimés en pourcentages où 33% et moins signifie petits besoins, 34% à 66%, moyens besoins et 67% et plus, grands besoins.

Les professionnels avertis peuvent voir d'un premier coup d'œil plusieurs avenues à explorer en intervention. Pour n'en citer que quelques-unes :

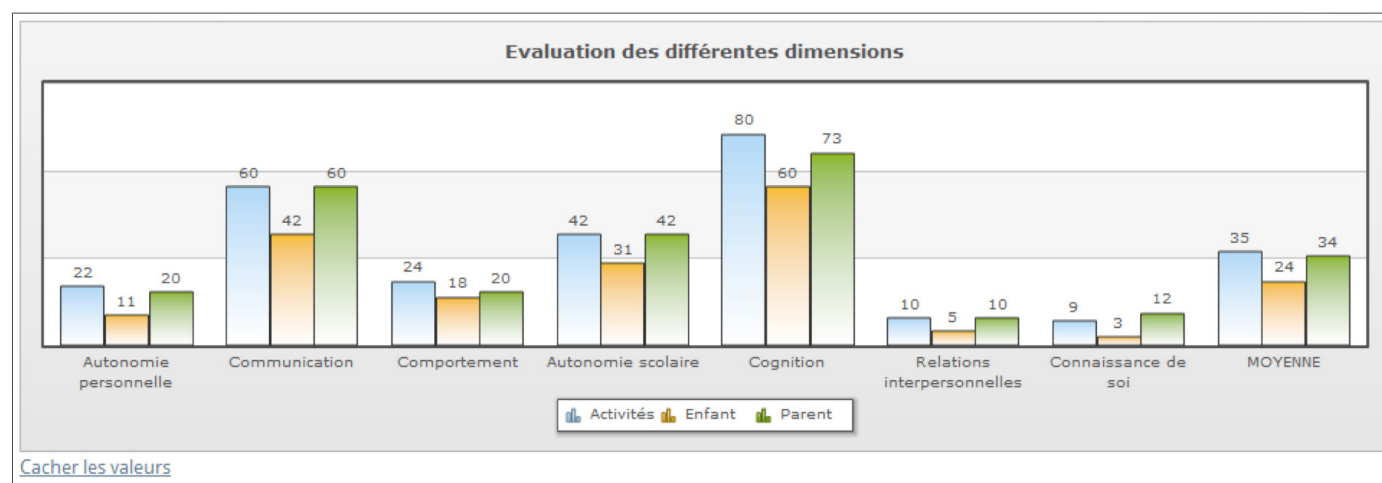


Figure 1. Ratio de consonnes correctes pour chaque enfant typique (points non remplis), moyenne (points remplis) et écart-type (lignes verticales) pour chaque groupe d'âge et le ratio pour chacun des enfants ayant un TDSP (chiffre).

- l'enfant présente des difficultés moyennes dans deux dimensions, à savoir : communication et autonomie scolaire, alors que des difficultés plus importantes ont été observées en cognition.
- les besoins des parents correspondent assez bien au niveau de réalisation des activités non seulement dans la moyenne des aspects observés, mais aussi dans la majorité des dimensions;
- cet enfant de sept ans ne semble pas partager les inquiétudes de ses parents quant aux besoins à combler, de même qu'il ne semble pas être conscient de ses difficultés à réaliser les activités;
- le plan d'intervention à mettre en place ne pourrait pas couvrir toutes les habiletés qu'il faudrait développer; du moins pas à court terme. Il faudrait que les intervenants fassent, en équipe, des choix parmi ces quelques suggestions :
 - à l'école, mettre l'accent sur l'autonomie scolaire en allant voir dans le protocole de l'instrument quels items ont été identifiés comme traduisant une moyenne ou une grande difficulté;
 - en milieu de réadaptation, stimuler l'enfant pour l'apprentissage des aspects observés dans les dimensions de la communication et de la cognition;
 - à la maison, amener les parents à soutenir leur enfant dans les activités de la vie quotidienne;
 - en partenariat, les parents et les intervenants pourraient sensibiliser l'enfant à l'importance de ses difficultés dans certains domaines et leur impact sur son adaptation sociale et scolaire.
- dans cette optique et considérant le grand nombre de difficultés, il serait nécessaire que tous les acteurs autour de cet enfant travaillent en concertation pour cibler les interventions à prioriser tout en veillant à lui assurer une bonne qualité de vie d'enfant qui a aussi des besoins personnels d'actualisation de soi.

Bien entendu, il faudrait pousser plus loin les observations en prenant connaissance des rapports figurant déjà à son dossier scolaire ou à celui du centre de réadaptation. Les réussites et les échecs des interventions tentées par le passé peuvent aussi guider les professionnels et les parents dans le choix des stratégies à mettre en place pour répondre aux objectifs d'un plan d'intervention couvrant les principaux domaines d'activités considérés comme étant en difficulté.

7. Des stratégies d'intervention adaptées

L'ensemble de la démarche ÉBOS donne accès non seulement à un profil montrant les forces, faiblesses et besoins de l'enfant comme c'est le cas habituellement à

la suite d'une évaluation, mais aussi et surtout à plusieurs suggestions de stratégies pertinentes correspondant au niveau de besoins de l'enfant. Une autre fonctionnalité est disponible sur le site pour une mise en relation fonctionnelle avec celle de l'instrument d'évaluation afin d'associer des stratégies d'intervention aux principales faiblesses identifiées sur le profil.

Une banque riche de plusieurs stratégies d'intervention a été constituée pour chacun des 103 items de l'instrument. Différentes sources, toujours bien indiquées dans la base de données, sont mises à contribution pour alimenter cette banque. Les membres de l'équipe ont aussi mis la main à la pâte pour créer un certain nombre de stratégies, tout particulièrement dans les secteurs d'activités où le matériel disponible était plutôt pauvre ou restreint.

Dans la plupart des rubriques d'item, une dizaine de stratégies sont disponibles selon trois sous-groupes d'âges : 4-7 ans; 7-11 ans; 11 ans et plus. Il arrive parfois qu'une stratégie puisse se retrouver dans plus d'un groupe d'âges, si sa mise en application s'adresse aussi à cette population.

Deux autres fonctionnalités pertinentes sont aussi accessibles sur cette page pour apporter un complément d'informations sur cet item. Sous l'onglet « doc » se trouvent des documents à télécharger et des adresses de site Internet accessibles d'un seul clic. De même, sous l'onglet « réf. » sont répertoriées toutes les références des documents consultés et qui peuvent aussi être retracés avec les coordonnées précisées.

C'est dans ce contexte que les termes « moyens concrets » prennent tout leur sens parce que chaque stratégie d'intervention va préciser ce qui devrait être fait et comment il faudrait le faire en lien avec l'importance des besoins identifiés. Il convient également de mentionner que les stratégies proposées pour les interventions pourront s'appliquer aussi bien dans les différents milieux de vie de l'enfant, à la maison, à l'école, dans ses loisirs, que dans un contexte plus formel d'éducation, exercices de motricité, lectures, jeux, etc.

Selon le profil de l'enfant évalué, il devient possible de passer à travers cette documentation pour retenir les stratégies les plus susceptibles d'être efficaces, compte tenu de son âge et de ses autres caractéristiques personnelles. Certaines stratégies sont formulées à l'intention des parents qui pourraient les utiliser à la maison, alors que d'autres ont vraiment été rédigées pour un usage plus professionnel.

Dans un premier temps, la présentation des stratégies s'appuiera sur les aspects dominants du profil de l'enfant évalué et accompagnera le rapport montrant non seulement l'histogramme, mais aussi le détail des forces et faiblesses. Tout dépendant des objectifs du plan d'intervention déjà prévu à l'école ou au centre de réadaptation, certaines stratégies pourront être priorisées. De même, les capacités et les disponibilités des parents pourront être prises en compte dans le choix des stratégies à appliquer.

Avec l'amélioration constante des ressources pédagogiques sur Internet, alors que plusieurs organismes mettent en ligne des propositions d'activités visant le développement des enfants et des adolescents, il devient important que le projet ÉBOS assure une mise à jour périodique des liens sur son site. À cette fin, un personnel professionnel est affecté à une telle tâche en plus de répondre à des demandes ponctuelles des partenaires ou des visiteurs occasionnels intéressés à en savoir davantage ou bien encore à enrichir la banque de stratégies.

8. Développement d'un partenariat autour d'un site Web

Grâce à une subvention octroyée par le ministère du développement économique, de l'innovation et de l'exportation (MDEIE), ÉBOS est depuis septembre 2012 et jusqu'en juin 2014 en phase d'implantation à titre expérimental dans deux centres de réadaptation en déficience physique (CRDP) du Québec et en voie de l'être dans deux chapitres de l'Association québécoise de la dysphasie (2012). Dans le but de conserver le caractère professionnel du traitement et de l'analyse des données, il faut mentionner que les services sont centralisés dans chacun des établissements qui ont signé un engagement de confidentialité en tant que partenaire du projet. Ainsi, chaque établissement devient gestionnaire de tous ses dossiers ÉBOS qui sont hébergés sur le site du projet où les accès demeurent protégés par un mot de passe distinct.

La structure du site Web propose un menu convivial (voir : <https://ebos.dysphasie.net>) comprenant toutes les fonctionnalités permettant aux utilisateurs d'aller rapidement consulter et imprimer leurs dossiers, en plus de pouvoir interagir avec les membres de l'équipe du projet pour poser des questions de clarification, entre autres. L'arbre de décision accessible sur la première page du site va grandement favoriser la pleine autonomie des gestionnaires des établissements. Au plan du traitement statistique, divers types de rapports sont disponibles pour permettre aux professionnels concernés d'assurer un suivi étroit de leurs clients tout en bénéficiant de tableaux récapitulatifs et de représentations graphiques montrant

des comparaisons inter-individuelles afin de faciliter l'organisation des services.

Il devient ainsi possible d'avoir le portrait des besoins d'un enfant ou d'un adolescent et de sa famille en particulier, mais également d'obtenir le portrait des besoins d'un groupe d'enfants du même âge, du même sexe ou d'une même région par exemple. ÉBOS peut donc non seulement servir à la planification des services à donner à un individu mais aussi être utilisé pour la planification des services destinés à un groupe d'individus.

Le véritable partenariat s'actualise actuellement autour de deux pôles : une participation aux décisions concernant le développement des outils de fonctionnement par la désignation d'un membre responsable par établissement pour veiller au développement de nouveaux matériaux ou produits et une contribution financière pour assurer la pérennisation du site. En effet, après la période d'implantation sans frais grâce aux fonds du MDEIE, les coûts d'hébergement du site devront être assumés à même les recettes générées par son utilisation. Idéalement, ce nouveau consortium devrait rassembler de manière virtuelle non seulement des gestionnaires de services, mais aussi des professionnels de diverses disciplines intéressés à exploiter le plus possible le site Web pour aider les enfants dysphasiques à connaître la réussite au plan social et scolaire.

À la fin de la phase d'implantation dans les milieux partenaires cités plus haut, la diffusion de l'existence de ce service visera à outiller les intervenants et les parents dans leur soutien aux enfants et adolescents dysphasiques. Ainsi, tous les partenaires potentiels, les commissions scolaires, les centres de réadaptation (CRDP), les centres de santé et de services sociaux (CSSS) seront informés par un courriel personnalisé de l'existence de ce service. Les nouvelles technologies favorisent le partage des expertises. Il est d'autant plus important de les exploiter le plus possible que le Québec est très vaste et qu'il est impossible de réunir les gens dans un même lieu sans engendrer des coûts exorbitants. Cette réalité prend encore plus d'importance en considérant l'intérêt manifesté par des professionnels d'outre-mer pour utiliser le produit ÉBOS. Aucune publicité n'a encore été diffusée, exception faite de quelques communications dans des colloques et déjà des professionnels de France, du Luxembourg et de Suisse se montrent intéressés à devenir collaborateurs et même partenaires. C'est avec un souci de maintenir la même rigueur dans la conception et la gestion des instruments d'évaluation que de telles collaborations peuvent s'établir pour venir en aide aux enfants dysphasiques quel que soit leur lieu de résidence.

Conclusion

L'offre de services aux enfants et adolescents dysphasiques et à leur famille est limitée tant dans le système scolaire que dans celui de la réadaptation. Elle est notamment en redéfinition dans plusieurs CRDP québécois afin de favoriser l'accessibilité aux services. Dans ce contexte, l'utilisation d'ÉBOS permet l'identification des besoins et la planification des services auprès d'un individu et de sa famille dans une perspective interdisciplinaire. Elle permet aussi d'obtenir un portrait des besoins d'une population d'individus regroupés selon divers critères afin de favoriser l'organisation des services. Enfin, ÉBOS peut aussi être utilisé en recherche; une recherche est d'ailleurs en cours sur l'évolution des besoins des enfants et adolescents dysphasiques. Enfin, l'expérience avec ÉBOS montre que son utilisation favorise l'établissement d'une relation de partenariat entre la famille et les intervenants.

Pour les membres de l'équipe de recherche, ces retombées concrètes constituées de dispositifs non seulement d'évaluation des besoins mais aussi d'intervention et de soutien au travail interdisciplinaire doivent servir à ces enfants et adolescents dysphasiques ainsi qu'à leur famille; d'où l'importance de pérenniser ces activités et services. Pour ce faire, l'apport de toutes les compétences et ressources professionnelles doivent être mises à contribution. La dysphasie interpelle plusieurs groupes d'intervenants en raison de la complexité et de la diversité des manifestations qui fragilisent l'adaptation sociale et scolaire des enfants et des adolescents concernés. La mise en œuvre de l'instrument d'évaluation ÉBOS et des stratégies d'intervention associées constitue une première étape visant à soutenir les parents d'un enfant dysphasique dans la réalisation de leur rêve de le voir connaître du succès dans toutes ses activités aussi bien à l'école que dans la société en général. D'autres projets sont prévus dont la traduction et l'adaptation de l'instrument en anglais.

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 *High Durational Variability of Consonant Geminate and Their Surrounding Vowels in Stuttering Japanese Speakers' Fluent Speech*

 *Haute variabilité dans la durée de consonnes géminées et des voyelles avoisinantes dans la production verbale de bégues japonais*

KEY WORDS

JAPANESE
CONSONANT GEMINATE

VOWEL DURATION

INSTABILITY
OF Q DURATION

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Abstract

This study compared the oral reading performances of stuttering and nonstuttering Japanese speakers with respect to (a) durations of V1, V2, and Q (geminate consonant) in the (C)V1QCV2 sequence in words, (b) V1/V2, Q/3S, Q/V1, and Q/V2 durational ratios, and (c) variability coefficients for V1, V2, and Q durations, and for V1/V2, Q/3S, Q/V1, and Q/V2 durational ratios. Results showed that the means of the duration of V2 and Q, and those of the variability coefficient for V1/V2, Q/3S, Q/V1, and Q/V2 durational ratios were significantly greater for the stuttering group than for the nonstuttering group. These findings are interpreted as reflecting covert markers of stuttering events (e.g., blocking) caused through asynchronous interactions between V1, Q, and V2 in the stuttering individuals' aberrant timing system.

Abrégé

Cette recherche a comparé les performances à l'oral de lecteurs japonais bégues et non-bégues pour ce qui est (a) de la durée de V1, V2 et Q (consonnes géminées) dans les séquences de mots (C)V1QCV2, (b) de V1/V2, Q/3S, Q/V1, et Q/V2 et (c) du rapport de durée pour V1, V2 et Q, et des coefficients de variabilité pour V1/V2, Q/3S, Q/V1 et Q/V2. Les résultats ont démontré que les moyennes de durée de V2 et Q et que les moyennes du coefficient de variabilité pour les rapports de durée V1/V2, Q/3S, Q/V1 et Q/V2 étaient considérablement plus longues pour le groupe bégue que pour le groupe non-bégue. Ces résultats semblent montrer qu'il existe des marqueurs du bégaiement (i.e. blocage) associés aux interactions asynchrones entre V1, Q et V2 dans le système d'analyse temporelle des individus bégues. Ce système serait atypique chez ces individus.

Introduction

Japanese, a mora-timed language in which the rhythm of a mora (roughly a syllable) is the basic unit of organization in speech production, exhibits complex and subtle rhythm patterns although the isochrony of mora-timing is a key principle (e.g., Vance, 2008; Warner & Arai, 2001). The first geminate consonant represented as Q and its adjacent vowels provide one such example. Take *sakka* “a writer” and *saka* “a slope,” for example. The first word consists of three moras (CV.C.CV, i.e., /sa.Q.ka/) including Q, and the second word two moras (CV.CV, i.e., /sa.ka/) with no Q. Q “represents a generic moraic oral obstruent with no specific place of articulation” (Labrune, 2012, p. 135), and tends, in the face of the principle of isochrony, to be slightly shorter than the first mora /sa/ and the third mora /ka/. Furthermore, many studies demonstrated that vowels preceding geminate consonants (V1) tend to be longer, and vowels following them (V2) shorter, as compared to the case of singletons (Han, 1992, 1994; Campbell, 1999; Hirata, 2007; Hirata & Whiton, 2005; Idemaru & Guion, 2008; cf. Pickett, Blumstein, & Burton, 1999). For example, Idemaru and Guion (2008) compared two-mora words (CV1.CV2) such as *Seto* (the name of a city) and three-mora words (CV1.C.CV2) such as *setto* (a loan word meaning “set”), and found that the mean of V1 duration was 75 msec before geminates and 59 msec before singletons, whereas the mean of V2 duration was 63 msec after geminates and 76 msec after singletons. This indicates that the mean V1/V2 ratio is 1.19 for words with geminate consonants and 0.74 for words with singletons, with the ratio of the former to the latter being as large as 1.6.

The finding that a vowel preceding a geminate lengthens while a vowel following a geminate shortens may be viewed as a unique rhythm pattern in Japanese. Maddieson (1985) states, “A shorter vowel before geminate than before singleton consonants is known to occur at least in Kannada, Tamil, Telugu, Hausa, Italian, Icelandic, Norwegian, Finnish, Hungarian, Arabic, Shilha, Amharic, Galla, Dogri, Bengali, Sinhalese, and Rembarrnga” (p. 208). Maddieson (1985) viewed this pattern as a universal property of natural language.

With this background in mind, one may wonder if the timing of geminate consonants and their adjacent vowels are difficult for Japanese speakers, especially persons who stutter, to acquire. However, we were not able to locate a single study on this issue. Shimamori and Ito (2006), employing a nonword reading task, found that Japanese children who stutter yielded more stuttering events for nonwords beginning with simple CV syllables than those

beginning with heavy syllables such as CVQ and CVV. However, we point out the following possibility. That is, it could be difficult to determine whether words with Q, conventionally called a “choked sound” in Japanese, are stuttered or not. It would be difficult, for example, to determine a longer Q with the mean plus two standard deviations (SD) in duration to be a stuttering case. But if a Q is abnormally longer or shorter in duration even though it may go unnoticed, that could be taken as a covert marker of a stuttering event. Shimamori and Ito did not consider this possibility.

This study focuses on adults who stutter instead of children who stutter because we were not able to recruit many children who stutter. This study is exploratory in nature, and addresses the following three questions: Do stuttering adults differ from nonstuttering adults with respect to (a) absolute durations of V1, V2, and Q, (b) V1/V2, Q/3S (where 3S indicates three segments, V1, V2, and Q, combined), Q/V1, and Q/V2 durational ratios, and (c) variability coefficients (i.e., SD/Mean) for V1, V2, and Q durations, and for V1/V2, Q/3S, Q/V1, and Q/V2 durational ratios? The last question was motivated by Jancke (1994) and Homma (2011). These researchers found that the variability of voice onset time (VOT) was greater in persons who stutter than in persons who do not stutter. The question thus involves the findings of Jancke (1994) and Homma (2011) applied to the above variables.

Method

The data examined in this study were part of those that were collected for different purposes in the first author’s PhD study (Homma, 2011). The number of participants was smaller than that of Homma (2011) because persons with mild stuttering were not included in this study. Those with mild stuttering were excluded to enhance the observability of subtle markers of stuttering, if any, such as abnormally longer or shorter durations of V1, V2, and Q.

Participants

Participants were all native Japanese speakers, 11 stuttering people (eight male and three female) and 11 nonstuttering people (eight male and three female) of comparable age ($M = 27.3$ and 27.6 years, $SD = 5.2$ and 5.0 , respectively). All persons who stuttered had no deficits other than stuttering, and none had participated in stuttering treatment. The severity of stuttering was measured on the basis of participants’ oral reading performances as follows. The test text used in this study consisted of 131 Japanese “phrases” (see below), and the number of stuttered phrases were counted and divided by

131 for each person who stuttered. The mean stuttering rate was 0.19 (SD = 0.13), ranging from 0.06 to 0.42. The persons who stuttered were classified into two subgroups: 7 people in the moderate (0.06 to 0.17) group and 4 people in the severe (0.21 to 0.42) group. The cutoff points 0.18-.20 are more or less a subjective measure, but they can be taken as conventional (cf. O'Brian, Packman, Onslow, & O'Brian, 2004).

After undertaking an interview, stuttering and nonstuttering persons all signed informed consent documents to participate in this study, and were paid for their participation.

Procedure

The passage used in an oral reading task was taken from a Japanese language textbook for fifth graders. The passage consisted of 22 sentences which had 13 phrases containing the sequence (C)V1QCV2 (see Appendix 1). Each participant was given two oral reading tasks. In one, the participant read the passage out loud in front of a one-stranger audience (the experimenter) in a quiet room. This was called a high-anxiety condition. The experimenter recorded the participant's oral reading with a Roland recorder (R-09) with a sampling rate of 44.1 kHz and 16-bit resolution. In the other task, the participant read the same passage out loud alone with no other person in the same room, recoding his/her reading by him/herself. This was called a low-anxiety condition. This study reports performance in the high-anxiety condition. The data for the low-anxiety condition are to be measured, and reported, if informative, in further research.

Measurements

The total number of target tokens was 858 (13 phrases×3 segments×22 speakers). Each speech token was measured using Praat (Version, 5.1.29) with a sampling rate of 44.1 kHz and 16-bit resolution. 783 of the 858 tokens (91%) were measured, and the remaining 75 (44 for the stutterers and 31 for the nonstutterers) were discarded because of the difficulty of measurement with some words stuttered or slurred, and other vowels devoiced. The segments analyzed were (a) the vowel preceding the Q, i.e., V1, (b) the Q, and (c) the vowel following the Q, i.e., V2, in the sequence (C)V1QCV2 in each target phrase. Where the segment preceding V1 was a vowel instead of a consonant, the duration of the vowel and V1 was measured and divided by two, and that duration was used as the duration of V1. Similarly, where the segment following V2 was a vowel, the duration of the two vowels combined was measured and divided by two, and that duration was taken as the duration of V2. The general procedure for measurements was essentially the same as

those employed by previous researchers such as Han (1994) and Idemaru and Guion (2008).

Results

It is first noted that the absolute duration of speech segments is affected by speaking rate. Speaking rate was thus estimated on the basis of the duration of moras in the first half of the text. The linguistic unit measured was the Japanese "phrase," which is defined as a unit composed of a content word and one or more bound morphemes, if any. For example, a noun and a case particle, e.g., *shinshi-ga* (*shinshi* meaning "gentleman," and *-ga* being a subject marker), comprise a phrase; likewise, a verb and a past tense marker, e.g., *ka-tte* (*ka* meaning "to buy" and *-tte* being a past tense marker) constitute another phrase. The duration of each phrase was measured and divided by the number of moras; thus, the duration of *shinshi-ga*, for example, was divided by four and that of *katte* was divided by three. There were 71 phrases, and thus 71 mora durations were obtained for each participant. The mean mora duration was 119 msec (SD = 11) for the stuttering group and 113 msec (SD = 12) for the nonstuttering group, the difference being non-significant, $t(20) = 1.29$, $p > .20$. It is thus assumed that speaking rate was comparable between the groups.

The results are divided into two parts: results from participant analysis and those from item analysis. The first part is reported in detail and the second briefly.

Results from Participant Analysis

The first question of this study involves group differences for mean durations of V1, V2, and Q. Results are presented in Table 1.

The group difference was not significant for V1, $t(14) = 1.39$, $p > .20$, but the mean V2 and Q durations were significantly longer for the stuttering group than for the nonstuttering group, $t(20) = 2.42$, $p < .05$, and $t(20) = 2.78$, $p < .05$, respectively. Thus the conclusion drawn from Table 1 is that the stuttering groups' timing of Q and V2 is deviant from a normal pattern, both segments becoming longer than expected.

Regarding the second question, mean V1/V2, Q/3S, Q/V1, and Q/V2 durational ratios (SDs), and group differences are shown in Table 2.

The means were not significantly different between the groups for V1/V2, $t(12) = 0.50$, for Q/3S, $t(20) = 1.53$, $p > .15$, and for Q/V2, $t(20) = 1.38$, $p > .18$. The difference in Q/V1 approached significance, $t(15) = 1.88$, $p = .08$, which indicates

Table 1. Mean Durations in msec (SD) of V1, Q, and V2 for the Stuttering and Nonstuttering Groups and Group Differences

	Stuttering	Nonstuttering	Difference
V1	80 (15)	73 (7)	7
Q	139 (31)	111 (16)	28*
V2	72 (17)	60 (6)	12*

* $p < .05$.

Table 2. Mean V1/V2, Q/3S, Q/V1, and Q/V2 Duration Ratios (SD)

	Stuttering	Nonstuttering	Difference
V1/V2	1.25 (0.22)	1.28 (0.08)	0.03
Q/3S	0.48 (0.03)	0.46 (0.03)	0.02
Q/V1	1.87 (0.47)	1.57 (0.23)	0.30†
Q/V2	2.21 (0.34)	2.01 (0.33)	0.20

† $.05 < p < .10$.

that because the mean Q durations did not differ between the groups (Table 1), the mean V1 duration tended to be relatively longer in stuttering than nonstuttering individuals.

As for the third question concerning variability coefficients (SD/M), Table 3 shows that the stuttering group consistently differed from the nonstuttering group.

All of the variable coefficients for durational ratios were significantly higher in the stuttering group than in the nonstuttering group: $t(18) = 4.49$, $p < .001$ for V1/V2; $t(20) = 2.92$, $p < .01$ for Q/3S, $t(19) = 2.86$, $p = .01$ for Q/V1; and $t(19) = 2.54$, $p < .02$ for Q/V2. These results are taken as reflections of stuttering persons' instability in timing V1, Q, and V2 durations within words.

Results from Item Analysis

Differences between groups were examined for each segment. Results are presented in Appendices 1 and 2, which basically correspond to Tables 1 and 2. Variability

coefficients could not be computed for each segment, and no appendix is presented which corresponds to Table 3. Results from item analysis show similar patterns to those from participant analysis. As shown in Appendices 1 and 2, group differences are observed only for a relatively small number of items. While the question as to where such differences come from is intriguing, no further discussion is made because the sample size is small.

Discussion

The questions addressed in this study were whether persons who stutter differ from persons who do not stutter with respect to (a) absolute durations of V1, V2, and Q, (b) V1/V2, Q/3S, Q/V1, and Q/V2 durational ratios, and (c) variability for V1, V2, and Q durations, and for V1/V2, Q/3S, Q/V1, and Q/V2 durational ratios. Results showed that the groups did not significantly differ with respect to (a) the duration of V1, (b) the durational ratios of V1/V2, Q/3S, Q/V1, and Q/V2, and (c) variability for V1, V2, and Q durations. However, the groups did differ with respect to (a) the

Table 3. Mean Variability Coefficients (SD) for V1, Q, and V2 Durations, and for V1/V2, Q/3S, Q/V1, and Q/V2 Duration Ratios

	Stuttering	Nonstuttering	Difference
V1	0.20 (0.06)	0.19 (0.05)	0.01
Q	0.33 (0.07)	0.28 (0.08)	0.05
V2	0.38 (0.11)	0.32 (0.09)	0.06
V1/V2	0.37 (0.07)	0.25 (0.05)	0.12**
Q/3S	0.18 (0.03)	0.14 (0.03)	0.04**
Q/V1	0.43 (0.09)	0.33 (0.07)	0.10**
Q/V2	0.42 (0.11)	0.31 (0.09)	0.11

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

durations of V2 and Q, and (c) variability for V1/V2, Q/3S, Q/V1, and Q/V2 durational ratios, i.e., the means of these latter parameters were all significantly greater for the stuttering group than for the nonstuttering group. Persons who stutter, even when producing fluent speech, exhibit an aberrant timing relationship of V1, Q, and V2 in the (C)V1QCV2 sequence in words. For example, while a stuttering person's duration ratio of V1/V2 is taken as being within the normal range (e.g., Han, 1994; Campbell, 1999; Idemaru & Guion, 2008), his/her ratio, albeit difficult to perceive, substantially fluctuates. We discuss a few implications about the longer duration of Q and V2, and the more variability or instability in durational ratios of V1/V2, Q/3S, Q/V1, and Q/V2 below.

Longer Duration of Q and V2

In regard with the longer duration of Q, one interpretation is to view a longer Q as a mild type of blocking. If we characterize a Q longer than 230 msec as stutter-like, or blocking-like (considering that the mean duration of moras was 119 msec for the stuttering group and 113 msec for the nonstuttering group), eight persons who produced one or more stutter-like Qs (73%) were in the stuttering group, whereas only one such person (9%) was in the nonstuttering group. It is notable that the two longest Qs, 418 msec and 370 msec, which were not taken as stutters because they were not perceived as unnatural, were produced by one stuttering person with moderate stuttering (Stutterer 3) and one stuttering person with severe stuttering (Stutterer 4). These longer Qs may not be uncommon in laboratory and everyday situations, and go without notice. As mentioned

in the introduction, Shimamori and Ito (2006) reported that Japanese children who stutter yielded more stuttering events for nonwords with lower syllable onset complexity (CV) than those with higher onset complexity (e.g., CVQ and CVV), but this finding must be interpreted with caution.

Regarding the longer duration of V2, it would be natural to hypothesize that a longer Q triggers a longer V2. This hypothesis is consistent with the finding that the correlation between Q and V2 durations was significant for the stuttering group, $r(9) = .75$, $p < .01$ but not for the nonstuttering group, $r(9) = .47$, $p > .10$. It is noted, however, that only one person who stutters showed a significant correlation between them, $r(8) = .90$, $p < .01$. The reason for the non-significant correlations for most persons who stutter may be that most of them unconsciously attempted to shorten the longer-Q-following mora in order to compensate for the longer Q and keep the length of the phrase constant.

Variability of Q and its Adjacent Vowels

This issue brings out an obvious implication: The relationship among stuttering, variability in the speech motor, and related systems (e.g., Homma, 2011; Jancke, 1994; Olander, Smith, & Zelaznik, 2010; Onslow, van Doorn, & Newman, 1992; Ward, 1997). Going one step further, the present findings may be interpreted as providing a causal implication, i.e., the instability or variability in speech, if substantial, could lead to blocking and/or prolongations of speech sounds such that some abnormally longer segments may be regarded as prolongations. Specifically,

intra-subjects' variability seems much greater among stuttering individuals than the mean variability coefficients in Table 3 may suggest. For example, for Stutterer 3, whose variability coefficient for Q was the greatest 0.48 in the group, exhibited as long as 418 msec for Q of *ippiki* "one (and a quantifier)" and as short as 53 msec for Q of *sakki* "a short time ago." The 418 msec duration may be taken as an intra-word pause or blocking, and the 53 msec duration as an absence of Q. For Stutterer 4, whose variability coefficient was the third greatest 0.37, took 370 msec for Q of *natte* "became" while he did not produce shorter Qs. As stated above, one was a person with moderate stuttering and the other with severe stuttering. And somewhat unexpectedly, there was no significant correlation between degree of severity of stuttering and variability for Q duration, $r(9) = 0.19$, n.s., and thus this finding remains to be an issue for further research.

More difficult to interpret is the significantly greater variability of V1/V2, Q/3S, Q/V1, and Q/V2 duration ratios for the stuttering group. In spite of the non-significant effects of group on variability for V1, Q, and V2 durations, the significant effects on variability of ratios such as V1/V2 may appear to be inconsistent with the above-mentioned causal relation between variability and stuttering. It is argued, however, that more variability in these parameters involving Q intermittently causes a longer Q duration through asynchronous interactions between V1, Q, and V2 in the aberrant timing system of stuttering persons. Thus, the variability observed here can be taken as a cause of potentially long Q duration which may intermittently surface as blocking or a prolongation.

The greater variability of V1/V2, Q/3S, Q/V1, and Q/V2 duration ratios in the stuttering group may involve an asynchronous interaction between V1, Q, and V2 durations. One aspect of the asynchronous interaction may be that

V1, V2, and Q durations are relatively more independent of one another in the stuttering group than in the nonstuttering group. To verify this asynchronous interaction hypothesis, the mean of the correlation between V1 and V2 durations was first compared between the groups. If this hypothesis is tenable, the correlation would be lower in the stuttering group than in the nonstuttering group. Likewise, the same would be the case for V1 and Q durations and Q and V2 durations. Results are shown in Table 4.

The results are by and large consistent with the hypothesis. The mean differences in the correlations between V1 and V2, and between V1 and Q were significantly lower in the stuttering group than in the nonstuttering group, $t(20) = 2.37$, $p < .05$, and $t(20) = 3.56$, $p < .01$, respectively. The mean difference in the Q and V2 correlation means was not significantly different between the groups, $t(20) = 1.27$, $p > .10$, but the pattern is in the expected direction. Thus, aside from Q and V2 pairs, it is concluded that the stuttering individuals are likely to produce V1, Q, and V2 in a more independent or asynchronous manner in the Q-involving context than are the nonstuttering individuals, which may underlie intermittent longer Q duration.

Finally, we asked two questions concerning the generality of the major findings in this study. First, do the findings in Tables 1 to 4 extend to moras in general? As reported in the Results section, the mean duration of moras computed on the basis of the Japanese phrase was 119 msec for the stutterer group and 113 msec for the nonstutterer group, and the difference was not significant. Given the above question, mean variability coefficients were computed and compared between the groups, and the difference was found non-significant, 0.19 (SD = 0.03) and 0.18 (SD = 0.03), $t(20) = 1.03$, $p > .30$. This means that the stuttering persons' variability of mora durations at the phrase level does not deviate from the normal pattern. But

Table 4. Mean Correlations (SD) Between V1 and V2, V1 and Q, and Q and V2 Durations

	Stuttering	Nonstuttering	Difference
V1 and V2	0.08 (0.39)	0.49 (0.41)	0.40*
V1 and Q	-.15 (0.21)	0.25 (0.36)	0.40**
Q and V2	0.32 (0.34)	0.47 (0.20)	0.20

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

the variability of the mora durations within and/or across phrases might have been erased by averaging the mora durations in each phrase. Thus, the question of whether the variability of mora durations at the mora level is also normal (cf. Warner & Arai, 2001) or not in stuttering individuals remains unanswered.

Second and more generally, the asynchronous timing reported in this study may be subsumed in a more general motor deficit involving the variability of rhythmic motor timing suggested by Olander et al. (2010). If it is, it would be possible to identify stutterers with a motor deficit among the participants in the present study.

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Appendix 1

Mean Durations (in msec) of V1, Q, and V2 Q for the Stuttering (S) and Nonstuttering (NS) Groups and Group Differences (D)

Word	V1			Q			V2		
	S	NS	D	S	NS	D	S	NS	D
kakkoo	74	73	1	153	126	27	60	57	3
teppoo	67	69	0	181	138	43*	67	50	17
ippiki	79	69	10	149	121	28	53	50	3
natta	80	79	1	109	91	18*	66	57	9
katte	67	67	0	154	103	51**	75	46	29
komatta	81	7	38	88	110	-22	48	53	-5
docchie	87	77	10	126	99	27	69	64	5
natte	93	72	11	119	79	40	60	46	14
sakki	88	73	15	94	91	3	46†	55†	-11
yokoppa	72	57	15	109	96	13	71	57	14*
rippana ¹	65	68	-3	155	120	35*	75	67	8
atte	93	92	1	165	155	10	105	99	6
rippana ²	75	81	-6	132	121	11	80	78	2
Mean	79	73	5	133	112	22	67	60	7
SD	10	8	7	29	21	19	15	14	10

Note. kakkoo: appearance (and a object case marker); teppo: a gun; ippiki: one (and a quantifier); natta: became; katte: once; komatta: in trouble; docchie: in which direction; natte: became; sakki: a short while ago; yokoppa: the side; rippa: splendid; atte: existed; rippa: splendid. *p < .05, **p < .01. †Only one token could be measured due to devoicing in the stuttering group, and only five, in the nonstuttering group.

Appendix 2

Mean V1/V2, Q/V1, and Q/V2 Duration Ratios

Word	V1/V2			Q/V1			Q/V2		
	S	N	D	S	N	D	S	N	D
kakko	1.27	1.31	-.04	2.28	1.78	.50	2.73	2.27	.46
teppo	1.12	1.41	-.29*	2.72	2.05	.67**	2.94	2.85	.09
ippiki	1.50	1.43	.07	2.03	1.90	.13	3.14	2.47	.67
natta	1.30	1.44	-.14	1.42	1.18	.24	1.70	1.67	.03
katte	1.16	1.51	-.35	2.49	1.62	.87*	2.50	2.40	.10
komatta	1.57	1.35	.22	0.95	1.62	-.67	1.68	2.08	-.40
docchie	1.43	1.29	.14	1.45	1.34	.11	1.97	1.65	.32
natte	1.77	1.53	.22	1.49	1.11	.38	2.16	1.76	.40
sakki	1.47†	1.41	.06	1.05	1.26	-.21	2.14†	1.97	.17
yokoppara	1.01	0.81	.20	1.58	1.73	-.15	1.64	1.50	.14
rippana	0.89	1.07	-.18	2.57	1.77	.80**	2.24	1.90	.34
atte	0.97	0.96	.01	1.76	1.72	.04	1.64	1.68	-.04
rippana	0.95	1.10	-.15	1.76	1.51	.25	1.65	1.61	.04
Mean	1.26	1.28	-.02	1.81	1.58	.23	2.16	1.99	.18
SD	0.27	0.22	.19	0.29	0.52	.43	0.52	0.41	.27

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

†Only one token could be measured due to devoicing in the stuttering group.



Report on Benchmark Wait Times for Pediatric Speech Sound Disorders



Rapport sur les temps d'attente repères pour l'orthophonie pédiatrique

KEY WORDS
SPEECH SOUND DISORDERS
PHONOLOGY
WAIT TIMES
ASSESSMENT
INTERVENTION

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Abstract

The Pan Canadian Alliance of Speech-Language Pathology and Audiology Organizations has developed wait times benchmarks for diagnostic groupings relevant to speech-language pathology and audiology. This report presents the outcome of this endeavor for the Speech Sound Disorder (SSD) diagnosis. The purpose of a wait time benchmark is to provide a credible evidence-based recommendation for a given service (in this case, speech-language pathology assessment and intervention for SSDs), and to clarify the risk factors associated with waiting past the time when the patient's health is likely to be adversely affected according to clinical consensus and the best available scientific evidence. SSDs are characterized by a high frequency of speech sound errors relative to the child's age peers, impacting the intelligibility of the child's speech. SSD often co-occurs with oral and written language impairments. When the SSD persists past the age of school entry, long-term difficulties in the social, emotional, academic and vocational domains can become significant concerns. Fortunately standard interventions have been shown to be effective when provided with sufficient intensity and duration. The Alliance's Wait Times Project reviewed this literature and recommended wait times for assessment and intervention with the most critical period for rapid service being the two year window prior to school entry. This report provides an example of a collaborative enterprise between academia and clinical practitioners that serves to benefit both consumers and providers of speech, language, and hearing services across the country.

Abrégé

L'Alliance pancanadienne des associations d'orthophonistes et d'audiologistes a développé des balises relatives au temps d'attente pour des regroupements diagnostiques en orthophonie et en audiologie. Ce rapport présente les résultats de cet effort pour le diagnostic de troubles des sons de la parole. Le but de ces balises est d'offrir des recommandations crédibles basées sur les faits probants pour un service donné (dans ce cas-ci, l'évaluation orthophonique et l'intervention en matière de troubles des sons de la parole) et de clarifier les facteurs de risque associés au temps d'attente lorsque la santé du patient risque d'être affectée de façon négative, selon le consensus clinique et les meilleures preuves scientifiques disponibles. Les troubles des sons de la parole sont caractérisés par une fréquence élevée d'erreurs de phonèmes, comparativement à d'autres enfants du même âge, qui ont un impact sur l'intelligibilité de la parole de l'enfant. Les troubles des sons de la parole se présentent souvent avec des problèmes de langage oral et écrit. Quand les troubles persistent après l'âge d'entrée à l'école, ils peuvent occasionner des problèmes importants à long terme dans plusieurs domaines : social, émotif, académique et professionnel qu'on ne peut ignorer. Heureusement, les interventions standardisées se sont démontrées efficaces quand elles sont de durée et d'intensité suffisantes. Le projet « temps d'attente » de l'Alliance a effectué une analyse des écrits et recommande des temps d'attente pour l'évaluation et l'intervention : la période la plus critique étant la fenêtre de deux ans précédant l'entrée à l'école. Ce rapport est un exemple de collaboration entre les universitaires et les cliniciens en pratique, qui profitera aux consommateurs et à ceux offrant des services en orthophonie et en audiologie à travers le pays.

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The Pan Canadian Alliance of Speech-Language Pathology and Audiology Organizations (hereinafter referred to as the Alliance) serves in a collaborative capacity on behalf of provincial, territorial, and national speech-language pathology and audiology professional associations (with a complete list of the participating organizations shown in Appendix A). A key objective of the Alliance has been to identify priority areas for advocacy and action and to collaborate on cross-sectorial matters that impact our professional bodies and the clients whom we serve.

The Alliance's *Wait Time Benchmarks Project* was initiated in the mid-2000s. The project was fashioned after the work of a national alliance of medical specialty societies known as the *Wait Time Alliance (WTA) for Timely Access to Health Care*. This group was formed out of concern over delayed access to care for patients. A full listing of the participating societies and the benchmarks developed to date can be found at <http://www.waittimealliance.ca/index.htm>

The speech-language pathology and audiology benchmarks developed to date have relied upon the volunteer contributions of both generalist and expert clinicians in their respective fields, and from academics working in the area of communication disorders. Currently, the benchmarks are available on the "members only" section of the SAC website and are not available for public dissemination. Given some initial lack of clarity regarding the process and evidence-base required to support benchmark development, the Alliance embarked upon a review of the project in 2012. It is our intention that a revised benchmark template (refer to Appendix B) will be used as required to revise the benchmarks developed to date, and to guide the development of any future benchmarks identified as a priority by the Alliance. Ultimately, our vision for the benchmarks is that they can stand as credible, evidence-based recommendations that provide members of the public and service providers alike with an understanding of the risks factors associated with waiting for assessment and intervention services.

The benchmark template developed in 2012 was fashioned after the Speech Sound Disorders (SSDs) benchmark originally approved by the Alliance in 2009. To follow is a description of the literature review, including considerations related to risk factors for SSDs, treatment efficacy, and ultimately the wait time recommendations based on this review.

Foundation for the Wait Times Recommendations

The wait time recommendations for Speech Sound

Disorders (SSD) are founded on a review of the scientific literature pertaining to the following topics:

1. Nature of SSD

- a. SSD are a commonly occurring developmental impairment, arising from genetic and environmental factors
- b. Co-occurrence with other neurodevelopmental impairments is common

2. Time course and long-term consequences

- a. Persistence of SSD past the point of school entry increases the risk of long-term consequences
- b. Some children experience long-term difficulties in the social, emotional, academic and/or vocational domains

3. Efficacy of interventions for SSD

- a. Interventions that are provided at the appropriate time with sufficient cumulative intensity are usually effective
- b. Intervention that is delayed until the prekindergarten year typically do not result in normalized speech outcomes prior to first grade entry

The results of our literature review in each of these areas will be briefly summarized and then the wait time recommendations will be presented.

Nature of Pediatric SSD

Speech Sound Disorder (SSD) is a broad category name that can apply to any condition in which the child or adult is producing so many speech sound errors that speech intelligibility falls below expectations given the speaker's age and experience with the language being spoken (Shriberg, Austin, Lewis, McSweeney, & Wilson, 1997). In this paper we are concerned with a specific subset, those occurring in children (i.e., pediatric) with onset prior to age nine years (i.e., developmental) and with no known causal disease or disorder such as hearing impairment, autism, cognitive delay and so on (therefore, primary) although the speech impairment may be accompanied by other communication deficits (e.g. specific language impairment, dyslexia, voice or fluency disorder). This subset of SSD is variously known as functional articulation disorder (highlighting the sensorimotor aspects of the impairment) and developmental phonological disorder (highlighting the cognitive-linguistic aspects of the impairment) and recently,

protracted phonological development (Bernhardt & Stemberger, 1998). Where the term SSD has been adopted, there is a recognition that the impairment inevitably implicates both sensorimotor and cognitive-linguistic domains as explanatory factors. The developmental aspects of the impairment have been de-emphasized due to an unfortunate misrepresentation of the nature of developmental disorders – the term developmental is sometimes incorrectly associated with the notion of “delay” leading to the impression that such impairments will spontaneously resolve; in fact, developmental disorders arise from impairments in fundamental developmental processes that can have lifelong consequences for the individual (for further discussion, see Rvachew & Brosseau-Lapr , 2012)

Family aggregation and twin studies show that SSD can be heritable (Shriberg et al., 2005). Molecular genetics studies have identified specific regions on chromosomes 1, 3, 6, and 15 that are associated with oral and written language outcomes as well as underlying speech processes such as phonological processing, phonological memory, and oral-motor skills (Lewis et al., 2011; Lewis et al., 2006; Tunick & Pennington, 2002). Some of the genes that have been linked to SSD are thought to be involved in neuronal and axonal migration during early development of the central nervous system and are also associated with dyslexia and language disability (Bishop, 2009). Outcomes for children with these genetic risk factors interact with other factors that impact the child’s access to language input from the environment such as otitis media, maternal education, and shared reading practices in the home (McGrath et al., 2007). A child’s risk of having SSD is increased 7.7 times when the three risk factors of male sex, mother not finished high school, and family history of fluency and/or articulation and/or language disorder are present (Campbell et al., 2003). The great majority of cases of primary pediatric SSD can be explained by the common disease/common variant model of multifactorial causality whereby interactions among many genetic and environmental factors combine to form the full range of ability levels including those on the impaired end of the continuum. This polygenic explanation may include the low incidence disorder Childhood Apraxia of Speech (Lewis et al., 2004). However, monogenic causality is associated with certain syndromes characterized by motor speech disorders: for example, rare variants of the *FOXP2* gene on chromosome 7q31 (apraxia; MacDermot et al., 2005; Zhao et al., 2010) and 22q11 deletion (dysarthria; Clark & Neville, 2008). Finally, it has also been suggested that some cases, particularly of residual errors (i.e., persistent distortions of sibilants or liquids without prior history of speech delay), may have a strictly environmental

origin (Flipsen, Shriberg, Weismer, Karlsson, & McSweeney, 2001).

SSD is the most commonly occurring neurodevelopmental disorder although it has low perceived severity in terms of disease burden, perhaps accounting for a relatively poor level of research funding and interest (Bishop, 2010). Estimates of prevalence range from approximately 2 to 25% (Law, Boyle, Harris, Harkness, & Nye, 2000) but the best estimate is that 11% of kindergarten aged children will have SSD with about a third of those children having a concomitant language impairment (for review and discussion, see Rvachew & Brosseau-Lapr , 2012). Estimates of the co-occurrence of SSD and specific language impairment vary greatly, with population studies suggesting quite low overlap (Beitchman et al., 1986; Beitchman, Wilson, Brownlie, Walters, & Lancee, 1996; Shriberg, Tomblin, & McSweeney, 1999) whereas clinic-based studies show at least half of the children with SSD having language impairment and very small numbers of children with language impairment having normal speech development (Baker & Cantwell, 1987a; Cantwell & Baker, 1987). The difference in findings may be due to the age of the children in these studies since population-based samples tend to be ascertained in schools whereas clinic-based samples are often describing preschool aged children; it is possible that the speech deficit tends to resolve faster than the language deficit so that co-occurring disorders are more difficult to detect in older children especially given the detection criteria employed in the population-based studies. On the other hand, clinic-based samples may be fundamentally different from those drawn from the general population, since children tend to be referred for speech-language services on the basis of speech intelligibility problems (Zhang & Tomblin, 2000). Furthermore, (Bishop & Hayiou-Thomas, 2008) reported that “the presence of speech problems rather than language impairment is a phenotypic signature of a heritable disorder (p. 370).”

In addition to the known relationships with language and reading disability, speech impairment is often associated with other developmental conditions. Referral to health care and allied health care practitioners for concerns regarding speech clarity or speech intelligibility is often the first step in a path leading to the detection of more serious developmental disabilities. For example, Coplan and Gleason (1988) developed a simple screening procedure that consists of asking the parent “How clear is your child’s speech? That is, how much of your child’s speech can a stranger understand?” The response alternatives are “less than half”, “about half” (achieved on average at age 22

months), “three quarters” (achieved on average at age 37 months), and “all or almost all” (achieved on average at age 47 months). They found that, when assessed against a full diagnostic speech-language assessment, this screening procedure had 95% specificity and sensitivity in a sample of children referred for a full speech and language assessment. Furthermore, among the 76 children in the validation study who did not pass the screen or the diagnostic assessment, many were subsequently found to have one or more other disorders beyond speech delay, including development language disorder (41), learning disability (20), mental retardation (18), hearing loss (7), autism (4) and seizures (3). Therefore rapid assessment of children who are referred because they have “unclear speech” may serve to connect the child and family with resources required to diagnose and treat other more serious co-occurring conditions. Even in the case of speech impairment alone however, the long-term consequences of the condition may be nontrivial especially without prompt provision of appropriate care.

Time Course and Long-Term Consequences

Shriberg and Kwiatkowski (1994b) described two trajectories for resolution of speech difficulties in children with SSD: short-term normalization in which the child achieves expected levels of speech accuracy by age six years or within two years of speech therapy onset; and, long-term normalization in which the child does not achieve expected levels of speech accuracy until age nine years or later. Children with childhood apraxia of speech (CAS) and children with residual errors are most likely to show a long-term trajectory toward normalization. Even so, short-term normalization is achieved for less than a quarter of the SSD population as a whole prior to school entry when treatment is started at age four years (Baker & Cantwell, 1987b; Rvachew, Chiang, & Evans, 2007; Shriberg & Kwiatkowski, 1994a). Short-term normalization may be much more likely for children who begin therapy at an earlier age: Webster, Plante, and Couvillion (1997) reported that two-thirds of their sample of three-year old children achieved normalized speech functioning prior to school entry. However, the reason for better outcomes in younger children is not known: younger children may be easier to treat or they may benefit from a longer period of intervention; on the other hand, there is a tendency toward over-diagnosis in younger children that may contribute to this finding (Rafaat, Rvachew, & Russell, 1995).

It is critical to achieve short-term normalization for these children during the preschool period because persistence of the speech deficit past the point of school entry is a risk factor for ongoing problems in the academic and social

domains, especially when there are concomitant language difficulties (Nathan, Stackhouse, Goulondris, & Snowling, 2004; Peterson, Pennington, Shriberg, & Boada, 2009; Raitano, Pennington, Tunick, Boada, & Shriberg, 2004). When children begin school with SSD but no accompanying language deficit, approximately one third can be expected to have poor spelling skills in third grade; when children begin school with SSD and language impairment, approximately two thirds can be expected to have both reading and spelling deficits in third grade (Lewis, Freebairn, & Taylor, 2000). Furthermore, children who begin school with these communication disorders can be expected to consume more special resources, which constitutes a financial burden to the school system and an opportunity cost to the child who forgoes participation in alternative classroom or extracurricular activities while receiving therapeutic services (Felsenfeld, Broen, & McGue, 1994; Shriberg & Kwiatkowski, 1988).

In addition to concerns regarding academic outcomes, especially those associated with literacy deficits, children with SSD may have difficulties in the social-emotional domain. On the basis of a population study, Beitchman et al. (1996) reported the psychiatric status of children aged 12.5 years as a function of their speech-language performance at age five years. When observed in sixth grade, emotional disorders were observed in 2.7% of the girls who started school with age-appropriate speech-language function and 33.3% of the girls who started school with speech and/or language impairment. For sixth grade boys, attention deficit disorder was observed in 8.1% of those who started school with age appropriate speech-language function and 19.7% of those who started school with speech and/or language impairment. Baker and Cantwell (1987a) also reported a very high prevalence of psychiatric disorders in their clinic sample; this finding held for children with speech-only (38%) as well as children with speech-and-language disorders (58%), including behavioral and emotional disorders and attention deficits.

McCormack, McLeod, Harrison, and McAllister (2010) examined the impacts of a speech disorder on children and their families from the perspective of the Activities and Participation component of the International Classification of Functioning, Disability, and Health – Children and Youth. A questionnaire administered to 205 speech-language pathologists and 86 parents revealed impacts in five areas with agreement between both groups of respondents (as reported in the abstract, p. 278) specifically “Verbal communication (e.g., Conversation, Speaking), Advanced learning (e.g., Learning to read/write), Interpersonal interactions (e.g., Relating with strangers, Informal social

relationships), Basic learning (e.g., Copying, Rehearsing), Applied learning and general tasks (e.g., Focussing attention, Handling stress).” Peer reactions can be negative to even mild residual errors in the speech of children and adolescents (Silverman, 1992).

Other studies have shown that the consequences of preschool SSD can carry over into the adult years. The underlying difficulties with phonological processing persist into adulthood even when speech accuracy is normalized and adequate reading outcomes are achieved (Lewis & Freebairn, 1992). In comparison to a control group with a history of typical speech and language development, adults with a history of childhood phonological disorder performed significantly worse on tests of articulation accuracy, vocabulary knowledge, and language skills (Felsenfeld et al., 1994). They required more remedial help at school, achieved poorer grades, and completed fewer years of formal education. These adults were also more likely to hold unskilled or semiskilled occupations in comparison with the control group and their gender-matched siblings who were more likely to hold professional positions. When viewed through the lens of the International Classification of Functioning, Disability and Health (ICF; World Health Organization, 2001), these findings actually portray positive outcomes for individuals with SSD. The World Health Organization (WHO) defines *health* as “a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity” (World Health Organization, 2006). In other words it is the functioning of the individual in daily life and in society that is of importance when judging the outcomes of health care services. The persistence of underlying phonological processing difficulties attests to impairment at the endophenotype level, supporting the characterization of SSD as a neurodevelopmental disorder (Pennington and Bishop, 2009). At the same time, this longitudinal study of individuals with SSD who received services from an early age found that they achieved intelligible speech, functional literacy skills, and adequate employment as adults. In fact, Felsenfeld et al. (1994) found that their research participants reported high levels of life satisfaction overall.

Efficacy of Treatment for SSD

Estimating the impact of providing a service within a short or long time window is logically connected to the likelihood that the service will be effective to remedy the impairment or limitation in question. The scientific literature on the efficacy of interventions for the treatment of SSD remains small and consists largely of single subject studies (e.g., McReynolds & Bennett, 1972) with an increasing

number of small scale randomized control trials (e.g., Almost & Rosenbaum, 1998; Rvachew, Nowak, & Cloutier, 2004). Nonetheless, these studies have been accumulating over five decades (e.g., Hesketh, Dima, & Nelson, 2007; Sommers et al., 1961) and the literature base is now large enough to support systematic meta-analyses (e.g., Law, Garrett, & Nye, 2009) and narrative reviews (e.g., Gierut, 1998), leading to the firm conclusion that speech therapy for SSD is effective in comparison to a no-treatment control condition. Comparisons of different treatment approaches are rare but there is some evidence to support the conclusion that phonological approaches are more effective than traditional articulatory approaches in the treatment of SSD, both primary and secondary (Klein, 1996; Pamplona, Ysunza, & Espinoza, 1999).

Another important issue is the amount of intervention that is required to achieve short-term normalization given the risk of long-term consequences for children who begin school with persisting deficits in speech and/or language skills. In fact no studies have directly addressed this question although a number of descriptive studies have asked how much service is required to achieve a functional gain such as a measurable improvement in speech intelligibility. The pool of experimental studies that have targeted questions related to required treatment intensity and duration to achieve a measurable outcome is too small for a systematic review in any one domain although a recent review summarized recent findings for a broad range of disorders and treatment targets (Schooling, Venediktov, & Leech, 2010). A synthesis of studies specific to SSD in Rvachew and Brosseau-Lapr e (2012) yielded some general conclusions. First, cumulative intervention intensity is an important determinant of treatment outcomes: on the whole there is little reason to expect a measurable gain in speech intelligibility with less than 10 hours of speech therapy and more typically a minimum of 20 hours of service will be required (e.g., Jacoby, Levin, Lee, Creaghead, & Kummer, 2002). Children with CAS will require much more service (Campbell, 1999): specifically, in this study good functional outcomes were achieved when preschoolers with moderate and severe phonological impairments received twice-weekly therapy over a 90- to 120-day period (i.e., on average the children’s speech intelligibility improved from approximately 50 to 75 percent intelligible); in comparison, equivalent outcomes in children with CAS required treatment for a 360- to 420-day period, provided at least three times a week. The efficacy and efficiency of treatment can be improved by including parents as partners in the process if they receive structured training on the provision of the home program (e.g., Eiserman, Weber, & McCoun, 1995; Sommers, 1962). Finally, when the number

of treatment sessions is rationed, there is some evidence that better outcomes are achieved when those sessions are provided intensively over shorter intervals (Allen, 2013; Barratt, Littlejohns, & Thompson, 1992; Thomas-Stonell, McConney-Ellis, Oddson, Robertson, & Rosenbaum, 2007) than stretched infrequently over a long interval as in Glogowska, Roulstone, Enderby, and Peters (2000); we caution that contrary findings have been reported in the domain of morphosyntax however (Smith-Lock et al., 2013) and insufficient controlled studies are available for confident conclusions.

In summary, cumulative intervention intensity is an important determinant of treatment outcomes. The goal of ensuring short-term normalization, and in particular, age-appropriate speech and language skills prior to school entry, requires that the child begin therapy at a young enough age and then receive a sufficient amount of therapy for resolution of these communication deficits. Given that several provinces in Canada ration service intervals to less than the recommended 20 hours of service in any given year, the finding that most children who are referred for service in the year prior to school entry do not achieve short-term normalization can be explained.

Wait Times Benchmarks for SSD

On the basis of the literature review reported above, benchmark wait times are recommended for assessment and treatment. The recommended wait time for **time to assessment** refers to *the maximum time clients should wait for an initial response following the service provider's receipt of a referral/self-request for service and accompanying intake information*. The committee's recommendation is that this wait time be two months regardless of the child's age or risk category. This recommendation that the wait time be short regardless of the child's age or risk category is founded on two arguments: first, an assessment is required to determine the child's risk status; and second, research shows that parent and teacher expressions of concern are valid indicators of a likely speech problem of significant concern (McLeod, Harrison, McAllister, & McCormack, 2013).

The recommended wait time for **time to treatment** refers to *"the maximum time clients (i.e., children with an identifiable speech disorder) should wait for intervention following the service provider's assessment."* These recommendations depend upon the child's age and risk category. The committee recommends that the presence of any one of the following identified risk factors would place a child in the "high risk" category related to intervention services:

- Reported family history of speech-language delays/disorders and/or reading difficulties;
- Identified language impairments in conjunction with speech sound disorders at the time of assessment;
- Identified difficulties with phonological processing, including non-word repetition tasks and phonological awareness tasks at the time of assessment;
- Child is entering school (i.e., kindergarten or grade one) in September of the coming school year.
- The speech difficulties noted at the time of assessment are impacting the client's ability to participate in activities and roles in his/her daily life.

A greater number of risk factors identified at the time of assessment for each child would increase their priority for service.

The maximum time patients/clients should wait from the time of initial assessment until intervention is as follows for children in the high risk category: 3 months for children aged birth to three years; 1 month for children aged 4 through 6 years; and 3 months for school aged children. The maximum time patients/clients should wait from the time of initial assessment until intervention is as follows for children in the low risk category: 6 months for children aged birth to three years; 3 months for children aged 4 through 6 years; and 8 months for school aged children.

These recommendations and the accompanying justification are summarized in Table 1. The justification for the recommended wait times benchmarks, summarized in the top part of Table 1, encompasses the whole of the literature review presented above. The primary consideration is clearly the elevated risk of long-term difficulties in the social, emotional, academic, and/or vocational domains for children who fail to achieve normalized speech accuracy prior to school entry. However, the review should be taken as a whole and the recommended wait times benchmarks take into account all of the information that has been presented, aggregating information across many studies and integrating the reviews in the three domains (nature of SSD, time course, and long-term consequences, and efficacy of treatment for SSD).

Discussion

There are a number of different approaches that might be taken when identifying appropriate wait time benchmarks for any given service. The approach described in this report is most closely aligned with that of the expert panel as described by Naylor (1998). The SSD panel considered quality of life and patient outcomes as revealed

Table 1. Benchmark Wait Times for Pediatric Speech Sound Disorders

Justification for the Benchmark Wait Times Recommendations			
<ol style="list-style-type: none"> 1. Nature of SSD <ol style="list-style-type: none"> a. SSD are a commonly occurring developmental impairment, arising from genetic and environmental factors b. Co-occurrence with other neurodevelopmental impairments is common 2. Time course and long-term consequences <ol style="list-style-type: none"> a. Persistence of SSD past the point of school entry increases the risk of long-term consequences b. Some children experience long-term difficulties in the social, emotional, academic, and/or vocational domains 3. Efficacy of treatment for SSD <ol style="list-style-type: none"> a. Interventions that are provided at the appropriate time with sufficient cumulative intensity are usually effective b. Intervention that is delayed until the prekindergarten year typically do not result in normalized speech outcomes prior to first grade entry 			
Factors to Consider When Placing Child in High Risk Category			
<ol style="list-style-type: none"> 1. Reported family history of speech-language delays/disorders and/or reading difficulties; 2. Identified language impairments in conjunction with speech sound disorders at the time of assessment; 3. Identified difficulties with phonological processing, including non-word repetition tasks and phonological awareness tasks at the time of assessment; 4. Child is entering school in September of the coming school year. 5. The speech difficulties noted at the time of assessment are impacting the client’s ability to participate in activities and roles in his/her daily life. 			
Benchmark Wait Times Recommendations			
<ol style="list-style-type: none"> 1. Time to Assessment: The maximum time children should wait for an initial response following the service provider’s receipt of a referral/self-request for service and accompanying intake information should be 2 months regardless of age or risk status. 2. Time to Intervention: The maximum time children with an identifiable speech disorder should wait for intervention following the service provider’s assessment varies with age and risk status as follows: 			
Risk Category	Birth to 3 Years	4 to 6 Years	School Age
High Risk	3 months	1 month	3 months
Low Risk	6 months	3 months	8 months

by a thorough review of the literature but our interpretation of this literature is necessarily coloured by clinical inference and our personal values in a society where health care and education are publicly funded services available to enhance the well-being of people who live in the society. There is necessarily a degree of subjectivity to the process. Nonetheless, we present these recommendations with confidence given the structured process that was adopted and the quality of evidence that has been presented, notwithstanding the need for considerably more research that addresses the impact of specific interventions on the prevention of the long-term social, emotional, academic, and vocational outcomes that we describe in this report. The recommendations are founded on three essential arguments that are subject to a high degree of consensus in the scientific literature and among S-LPs: first, SSDs are a frequently occurring diagnostic category in the general population and on SLP caseloads; second, children with SSDs who do not resolve their speech problem prior to school entry are at greater risk for adverse outcomes than those children who do achieve normalized speech prior to school entry; and finally, speech therapy interventions for SSDs have been shown to be effective in randomized controlled trials when provided with sufficient duration and intensity. Furthermore, the risk factors identified for moderating the wait time for the provision of treatment are associated with an impressive body of clinical and basic science research.

Another approach to the development of wait time benchmarks is to consider the perspective of patients as the primary guide. Patient perception of their wait for medical services (such as joint replacement) and satisfaction with the length of wait is influenced by quality of life factors such as pain and disability (Conner-Spady et al., 2011). Patient satisfaction with wait time is also influenced by the perception of fair treatment however. These authors report that while fairness in access to health care is traditionally associated with the “first come, first served” model, patients are willing to accept queuing models that prioritize access to care based on patient need. Information provided to patients about the duration of the wait and the fairness of the method of prioritizing patients for service is an important factor in managing expectations and improving satisfaction.

Regarding satisfaction with wait times for speech-language assessment and therapy services, we are not aware of any published documentation for the Canadian context. However, service delivery in Canada has much in common with Australia which also has a mixed public-private service delivery model for the provision of

rehabilitation services for children. Ruggero, McCabe, Ballard, and Munro (2012) describe the Australian context as one in which there is no legislated or mandated entitlement for children with speech and language disorders to receive a minimum amount of service; furthermore, policies and definitions regarding access to care for this population varies by state and territory, a situation that mirrors varying policies across provincial and territorial boundaries in Canada. These authors describe parent satisfaction with access to speech-language pathology services for their children in relation to the parents’ preferences for delivery of these services. In this study, parents reported that the most common wait time for assessment service was 2-to-6 months whereas the most common wait time for treatment after assessment was 1 month. A substantial minority waited 6 months or longer however, with certain geographic regions being associated with very long waits for service. Satisfaction with speech therapy services was high but a longer wait from assessment to initiation of treatment was significantly associated with lower satisfaction. Moreover, the most common suggestions given by parents to improve services were to provide more service and shorter wait times. With respect to these findings, the wait time benchmarks recommended by the Alliance in this report, if implemented across Canada, could contribute to increased satisfaction by parents by increasing consistency and perceived fairness; specifically, the guidelines and this report provide a basis for managing expectations by informing parents about the rationale for wait times policy. Furthermore, the recommended wait times are reasonably short and appear to be within the bounds of what parents find to be acceptable as inferred from Ruggero et al.’s (2012) report.

Another common approach is for governmental jurisdictions (i.e., province, municipality, health region, or specific health care sector) to establish wait time benchmarks based on institutional and political considerations such as resource availability and perceived acceptability of a given wait time (Sanmartin, 2001). These policies have been found to have short-term effectiveness but lack long-term stability, in part, because the benchmarks that are selected in this fashion may not be congruent with the values and expectations of health care providers or patients. One serious drawback to this approach is that wait times are likely to vary considerably across jurisdictions. Even though the health care system as a whole is bound by the principle of universality, individual jurisdictions, whether they be geographic or sectorial, will attempt to limit their wait lists and encourage patients to seek services from another jurisdiction. These policies

create confusion for patients, waste resources as providers expend a great deal of effort on 'gate keeping' functions, and reduce the perception of fairness throughout the system. The bench marks that are recommended by the Pan Canadian Alliance allow for variation based on age of the patient and numbers of risk factors such that service providers that care for patients with different characteristics may well have different wait time policies. However, overall, there should be greater consistency as a function of these patient characteristics and it will be possible to explain the needs-based rationale for these variations to families.

Different jurisdictions may argue that there are special considerations specific to their circumstances that require an adjustment to the recommendations. For example, rural and especially northern geographic locations have fewer clinicians and urban providers must cope with heterogeneous cultural and linguistic mixes in their caseloads. Shortages of resources will certainly have an impact on the way that the recommendations are implemented and the nature of the services that are provided. It may be necessary to provide services via telehealth or with the support of paraprofessionals and there is an urgent need for research to determine the effectiveness of these service delivery models (Hill & Theodoros, 2002). Cultural and linguistic differences will complicate the identification of risk factors but are not in and of themselves risk factors and do not change the requirement to provide care in a timely fashion (for more information about the assessment of SSD in multilingual children see the website Multilingual Children's Speech and related book, McLeod & Goldstein, 2011).

In conclusion, the Pan Canadian Alliance of Speech-Language Pathology and Audiology Organizations recommends these wait time benchmarks for assessment and intervention for children with SSDs. It is expected that these recommendations be applicable across Canada. The alliance is in the process of developing similar wait time benchmarks for a range of diagnostic groups and urges generalist S-LPs, specialist S-LPs, and academics to join the alliance in this collaborative process.

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Appendix A

There are currently 12 members of the Alliance (*denotes both a regulatory college and a member association). They include:

- Canadian Association of Speech-Language Pathologists and Audiologists (CASLPA)
- British Columbia Association of Speech-Language Pathologists and Audiologists (BCASLPA)
- Alberta College of Speech-Language Pathologists and Audiologists (ACSLPA)*
- Saskatchewan Association of Speech-Language Pathologists and Audiologists (SASLPA)*
- Manitoba Speech and Hearing Association (MSHA)*
- Ontario Association of Speech-Language Pathologists and Audiologists (OSLA)
- New Brunswick Association of Speech-Language Pathologists and Audiologists (NBASLPA)*
- Speech and Hearing Association of Nova Scotia (SHANS)
- Prince Edward Island Speech and Hearing Association (PEISHA)
- Newfoundland and Labrador Association of Speech-Language Pathologists and Audiologists (NLASLPA)
- Yukon Speech-Language Pathology and Audiology Association (YSLPAA)
- Association of Northwest Territorial Speech-Language Pathologists and Audiologists (ANTSLPA)

Appendix B

PAN CANADIAN ALLIANCE WAIT TIME BENCHMARK TEMPLATE
September 2012

1. Define the Disorder Area/Service Area Identified for the Particular Benchmark

e.g., *Speech Sound Disorders (SSDs) is a term coined by Shriberg, Austin, Lewis, McSweeney, & Wilson (1997) and includes the following categories of sound disorders:*

- Genetic (comparable to what was previously known as “functional” or “of unknown origin”);
- Otitis Media related;
- Subclinical motor speech disorders;
- Residual errors (e.g., /r,s,th/) seen in school-aged children

Adult Audiology encompasses . . .

Where possible, provide a reference for the definition provided (there may be more than one).

2. Identify Risk Factors Associated with Waiting for Assessment and/or Treatment Services:

- Identify any impairments and/or difficulties associated with the identified disorder area and reference, as appropriate (e.g., *SSDs can be associated with language impairments, reading disability and associated academic difficulties, as well as social problems that may lead to poor long-term outcomes such as school failure, underemployment, and delinquency (see references).*
- Identify any timeframes cited in the literature (if available), or that can be extrapolated from the literature, with regard to the negative impacts of waiting for assessment and/or treatment services (e.g., *There is growing evidence that children whose speech and language problems normalize before school entry have markedly better outcomes than children whose speech and language problems persist past the point of school entry (see references).*

3. Wait Time Definitions

Specify the particular definitions of interest for the benchmark.

e.g., *Time to Assessment: The maximum time clients should wait for an initial response following the service provider's receipt of a referral/self-request for service and accompanying intake information.*

Time to Intervention: The maximum time clients (i.e., children with an identifiable speech disorder) should wait for intervention following the service provider's assessment.

4. **Benchmark Recommendations**

Time to Assessment*

The maximum time patients/clients should wait from the time they receive a referral until the date of the first available appointment is ____ (hours/days/weeks/months).

Time to Intervention*

The maximum time patients/clients aged ____ to ____ should wait from the time of initial assessment until intervention is ____ (hours/days/weeks/months).

*Note that recommendations for each disorder/service area may either be stated for the entire population or may vary dependent on age group/# of risk factors identified, etc. It is up to the individual committee to decide how they wish to present their benchmark recommendations (see examples from fluency, speech sound disorders, cochlear implants, etc.)

5. **Additional Considerations**

Identify any additional considerations (*e.g., wait times for school-aged services may be impacted by periods such as summer vacation in which speech-language services are typically not available*).

6. **Levels of Evidence to Support the Identified Benchmark**

Identify how the committee arrived at the benchmark recommendations (include all levels of evidence that were used):

- Review of the literature (with references cited in the “References” section of the document) (these may include research articles, provincial, national, and international guidelines and reviews, published surveys, etc.)
- Expert clinical opinion

7. **References**

Provide a complete reference list using APA format.

8. **Committee Participants**

List names and credentials of participants alphabetically, identifying chairperson

9. **Date**

Include date benchmark was submitted for approval

Approved benchmarks will include the date when approval was obtained

Disclaimer

While the benchmarks contained in this publication were developed using the best evidence available at the time, they do not define a standard of care nor should they be interpreted as legal advice.

Variations in practice may be warranted based on the needs of the individual patient, resources, and limitations unique to the institution or type of practice.

The Pan Canadian Alliance for Speech-Language Pathology and Audiology assume no responsibility or liability arising from any error or omission or from the use of any information contained herein.



SAC Conference 2014 | Abstracts

May 7 - 10, 2014, Ottawa

PRECONFERENCE WORKSHOP

Integrating Literacy into Speech-Language Intervention: Leveraging Language to Improve Reading

Laura Justice, PhD

Introductory: This workshop identifies evidence-based techniques for speech-language pathologists to use in the classroom and clinic to accelerate the early literacy achievements of children with communication disorders. In this workshop, participants will also learn effective ways to intervene with children who show delays in oral and written language skill development.

Learning Outcomes:

Participants will be able to:

1. Describe major domains of emergent literacy development and indicators of achievement in each.
2. Identify risk factors that make literacy learning challenging for some children.
3. Explain evidence-based approaches to emergent literacy goals within the context of clinical and classroom interventions, with a focus on shared storybook reading.

AUDIOLOGY WORKSHOPS

Pediatric Applications of Otoacoustic Emissions (OAEs) and Auditory Brainstem Response (ABR)

James W. Hall III, PhD

Intermediate: This session reviews the necessity of objective assessments of hearing, infants and young children for early intervention. Measuring OAEs and ABR permits an accurate diagnosis of auditory dysfunction, including frequency-specific estimation of hearing prior to a child's initial hearing aid fitting. We will also review other pediatric applications of OAE and ABR.

Learning Outcomes:

Participants will be able to:

1. Describe the clinical advantages of OAEs in pediatric hearing assessment.
2. List the pediatric applications of OAEs.
3. Identify types of stimuli used to elicit ABRs in infants and young children.
4. List key steps in the analysis of ABR waveforms.

Auditory Neuropathy Spectrum Disorder (ANSD): Identification, Diagnosis and Management

James W. Hall III, PhD

Intermediate: ANSD represents a clinically challenging collection of auditory problems. This session reviews techniques and strategies for identification, diagnosis and management of patients with various forms of ANSD. We will review a test battery and multi-disciplinary approach to diagnosis, including the special role of electrocochleography (ECoChG) in determining the site of auditory dysfunction.

Learning Outcomes:

Participants will be able to:

1. List etiologies associated with ANSD.
2. Cite the specific advantages of ECoChG in diagnosis of ANSD.
3. Describe the relation between diagnostic test patterns and appropriate management strategies for patients with ANSD.
4. Identify major rehabilitation approaches for patients with ANSD.

Genetic Basis of Hearing and Speech Disorders – A Multidisciplinary Approach to Discovery and Knowledge Translation

Terry-Lynn Young, PhD and Anne Griffin, M.Sc., Aud., R.Aud

Intermediate: So far, >70 genes that directly cause hearing, speech and language disorders are known. Although incorporating these gene discoveries into clinical practice is a major challenge, we are starting to see examples of success. This presentation reports on exciting advances in this field and our own attempts at clinical translation.

Learning Outcomes:

Participants will be able to:

1. Understand the extent to which mutations in genes cause hearing and speech/language disorders
2. Acquire knowledge of current avenues of genetic research on hearing loss in the Canadian context
3. Understand the potential role and contribution of various specialized disciplines to genetic discovery and knowledge translation
4. Be able to establish a pedigree from family history
5. Leave with clinical resources on hereditary disorders
6. Recognize the potential of informing clinical practice with an understanding of genetic cause

AUDIOLOGY, SPEECH-LANGUAGE PATHOLOGY AND SUPPORTIVE PERSONNEL WORKSHOPS

Interprofessional Care: Building a Team/Managing Conflict

Nancy Alarcon, MS, CCC-SLP, BC-ANCDs

Intermediate: Across settings, we are engaged in interprofessional services and faced with preserving professional autonomy and advancing our knowledge and skills to support those we serve, while striving for a collaborative environment. We'll cover essential elements and critical tools to build the optimal team environment, achieve desired outcomes and manage day-to-day challenges.

Learning Outcomes:

Participants will be able to:

1. Articulate essential elements of team members who provide services in educational and health-care environments.
2. Identify forces that support and undermine a working team.
3. Describe the desired outcomes of a dynamic working team.
4. Identify critical tools for an optimal team environment.
5. Articulate foundations of conflict resolution and strategies for success.

Building a Foundation of Excellence in Clinical Supervision

Nancy Alarcon, MS, CCC-SLP, BC-ANCDs

Intermediate: We'll focus on the power of relationships in mentoring and supervising support personnel, graduate clinicians and new or seasoned professionals. We will emphasize creating a solid foundation for giving and receiving feedback. We'll consider differences between settings and highlight a range of evidence-based success strategies.

Learning Outcomes:

Participants will be able to:

1. Identify the key roles and responsibilities unique to teaching and supervising support personnel, graduate clinicians and new or seasoned professionals.
2. Articulate the principle concepts of effective feedback and evaluation.
3. Identify the competencies needed to be an effective clinical educator and supervisor who supports learning and professional growth.
4. Identify key external forces that will impact our learning, teaching and working environment.
5. Identify resources that will assist effective clinical education and supervision across work settings.

SPEECH-LANGUAGE PATHOLOGY WORKSHOPS

Maximizing the Speech Ability of Children with Motor Speech Disorders*Megan Hodge, PhD, R.SLP, S-LP(C), CCC-SLP*

Intermediate: This session presents case examples that illustrate the successful use of treatment approaches in improving the speech ability of children with severe speech delay and suspected or diagnosed speech motor disabilities. Cases include children in early preschool through the school years, organized within a proposed care path to guide practice.

Learning Outcomes:

Participants will be able to:

1. Identify key components of speech therapy to maximize the speech ability of children with speech motor disabilities.
2. Describe similarities and differences in treatment approaches for speech motor planning disturbances and dysarthria in children.
3. Describe a sample care path of speech services for children with speech motor disabilities from early identification to later childhood.

Applications of Cognitive-Behavioral Therapy to Work with Individuals Who Stutter*Lisa Scott, PhD, CCC-SLP*

Intermediate: Helping individuals who stutter achieve speech change involves more than knowing speech modification strategies. Cognitive-behavioral therapy offers a framework that facilitates changes in thinking, leading to behaviour change. This presentation highlights practical activities that create meaningful change through identifying unhelpful thoughts, more helpful options and methods for making change.

Learning Outcomes:

Participants will be able to:

1. Identify the major components of the cognitive model.
2. Label at least two types of unhelpful thinking as they relate to stuttering.
3. Develop three therapy CBT activities for use with children and teens who stutter.

Looking at Apps through Developmental Play and Narrative Stages*Sean Sweeney, MS, M.Ed. CCC-SLP*

Intermediate: Clinicians can use apps as engaging tools when targeting narrative language and scripts for real-world play. This presentation will review models of play and narrative development and corresponding low-cost apps that can provide visual and interactive scaffolding for building play, story comprehension and production skills.

Learning Outcomes:

Participants will be able to:

1. Explain various models and tools for assessing play and narrative language.
2. Analyze apps to identify contexts and features that can target clinical objectives for play and storytelling.

Understanding Swallowing in Bite-Sized Portions*Ianessa A. Humbert, PhD, CCC-SLP*

Advanced: This session will incorporate swallowing physiology and swallowing research into decision-making models that are immediately applicable to dysphagia management. This advanced session will help clinicians understand why swallowing is unique, requiring a novel approach for successful rehabilitation.

Learning Outcomes:

Participants will be able to:

1. Summarize complex swallowing functions in both peripheral and central systems.
2. Summarize overall findings of treatment studies for dysphagia.
3. Create appropriate clinical decision trees for dysphagia categories that lead to clear treatment options.

Typical Development and Phonological Disorders in Francophone Children

Françoise Brosseau-Lapré, PhD, SLP(C)

Intermediate: This session will examine normal phonological development in francophone children, as well as evaluation and treatment planning for children with phonological disorders. We will demonstrate implications for clinical practice with regard to choosing preferred assessment tools, interpreting results and selecting intervention goals.

Learning Outcomes:

Participants will be able to:

1. Describe sound production errors made by francophone children at the segmental and prosodic levels of the phonological hierarchy.
2. Perform phonological assessments in French in accordance with current research, and interpret phonological assessment results for francophone children.
3. Identify appropriate assessment tools to assess phonological skills in francophone children.
4. Choose intervention goals according to overall current evidence.

The Nature and Treatment of Primary Progressive Aphasia

Maya Henry, PhD, CCC-SLP

Intermediate: The presentation will cover the nature and treatment of primary progressive aphasia (PPA), a degenerative neurological condition that causes a gradual decline in speech and language. This session will describe the three clinical variants of PPA with case examples as well as treatment approaches for each of the variants.

Learning Outcomes:

Participants will be able to:

1. Understand how PPA is diagnosed and how it differs from other forms of aphasia and dementia.
2. Understand the neural and pathological bases of PPA.
3. Understand how PPA provides a unique window into brain-behavior relations for speech and language.
4. Identify core and associated diagnostic features of each of the variants of PPA.
5. Describe tailored treatment approaches appropriate for each of the variants of PPA.

SPEECH-LANGUAGE PATHOLOGY AND SUPPORTIVE PERSONNEL WORKSHOPS

Aphasia-Apraxia Therapy: Exploiting Neuroplasticity

Bill Connors, MA, CCC-SLP

Intermediate: This presentation will discuss innovative treatment protocols, tools, software and technology that enhance clinical skills in neuroplastic rehabilitation; integrate evidence and patient values into aphasia rehabilitation; and save clinician preparation time. Presentation includes the lecture, interactive discussion, active participation, demonstration videos and live telepractice sessions.

Learning Outcomes:

Participants will be able to:

1. Identify 10 techniques to simplify, adapt and maximize computers and information technology for aphasia, alexia, agraphia and cognitive therapy.
2. Identify five key cognitive/mental processes that support language and its rehabilitation and incorporate these into treatment protocol development and application.
3. Identify five methods of applying adult evidence-based rehabilitation techniques in working with adolescents and young adults with communication problems.
4. Identify four techniques for observing and analysing aphasic client behavior for use in evidence-based treatment to maximize rehabilitation activities (and train caregivers/coaches in the treatment process).
5. Identify five professional, clinical, technological and ethical issues related to telepractice.

Reference & Regulate – Introductory Workshop

David Loyst, M.Sc.

Introductory/Intermediate: We will use clinical experience, clinical data and pre-post intervention videos to present R&R, a successful remedial program for preschool and school aged children with ASD. R&R is based on developmental models of social cognition, communication and play in typical children.

Learning Outcomes:

Participants will be able to:

1. Identify current models of autism intervention and research.
2. Identify the development of social cognition, communication, and play in typical children.
3. Understand the theoretical basis of Reference & Regulate.

Reference & Regulate – Effective Intervention for Children with Autistic Spectrum Disorders

David Loyst, M.Sc.

Intermediate/Advanced: We will use clinical experience, clinical data and pre-post intervention videos to present R&R, a successful remedial program for preschool and school aged children with ASD. R&R is based on developmental models of social cognition, communication and play in typical children.

Learning Outcomes:

Participants will be able to:

1. Identify stages of ASD and corresponding activities (all participants will receive a R&R Stages and Activities booklet).
2. Learn and practice activities at each stage of intervention through the workshop's use of lectures, session video clips and role play.
3. Assess a client's stage and provide appropriate intervention activities.

Tech-Savvy S-LPs & SPs: Is There Any Technology We Can't Turn Into a Therapy Tool?

Sean Sweeney, MS, M.Ed. CCC-SLP

Introductory: The saying goes, "Skilled speech and language therapists can do therapy with a paper clip!" Our history of "repurposing" tools to target speech and language continues in the 21st century with technology-based contexts. This session will highlight tools and strategies for using a variety of tech tools in therapy.

Learning Outcomes:

Participants will be able to:

1. Analyze apps and web-based tools and apply task analyses to isolate speech, language and educational objectives/uses in context.
2. Access resources for further learning about technology integration in speech-language pathology.

Language Intervention & Integration Strategies Across the Ages

Candice Bray, ScD

Intermediate: This highly interactive workshop focuses on language intervention strategies for children and adolescents. The presentation includes:

- vocabulary development and interactive word walls
- word structure including phonology and morphology
- inferencing and other higher level skills in literacy
- S-LP and teacher strategies using classroom materials

While the focus is largely on elementary ages, those working with adolescents will also find the strategies applicable.

Learning Outcomes:

Participants will be able to:

1. Increase knowledge regarding active vocabulary strategies including development and implementation of interactive word walls.
2. Acquire strategies to support vocabulary development through strengthening phonological processing and morphological awareness.
3. Acquire strategies in listening and reading comprehension for development of inferencing, summarizing, retelling and questioning.
4. Increase knowledge of integrating classroom materials in intervention.
5. Develop a toolbox of strategies to share with teachers so intervention is possible in multiple settings.

SUPPORTIVE PERSONNEL WORKSHOP

Therapy in the Classroom: Functional Ideas for Facilitating Language Learning for Supportive Personnel

Cindy Bell, M.Sc, R.SLP and Staci Cooper, MSLP, R.SLP, S-LP(C)

Introductory/Intermediate: This interactive workshop will discuss practical strategies and treatment activities that supportive personnel can use to build receptive and expressive language knowledge in preschool and early school-aged children. We will systematically address some of the most common speech and language goals and provide a foundation for building functional, in-class supports and activities.

Learning Outcomes:

Participants will be able to:

1. Recognize and understand different levels of in-class service delivery (universal, targeted and specific).
2. Gather, evaluate, create and share strategies and activities that can be applied in class for common language goals.
3. Use a systematic approach to understand semantic language development in order to create meaningful in-class activities and therapy sessions.

AUDIOLOGY CONTRIBUTED PAPERS

The Maturation of Human Cortical Auditory Evoked Potentials

Amineh A.K. Koravand, University of Ottawa, Ottawa, ON; Julie Cyr, University of Ottawa, Ottawa, ON; Renaud de Grandmont, University of Ottawa, Ottawa, ON; Dominique Wright, University of Ottawa, Ottawa, ON

Intermediate: This study used cortical auditory evoked potentials (CAEPs) to investigate the maturation and functioning of the central auditory pathways. We looked at the effect of age, stimuli type and temporal rate on CAEPs in 30 children (5-13 years) and 10 adults (18-25 years) and observed different patterns of CAEPs.

AUDIOLOGY AND SPEECH-LANGUAGE PATHOLOGY CONTRIBUTED PAPERS

Loud and Clear: Group Speechreading Instruction for Hard-of-Hearing Adults

Mary-Jane V. Blais, M.Sc., S-LP(C), MAB-Mackay Rehabilitation Centre, Montreal, QC; Jesse Simms, M.Sc.(A), S-LP, MAB-Mackay Rehabilitation Centre, Montreal, QC

Introductory: This study gathered efficacy data on a speechreading program for hard-of-hearing adults and found that, after six group sessions, participants showed significant improvements on both objective and subjective measures of speechreading ability. These findings suggest that group speechreading training can be a useful tool in restoring the communication abilities of adults with hearing loss.

Use of the ICF in Practice by Speech-Language Pathologists

Linda Garcia, PhD, Reg. CASLPO, University of Ottawa, Ottawa, ON; Meredith Wright, PhD, S-LP, Reg. CASLPO, The Ottawa Hospital, Ottawa, ON; Rafat Islam, MBBS, PhD, Ottawa Hospital Research Institute, Ottawa, ON; Janet Vu, University of Ottawa, Ottawa, ON; Sarah Boucaud, B.H.Sc., University of Ottawa, Ottawa, ON; Shanie Montpetit-Leduc, B.H.Sc., University of Ottawa, Ottawa, ON

Intermediate: Despite its value, S-LPs are not widely implementing the International Classification of Functioning, Disability and Health (ICF) in clinical settings. The objective of this study is to recognize barriers that prevent S-LPs from using the ICF when assessing patients and identify ways to facilitate use of the classification framework in clinical practice.

Head and Neck Cancer in the Era of Human Papillomavirus (HPV)

Julie A. Theurer, PhD, M.Cl.Sc., S-LP(C), Reg. CASLPO, Western University, London, ON; Anthony C. Nichols, MD, Western University, London, ON

Intermediate: HPV-related head and neck cancer is a global epidemic. The clinical characteristics and treatment responses of this distinct disease differ from those of tobacco and alcohol-related cancers. This session will explore the who, what, where, when, why and how of HPV-related head and neck cancer.

AUDIOLOGY, SPEECH-LANGUAGE PATHOLOGY AND SUPPORTIVE PERSONNEL CONTRIBUTED PAPERS

Consent and Capacity: Making it Relevant Through E-Learning

Alexandra Carling-Rowland, PhD, S-LP, Reg. CASLPO, CASLPO, Toronto, ON; Carol Bock, M.H.Sc., S-LP, Reg. CASLPO, CASLPO, Toronto, ON; Melisse Willems, BAH, MA, LLB, CASLPO, Toronto, ON

Introductory: CASLPO has developed an online module concerning consent and capacity. Creating the module required in-depth research and advanced legal analysis, given the complexities of providing information to two professions and encompassing three laws for members working under four ministries. The result is an informative, accessible tool which focuses on authentic practice scenarios.

Reflecting on International Clinical Education Practices and Guidelines

Lynn Ellwood, M.H.Sc., S-LP(C), University of Toronto, Toronto, ON; Debra Cameron, PhD, OT Reg. (Ont.), University of Toronto, Toronto, ON

Introductory: This study evaluated an international clinical internship program for master's-level rehabilitation students at a Canadian university. Following in-depth semi-structured interviews, we used directed content analysis to determine priorities for policy, practice and research. The study identified five themes related to strengthening international clinical education as well as areas for further education research.

The Language ENvironment Analysis (LENA) System: Clinical and Research Applications

Alice A. Eriks-Brophy, PhD, University of Toronto, Toronto, ON; Hillary V. Ganek, MA, CCC-SLP, LSLS Cert. AVT, University of Toronto, Toronto, ON; Leah R. Radziwon, BA, University of Toronto, Toronto, ON

Introductory: This presentation will describe current applications of a novel technology: the LENA system. We will use case studies of children with and without hearing loss from Euro-Canadian and minority language backgrounds to illustrate LENA's potential to inform both research and clinical practice. The case studies will combine LENA, interview and questionnaire data.

Applying Family-Centred Approaches in Communication Disorders in Dementia

J.B. Orange, PhD, S-LP(C), Reg. CASLPO, Western University, London, ON; Angela Roberts, MA, S-LP, Reg. CASLPO, Western University, London, ON; Marie Savundranayagam, PhD, Western University, London, ON; Barbara Purves, PhD, M.Sc., S-LP(C), University of British Columbia, Vancouver, BC

Intermediate: Emerging evidence highlights the importance of using family-centered approaches (FCA) with individuals who have cognitive-communication challenges resulting from dementia. This mini-seminar will present an overview of FCA in communication disorders in dementia, as well as relevant theoretical constructs and models of care for implementing such approaches in clinical contexts.

Discourse Analyses in Adult Communication Disorders: A Hands-On Tutorial

Angela Roberts, MA, S-L, Reg. CASLPO, Western University, London, ON; J.B. Orange, PhD, S-LP(C), Reg. CASLPO, Western University, London, ON

Introductory: Discourse analyses are powerful tools for clinicians practicing in the area of adult communication disorders because they facilitate our understanding of the integration among cognitive, language and motor variables in communication. This mini-seminar will provide a tutorial for using discourse analyses in adult communication disorders.

Critical Reflection as a Competence for Effective Learning and Practice

Susan J. Wagner, M.Sc.(CD), B.Sc.(SPA), S-LP(C), Reg. CASLPO, University of Toronto, Toronto, ON

Introductory: Critical reflection is essential to transforming experiences into learning to enhance clinical practice. This presentation will discuss critical reflection in both education and practice settings to highlight its impact on practice and identify opportunities for maximizing this essential skill.

SPEECH-LANGUAGE PATHOLOGY CONTRIBUTED PAPERS

Preschool Children's Comprehension of Inferences in a Narrative

Chantal Desmarais, Université Laval, Québec, QC; Paméla Filiatrault-Veilleux, Université Laval, Québec, QC; Caroline Bouchard, Université Laval, Québec, QC; Natacha Trudeau, Université de Montréal, Montréal, QC

Intermediate: Making inferences is important in language development but S-LPs have few tools to address this ability. In this presentation, we will describe a task created for the iPad that presents a story and related questions. We will review the results and suggest avenues for evaluating and promoting this ability in preschool children.

Navigating the Long-Distance Mentorship: Strategies and Experiences

Kim Smith, M.H.Sc., S-LP(C), Reg. CASLPO, Sioux Lookout Meno Ya Win Health Centre, FIREFLY, Sioux Lookout, ON; Jackie Hummelbrunner, M.Sc., S-LP(C), Reg. CASLPO, Lake of the Woods District Hospital, Northern Ontario School of Medicine, Kenora, ON

Introductory: The Initial Practice Mentorship Program (IPMP) is a key component of the College of Audiologists and Speech-Language Pathologists of Ontario's Quality Assurance Program (CASLPO website, 2013). However, those who practice in underserved areas may be challenged to find a mentor. This presentation will share the innovative long-distance strategies used to complete a recent IPMP.

Developing a Local Professional Support Network – What, Why and How

Patty Matsuo, MA, S-LP(C), Reg. CASLPO, Trillium Health Partners, Mississauga, ON; Lisa Sokoloff, MS, CCC-SLP, Reg. CASLPO, Baycrest, Toronto, ON; Janet Wu, Reg. CASLPO, S-LP(C), M.H.Sc., St. Michael's Hospital, Toronto, ON

Intermediate: We all agree that networking and information sharing is an essential aspect of our profession, but how we go about this work can vary. This interactive presentation will discuss the process of creating a dynamic network of professional support and the work conducted by a group of hospital-based S-LPs to date.

Individualizing Treatment for Children with Apraxia of Speech

Susan Rvachew, PhD, S-LP(C); McGill University, Montreal, QC; Tanya Matthews, MA, CCC-SLP, McGill University, Montreal, QC

Intermediate: Children with apraxia of speech may have difficulty with phonological or motor planning. We will demonstrate how the syllable repetition task can be used to identify problems with different levels of processing and will select an appropriate treatment approach by presenting research evidence and video demonstrations of speech therapy procedures.

Normal Swallowing Physiology: Establishing the Reference Perspective for Swallowing Assessment

Catriona M. Steele, PhD, S-LP(C), Toronto Rehabilitation Institute - University Health Network, Toronto, ON; Shauna L. Stokely, M.H.Sc, S-LP(C), Toronto Rehabilitation Institute - University Health Network, Toronto, ON; Melanie Tapson, M.Sc., S-LP(C), Toronto Rehabilitation Institute - University Health Network, Toronto, ON; Ahmed Nagy, MD, Toronto Rehabilitation Institute - University Health Network, Toronto, ON, Melanie Peladeau-Pigeon, M.H.Sc., Toronto Rehabilitation Institute - University Health Network, Toronto, ON

Intermediate: The videofluoroscopic swallowing assessment (VFSS) is a core assessment tool for identifying swallowing impairment. In this presentation, participants will review examples of swallowing from healthy individuals. The presenters will introduce a set of highly reliable timing and kinematic parameters and teach clinicians to make these measures.

Validation of the Stroke Swallowing Screening Test

Linda Walsh, M.H.Sc, S-LP(C), Moncton Hospital, Moncton, NB

Intermediate: The stroke swallowing screening test (SSST) identifies patients with stroke who require a swallowing assessment by an S-LP. This review of patients admitted to hospitals in 2011 and 2012 with a diagnosis of stroke showed that the SSST accurately differentiated those patients who require an S-LP swallowing assessment from those who do not.

SPEECH-LANGUAGE PATHOLOGY AND SUPPORTIVE PERSONNEL CONTRIBUTED PAPERS

Clinical Practice with English-Language-Learning Children: Perspectives Afforded by the ICF-CY

Lynn F. Dempsey, PhD, S-LP(C), Reg. CASLPO, Brock University, St. Catharines, ON

Intermediate: In this presentation, participants will study the conceptual underpinnings of the ICF-CY and their influence on how speech-language pathologists understand and respond to the needs and abilities of English-language-learning children. We will use case studies to demonstrate the multidimensional view of the functioning of ELL children afforded by the framework.

Communication Development of Toddlers With a History of Feeding Difficulties

Chantal Lessard, M.H.Sc, S-LP(C), Reg. CASLPO, CHEO, Ottawa, ON; Karine Milliard, University of Ottawa, Ottawa, ON; Pascal Lefebvre, PhD, University of Ottawa, Ottawa, ON

Introductory: This study undertook a retrospective chart review of typically developing children with feeding difficulties. The results indicate that these children are at a greater risk than their peers of also presenting with speech and language delays. We examined medical and demographic variables and found that some were associated with speech and/or language delays.

Making Communication Accessible: An E-learning Course for Health Care Professionals

Lisa A. McQueen, M.H.Sc., S-LP (C), Reg. CASLPO, University Health Network - Toronto Rehab, Toronto, ON

Intermediate: This presentation will describe the development of an e-learning course designed to support health care professionals in their interactions with individuals with communication impairments. We will share the module along with highlights and challenges we encountered in the creation process.

Strategies That Promote Moving Forward After Traumatic Brain Injury

Mary-Ellen Thompson, PhD, S-LP(C), Belleville, ON; Fahmida Pardhan, MA, S-LP

Intermediate: Although TBI is known to have devastating effects, clinical observation indicates that individuals can live meaningful lives post-injury. This study used structured interviews to collect stories from survivors of TBI. Our content analysis of these interviews revealed several consistent themes that were important for psychosocial adjustment and reintegration into family and community life.

AUDIOLOGY POSTERS

Effects of Electrophysiological Tests on Various Tinnitus Subtypes and Severities

Victoria Milloy, Audiologist, University of Ottawa, Ottawa, ON; Amineh A.K. Koravand, Audiologist, University of Ottawa, Ottawa, ON

Intermediate: This study aims to determine the effects of various levels of severity and etiologies of tinnitus on a battery of electrophysiological tests, namely ABR, MMN, long latency AEPs and speech ABR. The study's results may provide information on the sensitivity of such tests to detect tinnitus and the origin of subtypes of tinnitus.

Auditory processing disorders and listening-in-noise training: are there observable benefits?

Mojgan Owliaey, audiologist, Institut Raymond-Dewar, Montreal, QC; Mélanie Gagnon, audiologist, Centre montéregien de réadaptation; Chloé Phoenix, audiologist, Centre hospitalier régional du Grand-Portage, Rivière-du-Loup, QC; Benoît Jutras, Université de Montréal, Montreal, QC

Intermediate: Treatment efficacy for children with an auditory processing disorder (APD) is very poorly documented. This study aimed to determine if children with an APD could benefit from listening-in-noise training from neurophysiological, auditory behavioural and social participation standpoints.

Plan: Developing a Recipe for Success to Sustain Best Practice in Diagnostic Auditory Brainstem Response (ABR) Delivery

Kathy Packford, M.Sc., R.Aud, Aud(C), Glenrose Rehabilitation Hospital, Edmonton, AB, Laura Mumme, B.Sc., Glenrose Rehabilitation Hospital, Edmonton, AB

Intermediate: Infants are born all over Alberta with risk factors for hearing loss, but many live outside of areas where infant hearing assessments using ABR are available. The Telehealth ABR team used the National Implementation Research Network (NIRN) framework to examine the critical ingredients for successfully implementing diagnostic ABR by telehealth. They found that the framework provides a systematic way to implement best practice with fidelity.

AUDIOLOGY, SPEECH-LANGUAGE PATHOLOGY AND SUPPORTIVE PERSONNEL POSTERS

Public Awareness and Knowledge of Aphasia in Ottawa/Gatineau: A Survey

Mélanie Crousset, University of Ottawa, Ottawa, ON; Lauren Barlow, University of Ottawa, Ottawa, ON; Brittany Kruk-Mendes, University of Ottawa, Ottawa, ON; Elizabeth Rochon, PhD, S-LP(C), University of Toronto, Toronto, ON; Carol Leonard, PhD, S-LP(C), University of Ottawa, Ottawa, ON

Introductory: This study conducted a face-to-face survey in public locations (e.g., parks, beaches, retail outlets) in the Ottawa/Gatineau region. We asked participants questions related to their awareness and basic knowledge of aphasia. Five-hundred individuals participated. Consistent with previous international surveys, we found that public awareness and knowledge of aphasia is lacking.

Best Practice for Stroke and Aphasia: A Canadian KTE Collaboration

Aura Kagan, PhD, S-LP(C), Aphasia Institute, University of Toronto, Toronto, ON; Mark Bayley, MD, FRCPC, Toronto Rehabilitation Institute - University Health Network, University of Toronto, Toronto, ON; Nina Simmons-Mackie, PhD, CCC-SLP, Southeastern Louisiana University, Hammond, LA; Sheila Cook, B.Sc., Aphasia Institute, Toronto, ON; Jane B. Gibson, B.Sc., MCIsc, Aphasia Institute, Toronto, ON; Ellen Hickey, PhD, CCC-SLP, Dalhousie University, Halifax, NS; Linda Kelloway; Guylaine Le Dorze; Barbara Purves, PhD, M.Sc., S-LP(C), University of British Columbia, Vancouver, BC; Elizabeth Rochon, PhD, S-LP(C), University of Toronto, Toronto, ON; Linda Worrall, PhD, University of Queensland, Brisbane, Queensland, Australia

Intermediate: A team of stroke and aphasia thought leaders have worked to integrate revised aphasia guidelines into the Canadian Stroke Best Practice Recommendations. This poster describes their collaborative efforts to improve aphasia services in Canada, including activities to date, long-term goals and next steps.

A Historical and Personal Perspective on Our Professions in Canada

Virginia Martin, MA, retired member; Sharon G. Halldorson, ScD Communication Disorders, Seven Oaks School Division, Winnipeg, MB; April W. Gregora, MA Communication Disorders, Pembina Trails School Division, Winnipeg, MB

Intermediate: This presentation will share personal and professional stories from some of the pioneers in communication disorders in Canada. These individuals offered the first services to the public, became regulated through legislation, organized professional associations and established university training programs. Our national association became reality in 1964 with twelve original members.

AUDIOLOGY AND SUPPORTIVE PERSONNEL POSTERS

Newborn Hearing Screening in Nova Scotia

Greg A. Noel, M.Sc., Aud(C), Nova Scotia Hearing and Speech Centres, Halifax, NS; Christine Santilli, M.Sc., Aud(C), Nova Scotia Hearing and Speech Centres, Halifax, NS

Intermediate: Nova Scotia Hearing and Speech Centres (NSHSC) is funded by Department of Health and Wellness to provide audiological services to all Nova Scotians and speech and language services to children and adults. NSHSC has had an infant screening program in place for over 30 years but it was not universal until 2005, when NSHSC received partial funding to implement A Sound Start. The program provides universal newborn hearing screening and early access to speech and language services across the province.

SPEECH-LANGUAGE PATHOLOGY POSTERS

Development of a sentence repetition battery

Josiane Bourgeois Marcotte, Université Laval, Quebec City, QC; Laura Monetta, Université Laval, Quebec City, QC; Maximiliano Augustin Wilson, Université Laval, Quebec City, QC

Intermediate: The goal of this study is to develop a validated assessment tool standardized for a Franco-Quebecker population to assess sentence repetition abilities in aphasic patients.

Intensive Short-Term vs. Stroke-Stream Rehabilitation

Leah M. Dagenais, M.Sc., R.S-LP, S-LP(C), University of Alberta/Alberta Health Services, Edmonton, AB; Teresa Paslawski, PhD, University of Alberta, Edmonton, AB; Linda Woodhouse, PhD, University of Alberta, Edmonton, AB; Carol Boliek, PhD, University of Alberta, Edmonton, AB

Intermediate: This study compares communication outcomes in patients with aphasia post-stroke after receiving either a six-month multidisciplinary rehabilitation program or a five-week intensive aphasia program. The outcome measures include performance on a number of speech-language assessments. We interpret the results in the context of treatment intensity, treatment targets and patient characteristics.

Evaluating Inuktitut Expressive Language Development: MLU in Morphemes, Words or Syllables?

Catherine B. Dench, M.Sc. S-LP(C), Kativik School Board, Saint-Laurent, QC; Shanley Allen, PhD, University of Kaiserslautern, Kaiserslautern, Germany; Lindsay Coffin, Northeastern University, Boston, MA

Intermediate: Few measures of Inuktitut language development exist. We calculated MLUs in morphemes, words and syllables from language samples in this morphologically-complex language. All measures showed promise for assessment of expressive language development. In particular, MLU-S seems linguistically reliable and practical for those with little linguistic knowledge of Inuktitut.

Implementation and Evaluation of a Swallowing Alert Bracelet to Identify Hospital Patients With Dysphagia

Jennifer A. Dickson, B.Sc. (CD); M.Cl.Sc., S-LP(C), The Ottawa Hospital, Ottawa, ON; Stephanie Amos, M.Ed. PhD, The SDP Group

Introductory: The ability to clearly identify patients with dysphagia is important for successful dysphagia management. We investigated staff and caregiver knowledge of dysphagia and tested the effectiveness of a swallowing alert bracelet. Staff and caregivers reported benefits from the trial and no one raised privacy concerns or objections to wearing the bracelet.

University Based Continuing Professional Education for Speech-Language Pathologists

Shawn J. Drefs, B.Sc., M.Sc., Faculty of Rehabilitation Medicine, University of Alberta, Edmonton, AB; Elizabeth Taylor, PhD, OT(C) FCAOT, Faculty of Rehabilitation Medicine, University of Alberta, Edmonton, AB

Introductory: In 2009 the University of Alberta's Faculty of Rehabilitation Medicine developed several continuing education initiatives to reach out to practicing clinicians in urban and rural settings from across the country. Current offerings include an online graduate certificate in stroke rehabilitation and online webcasts for S-LPs.

Halifax Consciousness Scanner: Exploring the Potential

Carolyn M. Fleck-Prediger, S-LP(C), Halvar Jonson Centre for Brain Injury, Ponoka, AB; Ryan CN D'Arcy, PhD Neuroscience, Simon Fraser University (Med Tech & Research), Burnaby, BC; Sujoy G. Hahra, B.A.Sc. Electrical and Computer Engineering, Simon Fraser University (Med Tech & Research), Burnaby, BC; Bruce D. Dick, PhD, R. Psych (AB, NS), University of Alberta, Edmonton, AB

Introductory: The bedside Halifax Consciousness Scanner (aHCS) uses auditory evoked response potentials to quantify/qualify five components of conscious awareness: sensation, perception, attention, memory for own name and comprehension. Our study administered the aHCS on 28 patients with severe brain injury to evaluate the brainwaves elicited by the stimuli and correlate HSC scores with clinical presentation to enable prognostication.

Scoring and Sensitivity of the Bilingual Aphasia Test Translation Task

Karen A. Giannandrea, School of Rehabilitation Sciences, University of Ottawa, Ottawa, ON; Pat M. Roberts, PhD, CCC-SLP, Reg. CASLPO, S-LP(C), School of Rehabilitation Sciences, University of Ottawa, University of Ottawa, Ottawa, ON

Introductory: Paradis Bilingual Aphasia Test (BAT) has received little critical examination. This study examines the performance of 30 bilingual (French-English) non-aphasic adults on the sentence translation task. We raise questions about the usefulness and validity of the task, given the low correlations with overall bilingual proficiency and multiple problems scoring responses, and propose an alternate scoring method.

Naming Performance in French-English Bilinguals and French Monolinguals

Maude Lemieux, Université Laval, Québec, QC; Christine L. Sheppard, MSW, Bruyere Research Institute, Ottawa, ON; Vanessa Taler, PhD, University of Ottawa, Ottawa, ON; Laura Monetta, PhD, Université Laval, Québec, QC

Intermediate: The Canadian French-English Naming Test is a novel naming task developed for monolinguals (French and English) and French-English bilinguals. We administered the 120-picture preliminary task to 60 monolingual French speakers and 60 French-English bilinguals from two different age groups. Our study found that bilinguals outperformed French speakers when they could answer using either language.

Practice Profiles Support Assessment of Communication in Autism Spectrum Disorder

Erane C. McManus, M.Sc., R.SLP, S-LP(C), Alberta Health Services, Edmonton, AB; Elizabeth Kelly, MSLP, R.SLP, S-LP(C), Alberta Health Services, Edmonton, AB; Laura Mumme, B.Sc., Alberta Health Services

Introductory: The Glenrose Rehabilitation Hospital has adopted the National Implementation Research Network active frameworks to bridge the gap between research and practice. Working collaboratively, the autism spectrum disorder diagnosis implementation team moved towards standardizing best practice for communication assessment and systematically planned for implementation using a practice profile.

Navigational Skills: A Comparison Between Autism and Typically Developing Children

Manon Robillard, PhD, Laurentian University, Sudbury, ON; Sylvie Rondeau, Laurentian University, Sudbury, ON; Annie Roy-Charland, PhD, Laurentian University, Sudbury, ON

Advanced: This study examines the relationship between children's cognitive skills and their ability to navigate within dynamic pages of an iPad. We conducted a comparison between a group of typically developing children and a group of individuals with autism spectrum disorders. The results revealed important differences between the two groups.

What Do Parents Want From an Assessment Report?

Ian D. Roth, M.H.Sc., S-LP(C), Reg. CASLPO, University Health Network, Toronto, ON; Sue E. Gowans, B.Sc. (PT), BA, PhD, University Health Network, Toronto, ON

Intermediate: This study surveyed 38 S-LPs and 56 parents of preschool-aged children to compare how S-LPs typically write reports with parents' preferences regarding assessment reports. The comparisons yielded significant differences between the S-LPs' reports and what parents prefer, though S-LPs could usually predict parent preferences.

Benchmark Wait Times for Speech Sound Disorders

Susan Rvachew, PhD, S-LP(C), McGill University, Montreal, QC; Susan Rafaat, M.Sc., R.SLP, S-LP(C), Alberta College of Speech Language Pathologists and Audiologists, Calgary, AB

Introductory: The Pan-Canadian Alliance of Speech-Language Pathology and Audiology Organizations is developing wait times benchmarks for a range of diagnostic groupings. For pediatric speech sound disorders, an extensive literature review revealed that the critical period for rapid service is the two-year window prior to school entry.

Participation and Communication Impairment in Preschoolers: A Critical Review

Claire M. Stirling, M.Cl.Sc., S-LP(C), Blueballoon Health Services; Marilyn K. Kertoy, PhD, University of Western Ontario, London, ON

Introductory: Our critical review examines the relationship between preschool speech/language impairment and participation, using one survey study, one longitudinal mixed study and two between-groups studies. The results of the critical review show that communication skills in some children are related to important aspects of participation.

Comfort Feeding Only: Challenges Surrounding Feeding for Enjoyment at End-of-Life

Jennifer C. Wong, MHSc, S-LP(C) Reg. CASLPO, Sunnybrook Health Sciences Centre, Toronto, ON; Kristen L. Paulseth, MHSc, S-LP(C), Reg. CASLPO, Sunnybrook Health Sciences Centre, Toronto, ON; Chris A. Watson, M.H.Sc., S-LP(C), Reg. CASLPO, Sunnybrook Health Sciences Centre, Toronto, ON; Evelyn Williams, MD, M.H.Sc., CHE, FCFP, Sunnybrook Health Sciences Centre, Toronto, ON

Intermediate: A comfort feeding only (CFO) policy was implemented for residents at end-of-life with insufficient oral intake. We quizzed staff to examine barriers to implementation and disseminated weekly emails to establish understanding. We found that knowledge and comfort ratings on post-intervention evaluation improved and that successful implementation of CFO requires common understanding and interprofessional collaboration.

SPEECH-LANGUAGE PATHOLOGY AND SUPPORTIVE PERSONNEL POSTERS

Social Validation of LSVT LOUD for Persons With Parkinson Disease

Laura S. Boland, M.Sc., S-LP(C), PhD(c), University of Ottawa, Ottawa, ON; Ellen Hickey, PhD, CCC-SLP, Dalhousie University, Halifax, NS

Intermediate: Although the efficacy of LSVT LOUD for individuals with Parkinson disease is well documented, little is known about LSVT in natural settings. We tested the feasibility of using social validation methodology to examine the practical value of LSVT LOUD for persons with idiopathic Parkinson disease.

Partnering for Change: An Innovative Model of Collaborative Service Delivery

Wenonah N. Campbell, PhD, S-LP(C), CCC-SLP, CanChild, McMaster University, Hamilton, ON; Cheryl A. Missiuna, PhD, OT (Reg), CanChild, McMaster University, Hamilton, ON; Nancy A. Pollock, M.Sc., OT (Reg), CanChild, McMaster University, Hamilton, ON; Robin Gaines, PhD, S-LP(C), CCC-SLP, Reg. CASLPO, Children's Hospital of Eastern Ontario Research Institute, Ottawa, ON

Intermediate: Partnering for Change (P4C) is an innovative service delivery model that involves educators and clinicians working in the classroom to enhance student participation. Originally developed for occupational therapists, this presentation will outline the core principles of P4C, present research evidence supporting the model and discuss its relevance to school-based S-LPs.

Innovative Use of Volunteers to Improve Patient Satisfaction and Care

Lyn A. Chaffart, MS, Reg. CASLPO, Hotel Dieu Shaver Health & Rehabilitation Centre, St. Catharines, ON; Julia M. Colangeli, MA, M.Sc., S-LP(C), Reg. CASLPO, Hotel Dieu Shaver Health & Rehabilitation Centre, St. Catharines, ON; Katie Soares, M.Sc., S-LP, Reg. CASLPO, Hotel Dieu Shaver Health & Rehabilitation Centre, St. Catharines, ON

Introductory: The S-LPs at Hotel Dieu Shaver routinely use volunteers to maximize work efficiency and improve patient satisfaction and care. Volunteers fill administrative positions and take part in friendly visitation and specialty programs. This presentation describes the centre's various volunteer programs and how they benefit hospital staff, volunteers and patients.

Language Contributions to Amyotrophic Lateral Sclerosis

Katie M. Findlater, B.Sc., MSc, Western University, London, ON; J.B. Orange, PhD, S-LP(C), Reg. CASLPO, Western University, London, ON

Intermediate: This project investigates the impact that language has on health-related quality of life in individuals with Amyotrophic Lateral Sclerosis.

Parent Roles in AAC and the Impact of Mobile Technology

Anne Guillemette, S-LP, University of Ottawa, Ottawa, ON; Ann Sutton, S-LP(C), University of Ottawa, Ottawa, ON

Introductory: The advent of mobile technologies has caused a shift in the roles played by AAC professionals and parents in assessment and intervention. This systematic review analyses the roles of parents in current AAC literature and the potential impacts that mobile technology could have on these roles.

Narrative Abilities in Bilingual Children With Primary Language Impairments

Élisa Langlois, Laurentian University, Sudbury, ON; Chantal Mayer-Crittenden, PhD, Laurentian University, Sudbury, ON; France St-Louis, BScS, Laurentian University, Sudbury, ON

Intermediate: Studies have shown that children with primary language impairment (PLI) have difficulties with narratives and that narrative abilities are highly relevant when measuring the linguistic competence of children with PLI. This paper examines the narrative abilities of monolingual and bilingual children with and without PLI in a bilingual community.

Emergent Literacy Skills in Preschoolers With Childhood Apraxia of Speech

Pascal Lefebvre, PhD, Reg CASLPO & OOAQ, University of Ottawa, Ottawa, ON; Robin Gaines, PhD, S-LP(C), CCC-SLP, Reg. CASLPO, Children's Hospital of Eastern Ontario, Ottawa, ON; Laurie-Ann Staniforth, M.P.O, Reg. CASLPO, First Words Preschool Speech and Language, Ottawa, ON

Introductory: This study aims to compare motor-based and language-based emergent literacy performance of nine children with childhood apraxia of speech (CAS) with those of typical matched peers. The results suggest that CAS includes a cluster of speech and language difficulties, sometimes associated to motor issues.

Making Alternative Therapy Choices Happen (MATCH): Engaging Hard-to-Reach Families

Michelle P. Phoenix, S-LP, Reg. CASLPO, KidsAbility Centre for Child Development, Hamilton, ON; Peter L. Rosenbaum, CanChild Centre for Childhood Disability Research, Hamilton, ON

Introductory: Making Alternative Therapy Choices Happen (MATCH) is an innovative service delivery model to promote engagement in services for hard-to-reach families. MATCH was developed based on best practices, piloted in 2012 and expanded with further implementation and evaluation in 2013. We used knowledge translation theory to support this initiative.

Communication in Parkinson's Disease Dementia: A Family Perspective

Angela Roberts, MA, S-LP, Reg. CASLPO, Western University, London, ON; J.B. Orange, PhD, S-LP(C), Reg. CASLPO, Western University, London, ON

Intermediate: In this study, the authors explore the perceptions of conversation difficulties and the subsequent burden experienced by multiple members of the same family unit living with Parkinson' disease dementia (PDD). Our findings highlight the need for intervention approaches that focus on the unique experiences of individual family members to optimize communication.

A Usability Study of Internet-Based Phonological Components Analysis Therapy

Tijana Simic, M.H.Sc., S-LP, Reg. CASLPO, University of Toronto, Toronto, ON; Carol Leonard, PhD, S-LP(C), University of Ottawa, Ottawa, ON; Laura Laird, University of Toronto, Toronto, ON; Elizabeth Rochon, PhD, S-LP(C), University of Toronto, Toronto, ON

Intermediate: This study evaluates the usability of internet-based delivery of the phonological components analysis, our treatment for naming deficits in aphasia. To date, four individuals with mild-moderate aphasia have participated. We will present results related to the effectiveness and efficiency of the procedure as well as consumer satisfaction.

Vocal Strengthening Groups for Voice Problems

Merrill A. Tanner, PhD, S-LP(C), Glenrose Rehabilitation Hospital, Edmonton, AB

Intermediate: The clinical benefits of the Glenrose Vocal Strengthening Groups are evident to both the participants and clinicians involved in the program. These twice-weekly month-long groups combine voice therapy and singing to serve outpatients with voice problems resulting from normal aging, stroke, brain injury and Parkinson's disease. The hospital is now collecting formalized data.



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Du 7 au 10 mai 2014 à Ottawa

ATELIER PRÉ-CONGRÈS

Intégrer la littératie à l'intervention en orthophonie: comment miser sur le langage pour améliorer la lecture

Laura Justice, Ph.D.

Introduction : Cet atelier présente des techniques fondées sur les données probantes que les orthophonistes peuvent utiliser dans la salle de classe et en clinique pour accélérer les apprentissages en littératie précoce chez les enfants avec un trouble de la communication. Les participants apprendront également des moyens efficaces d'intervenir auprès d'enfants qui démontrent un retard dans le développement des habiletés langagières orales et écrites.

Résultats d'apprentissage :

Les participants pourront :

1. Décrire les grands axes du développement de la littératie émergente et les indicateurs de réussite pour chacun d'eux.
2. Nommer les facteurs de risque qui rendent l'acquisition de la littératie difficile pour certains enfants.
3. Expliquer des méthodes fondées sur les données probantes permettant de cibler des buts de littératie émergente dans des contextes cliniques et de salle de classe, avec une attention particulière portée à la lecture partagée de livres.

ATELIERS EN AUDIOLOGIE

Applications pédiatriques des émissions otoacoustiques (EOA) et des potentiels évoqués auditifs du tronc cérébral (PEATC)

James W. Hall III, Ph.D.

Intermédiaire : Cette session examine le besoin d'outils d'évaluation objectifs de l'audition chez les nouveau-nés et les jeunes enfants afin de permettre l'intervention précoce. La mesure des EOA et des PEATC permet d'obtenir un diagnostic correct de dysfonction auditive, y compris une estimation de l'audition par fréquence, avant l'ajustement initial de prothèses auditives pour l'enfant. Nous explorerons également d'autres applications pédiatriques des EOA et des PEATC.

Résultats d'apprentissage :

Les participants pourront :

1. Décrire les avantages cliniques des EOA dans le cadre d'une évaluation de l'audition en pédiatrie.
2. Dresser une liste des applications pédiatriques des EOA.
3. Nommer les types de stimuli utilisés pour éliciter les PEATC chez les nouveau-nés et les jeunes enfants.
4. Nommer les étapes clés de l'analyse des ondes des PEATC.

Les Troubles du spectre de neuropathie auditive (TSNA) : identification, diagnostic et gestion*James W. Hall III, Ph.D.*

Intermédiaire : Les TSNA regroupent un ensemble de problèmes auditifs difficiles à gérer sur le plan clinique. Cette session présentera des techniques et stratégies pour l'identification, le diagnostic et la gestion des patients avec diverses formes de TSNA. Nous examinerons une batterie de tests et une méthode multidisciplinaire pour le diagnostic, y compris le rôle particulier de l'électrocochléographie pour déterminer le lieu de la dysfonction auditive.

Résultats d'apprentissage :

Les participants pourront :

1. Nommer les étiologies liées aux TSNA.
2. Indiquer les avantages propres à l'électrocochléographie pour le diagnostic des TSNA.
3. Décrire la relation entre les patrons observés lors des tests diagnostics et les stratégies de gestion appropriées pour les patients avec un TSNA.
4. Nommer les principales méthodes de réadaptation pour les patients avec un TSNA.

Les bases génétiques des troubles de l'audition et de la parole – une approche multidisciplinaire pour le transfert des découvertes et des connaissances*T Terry-Lynn Young, Ph.D., et Anne Griffin, M.Sc., Aud., R.Aud*

Intermédiaire : Jusqu'à maintenant, on connaît plus de 70 gènes qui peuvent causer des troubles de l'audition, de la parole et du langage. Quoiqu'il soit très difficile d'intégrer ces découvertes génétiques à la pratique clinique, nous commençons à voir des exemples de réussite. Cet atelier présentera les progrès excitants dans ce domaine, ainsi que nos propres tentatives de transfert clinique.

Résultats d'apprentissage :

Les participants pourront :

1. Comprendront dans quelle mesure les mutations génétiques peuvent causer des troubles d'audition, de parole et de langage.
2. Acquerront des connaissances sur les avenues actuellement explorées par la recherche génétique sur les pertes auditives dans un contexte canadien.
3. Comprendront le rôle potentiel et la contribution de diverses disciplines spécialisées en terme de découvertes génétiques et du transfert des connaissances.
4. Pourront établir des antécédents génétiques à partir de l'histoire familiale.
5. Repartiront avec des ressources cliniques sur les troubles héréditaires
6. Reconnaîtront l'importance potentielle de façonner la pratique clinique en fonction de la compréhension des causes génétiques.

ATELIERS D'INTÉRÊT COMMUN – AUDIOLOGIE, ORTHOPHONIE ET PERSONNEL DE SOUTIEN

Les soins interprofessionnels : établir une équipe/gérer les conflits

Nancy Alarcon, M.S., CCC-SLP, BC-ANCDS

Intermédiaire : Peu importe notre milieu, nous sommes appelés à offrir des services interprofessionnels et devons manœuvrer pour préserver notre autonomie professionnelle et poursuivre nos connaissances et habiletés dans le but de servir nos clients, tout en nous en favorisant un milieu de collaboration. Notre présentation couvrira les éléments essentiels et les outils indispensables pour créer l'environnement d'équipe optimal, atteindre les résultats désirés et gérer les défis quotidiens.

Résultats d'apprentissage :

Les participants pourront :

1. Décrire les éléments essentiels des membres d'une équipe fournissant des services dans des milieux d'enseignement et de soins de santé.
2. Nommer les forces qui appuient le travail d'équipe et qui y nuisent.
3. Décrire les résultats désirés d'une équipe de travail dynamique.
4. Nommer les outils indispensables pour engendrer un milieu d'équipe optimal.
5. Décrire les fondements de la résolution de conflits et des stratégies de réussite.

Bâtir des fondements d'excellence en supervision clinique

Nancy Alarcon, M.S., CCC-SLP, BC-ANCDS

Intermédiaire : Nous nous pencherons sur la puissance des relations interpersonnelles dans le cadre du mentorat et de la supervision de personnel de soutien, de cliniciens étudiants, de nouveaux professionnels et de cliniciens chevronnés. Nous accorderons une importance particulière à l'établissement de fondations solides pour donner et recevoir la rétroaction. Nous envisagerons les différences entre les milieux et présenterons une gamme de stratégies de réussite fondées sur les données probantes.

Résultats d'apprentissage :

Les participants pourront :

1. Nommer les rôles et responsabilités clés propres à la supervision de personnel de soutien, de cliniciens étudiants, de nouveaux professionnels et de cliniciens chevronnés.
2. Expliquer les principaux concepts nécessaires pour une rétroaction et une évaluation efficaces.
3. Nommer les compétences requises pour être un enseignant clinique et un superviseur efficace qui appuie l'apprentissage et l'épanouissement professionnel.
4. Nommer les forces externes clés qui ont des répercussions sur notre environnement d'apprentissage, d'enseignement et de travail.
5. Nommer des ressources pouvant aider à offrir un enseignement clinique et une supervision efficaces dans différents milieux de travail.

ATELIERS EN ORTHOPHONIE

Maximiser les habiletés de parole des enfants avec un trouble moteur de la parole*Megan Hodge, Ph.D., R.SLP, O(C), CCC-SLP*

Intermédiaire : Cet atelier présente des exemples cliniques qui illustrent l'utilisation réussie de méthodes de traitement pour améliorer les habiletés de parole d'enfants avec un retard de parole sévère ou un trouble moteur de la parole soupçonné ou confirmé. Ces cas comprennent des enfants d'âges variés allant du niveau préscolaire en passant par toutes les années de scolarisation, et sont organisés en fonction d'un cheminement de soins proposé dans le but de guider la pratique clinique.

Résultats d'apprentissage :

Les participants pourront :

1. Nommer les composantes clés de la thérapie en orthophonie qui maximisent les habiletés de parole chez les enfants avec un trouble moteur de la parole.
2. Décrire les similarités et les différences entre les méthodes de traitement des troubles de planification motrice pour la parole et de la dysarthrie chez les enfants.
3. Décrire un exemple de cheminement de soins en orthophonie pour des enfants avec des difficultés motrices de la parole, à partir de l'identification précoce jusqu'à la fin de l'enfance.

Applications de la thérapie cognitivo-comportementale auprès des personnes qui bégaient*Lisa Scott, Ph.D., CCC-SLP*

Intermédiaire : Aider les personnes qui bégaient à modifier leur parole nécessite plus que l'enseignement de stratégies de modification de la parole. La thérapie cognitivo-comportementale offre un cadre qui facilite la modification de la pensée, ce qui mène à la modification du comportement. Cet atelier présente des activités pratiques qui engendrent un changement significatif grâce à l'identification des pensées non aidantes, d'options plus utiles et de méthodes visant à faciliter le changement.

Résultats d'apprentissage :

Les participants pourront :

1. Nommer les principales composantes du modèle cognitif.
2. Nommer au moins deux types de pensées non aidantes liées au bégaiement.
3. Établir trois activités fondées sur la thérapie cognitivo-comportementale pouvant être utilisées auprès d'enfants et d'adolescents qui bégaient.

Évaluer les Applis en fonction des étapes de développement du jeu et de la narration*Sean Sweeney, M.S., M.Ed., CCC-SLP*

Intermédiaire : Les cliniciens peuvent utiliser des applis comme outils attrayants lorsqu'ils ciblent le langage et les scripts narratifs dans un cadre de jeu réel. Cette présentation examinera les modèles de développement du jeu et de la narration, ainsi que des applis à coûts modiques correspondant à ces modèles qui peuvent fournir une structure visuelle et interactive pour le renforcement des habiletés de jeu, de compréhension d'histoires et de production d'histoires.

Résultats d'apprentissage :

Les participants pourront :

1. Expliquer les divers modèles et outils permettant d'évaluer le jeu et le langage narratif.
2. Analyser des applis afin de déterminer les contextes et les caractéristiques pouvant cibler des objectifs cliniques relatifs au jeu et à la narration d'histoires.

Comprendre la déglutition, une bouchée à la fois

Ianessa A. Humbert, Ph.D., CCC-SLP

Avancé : Cette session incorporera la physiologie de la déglutition et la recherche en déglutition aux modèles de prise de décisions qui s'appliquent directement à la gestion de la dysphagie. Cette session avancée aidera les cliniciens à comprendre pourquoi la déglutition est unique et nécessite une méthode novatrice pour en arriver à une réadaptation réussie.

Résultats d'apprentissage :

Les participants pourront :

1. Résumer les fonctions complexes de la déglutition dans le système nerveux central et périphérique.
2. Résumer les principaux résultats des études sur le traitement de la dysphagie.
3. Créer des arbres de décision clinique appropriés pour les catégories de dysphagie qui mènent à des options de traitement claires.

Le développement typique et les troubles phonologiques chez les enfants francophones

Françoise Brosseau-Lapré, Ph. D., O(C)

Intermédiaire : Ce séminaire traitera du développement phonologique normal chez les enfants francophones, aussi que de l'évaluation et de la planification de l'intervention chez les enfants avec des troubles phonologiques. Nous démontrerons les implications pour la pratique clinique au niveau des outils d'évaluation à privilégier, de l'interprétation des résultats, et de la sélection des buts d'intervention.

Résultats d'apprentissage :

Les participants pourront :

1. Décrire les erreurs de production des sons des enfants francophones aux niveaux segmental et prosodique de la hiérarchie phonologique.
2. Compléter des évaluations phonologiques en français selon les données actuelles et interpréter les données d'évaluation phonologique chez les enfants francophones.
3. Identifier les outils d'évaluation les plus appropriés pour évaluer les habiletés phonologiques des enfants francophones.
4. Sélectionner des buts d'intervention en fonction de l'ensemble des données actuelles.

La nature et le traitement de l'aphasie progressive primaire

Maya Henry, Ph.D., CCC-SLP

Intermédiaire : Cette présentation portera sur la nature et le traitement de l'aphasie progressive primaire (APP), une maladie neurologique dégénérative qui cause une détérioration graduelle de la parole et du langage. Nous décrirons les trois variantes cliniques de l'APP à l'aide d'exemples cliniques, ainsi que des méthodes de traitement pour chaque variante.

Résultats d'apprentissage :

Les participants pourront :

1. Comprendre comment l'APP est diagnostiquée et comment elle se distingue des autres formes d'aphasie et de démence.
2. Comprendre les bases neurophysiologiques et pathologiques de l'APP.
3. Comprendre comment l'APP offre un portrait unique des relations entre le cerveau et le comportement en ce qui a trait à la parole et au langage.
4. Nommer les caractéristiques diagnostiques centrales et connexes de chaque variante de l'APP.
5. Décrire des méthodes de traitement adaptées à chaque variante de l'APP.

ATELIERS D'INTÉRÊT COMMUN – ORTHOPHONIE ET PERSONNEL DE SOUTIEN

Thérapie pour l'aphasie-apraxie : exploiter la neuroplasticité*Bill Connors, M.A., CCC-SLP*

Intermédiaire : Cet atelier présentera des protocoles, outils, logiciels et technologies innovateurs qui renforcent les compétences cliniques en réadaptation neuroplastique, intègrent les données probantes et les valeurs des patients à la réadaptation en aphasie et permettent au clinicien d'économiser du temps de préparation. Cet atelier comprendra un exposé didactique, une discussion interactive, une participation active, des vidéos de démonstration et des sessions de télépratique en direct.

Résultats d'apprentissage :

Les participants pourront :

1. Nommer dix techniques qui simplifient, adaptent et maximisent les capacités des ordinateurs et de la technologie de l'information dans le cadre de la thérapie pour l'aphasie, l'alexie, l'agraphie et la cognition.
2. Nommer cinq processus cognitifs/mentaux clés qui appuient le langage et la réadaptation du langage, et les incorporer à l'élaboration et à l'application d'un protocole de traitement.
3. Nommer cinq façons d'appliquer des techniques de réadaptation appuyées par des données probantes à l'intention des adultes au travail auprès des adolescents et des jeunes adultes avec des difficultés de communication.
4. Nommer quatre techniques d'observation et d'analyse du comportement de clients aphasiques dans le but d'utiliser un traitement fondé sur les données probantes visant à maximiser les activités de réadaptation (et former les prestataires de soins/entraîneurs au processus de traitement).
5. Nommer cinq enjeux professionnels, cliniques, technologiques et éthiques liés à la télépratique.

Le programme « Reference & Regulate » – atelier d'introduction*David Loyst, M.Sc.*

Introduction/Intermédiaire : Nous utiliserons l'expérience clinique, des données cliniques et des vidéos pré- et post-intervention pour présenter le programme R&R, un programme de remédiation réussi pour les enfants d'âge préscolaire et scolaire avec un TSA. Le programme R&R est fondé sur des modèles développementaux de la cognition sociale, de la communication et du jeu chez les enfants au développement typique.

Résultats d'apprentissage :

Les participants pourront :

1. Nommer des modèles actuels d'intervention et de recherche en autisme.
2. Décrire le développement de la cognition sociale, de la communication et du jeu chez les enfants au développement typique.
3. Comprendre les bases théoriques du programme « Reference & Regulate ».

Le programme « Reference & Regulate » – Une intervention efficace auprès des enfants avec un trouble du spectre de l'autisme

David Loyst, M.Sc.

Intermédiaire/Avancé : Nous utiliserons l'expérience clinique, des données cliniques et des vidéos pré- et post-intervention pour présenter le programme R&R, un programme de remédiation réussi pour les enfants d'âge préscolaire et scolaire avec un TSA. Le programme R&R est fondé sur des modèles développementaux de la cognition sociale, de la communication et du jeu chez les enfants au développement typique.

Résultats d'apprentissage :

Les participants pourront :

1. Nommer les niveaux des TSA et des activités y correspondant (tous les participants recevront le livret « R&R Stages and Activities »).
2. Apprendre et essayer des activités pour chaque étape d'intervention grâce à l'utilisation d'exposés didactiques, de vidéoclips et de jeux de rôles au cours de l'atelier.
3. Évaluer le niveau de chaque client et fournir des activités d'intervention appropriées.

Orthophonistes et personnel de soutien technophiles : peuvent-ils prendre n'importe quelle technologie pour en faire un outil de thérapie?

Sean Sweeney, M.S., M.Ed. CCC-SLP

Introduction : Comme on l'entend souvent, « une orthophoniste chevronnée pourrait faire de la thérapie avec un trombone à papier! » Notre réputation comme « adaptateurs » d'outils afin de cibler la parole et le langage se poursuit de plus belle au XXI^e siècle avec la venue des outils technologiques. Cette session présentera des outils et des stratégies pour utiliser une variété d'outils technologiques en thérapie.

Résultats d'apprentissage :

Les participants pourront :

1. Analyser les applis et les outils sur le Web et utiliser des analyses de tâches pour isoler leurs objectifs/utilisations en contexte potentiels en terme de parole, de langage et d'enseignement.
2. Accéder à des ressources pour en apprendre d'avantage sur l'intégration de la technologie au travail en orthophonie.

Stratégies d'intervention en langage et d'intégration du langage à tous les âges

Candice Bray, Sc.D.

Intermédiaire : Cet atelier très interactif porte sur des stratégies d'intervention en langage pour les enfants et les adolescents. La présentation comprend :

- le développement du vocabulaire et les murs de mots interactifs
- la structure des mots, y compris la phonologie et la morphologie
- la production d'inférences et autres habiletés de haut niveau en littératie
- des stratégies pour les orthophonistes et enseignants à l'aide de matériel dans la salle de classe

La présentation portera principalement sur les niveaux élémentaires, mais les stratégies s'appliquent également pour ceux qui travaillent auprès des adolescents.

Résultats d'apprentissage :

Les participants pourront :

1. Accroîtront leurs connaissances relatives aux stratégies actives de vocabulaire, y compris la création et l'utilisation de murs de mots interactifs.
2. Apprendront des stratégies visant à appuyer le développement du vocabulaire en renforçant le traitement phonologique et la conscience morphologique.
3. Apprendront des stratégies d'écoute et de compréhension de lecture pour le développement de la production d'inférences, de la production de résumés, de la redite d'histoires et du questionnement.
4. Accroîtront leurs connaissances concernant l'intégration du matériel de la salle de classe à l'intervention.
5. Établiront une trousse de stratégies à partager avec les enseignants afin de permettre l'intervention dans de multiples milieux.

ATELIER POUR LE PERSONNEL DE SOUTIEN

La thérapie dans la salle de classe : des idées fonctionnelles facilitant l'apprentissage du langage à l'intention du personnel de soutien

Cindy Bell, M.Sc., R.SLP, et Staci Cooper, M.SLP, R.SLP, O(C)

Introduction/Intermédiaire : Cet atelier interactif présentera des stratégies pratiques et des activités de traitement pouvant être utilisées par le personnel de soutien pour renforcer le langage réceptif et expressif chez les enfants d'âge préscolaire et au début du cycle élémentaire. Nous examinerons systématiquement certains des buts d'orthophonie les plus communs et présenterons des fondements sur lesquels bâtir des activités et appuis fonctionnels en salle de classe.

Résultats d'apprentissage :

Les participants pourront :

1. Reconnaître et comprendre les différents niveaux de prestation de services en salle de classe (universels, ciblés et spécifiques).
2. Recueillir, évaluer, créer et partager des stratégies et des activités pouvant être utilisées en classe pour cibler des buts de langage communs.
3. Utiliser une méthode systématique pour comprendre le développement du langage sémantique afin de pouvoir concevoir des activités en salle de classe et des sessions de thérapie valables.

ARTICLES CONTRIBUÉS EN AUDIOLOGIE

La maturation des potentiels évoqués auditifs corticaux chez l'humain

Amineh A.K. Koravand, Université d'Ottawa, Ottawa, ON; Julie Cyr, Université d'Ottawa, Ottawa, ON; Renaud de Grandmont, Université d'Ottawa, Ottawa, ON; Dominique Wright, Université d'Ottawa, Ottawa, ON

Intermédiaire : Cette étude a utilisé les potentiels évoqués auditifs corticaux (PEAC) pour examiner la maturation et le fonctionnement des voies auditives centrales. Nous avons étudié l'effet de l'âge, du type de stimulus et de la dose temporelle sur les PEAC de 30 enfants (5-13 ans) et de 10 adultes (18-25 ans) et observé les différents patrons de PEAC.

ARTICLES CONTRIBUÉS D'INTÉRÊT COMMUN – AUDIOLOGIE ET ORTHOPHONIE

Le programme «Loud and Clear» : l'enseignement collectif de la lecture labiale à des adultes malentendants

Mary-Jane V. Blais, M.Sc., O(C), Centre de réadaptation MAB-Mackay, Montréal, QC; Jesse Simms, M.Sc.(A), orthophoniste, Centre de réadaptation MAB-Mackay, Montréal, QC

Introduction : Cette étude a recueilli des données d'efficacité sur un programme d'enseignement de la lecture labiale aux adultes malentendants. Nous avons déterminé qu'après six sessions de groupe, les participants démontraient une amélioration significative tant aux mesures objectives que subjectives des capacités de lecture labiale. Ces résultats suggèrent que l'enseignement collectif de la lecture labiale peut être un outil utile pour rétablir les habiletés de communication chez des adultes avec une perte auditive.

Utilisation de la CIF dans la pratique clinique des orthophonistes

Linda Garcia, Ph.D., membre OAOO, Université d'Ottawa, Ottawa, ON; Meredith Wright, Ph.D., orthophoniste, membre OAOO, L'Hôpital d'Ottawa, Ottawa, ON; Rafat Islam, MBBS, Ph.D., Institut de recherche de l'Hôpital d'Ottawa, Ottawa, ON; Janet Vu, Université d'Ottawa, Ottawa, ON; Sarah Boucaud, B.Sc.S., Université d'Ottawa, Ottawa, ON; Shanie Montpetit-Leduc, B.Sc.S., Université d'Ottawa, Ottawa, ON

Intermédiaire : Malgré sa valeur, la Classification internationale du fonctionnement, du handicap et de la santé (CIF) n'est largement pas utilisée par les orthophonistes en milieu clinique. Cette étude a pour objectif de déterminer les barrières empêchant les orthophonistes d'utiliser la CIF lors de l'évaluation des patients, ainsi que de déterminer des façons d'en faciliter l'utilisation dans le cadre de la pratique clinique.

Les cancers de la tête et du cou dans l'ère du virus du papillome humain (VPH)

Julie A. Theurer, Ph.D., M.Cl.Sc., O(C), membre OAOO, Western University, London, ON; Anthony C. Nichols, MD, Western University, London, ON

Intermédiaire : Les cancers de la tête et du cou liés au VPH sont une épidémie mondiale. Les caractéristiques cliniques et les réponses au traitement de cette maladie distincte sont différentes de celles des cancers liés au tabac et à l'alcool. Cette session explorera en long et en large les cancers de la tête et du cou liés au VPH.

ARTICLES CONTRIBUÉS D'INTÉRÊT COMMUN – AUDIOLOGIE, ORTHOPHONIE ET PERSONNEL DE SOUTIEN

Le consentement et la capacité : un module d'apprentissage en ligne

Alexandra Carling-Rowland, Ph.D., orthophoniste, membre OAOO, OAOO, Toronto, ON; Carol Bock, M.H.Sc., orthophoniste, membre OAOO, OAOO, Toronto, ON; Melisse Willems, BAH, M.A., LLB, OAOO, Toronto, ON

Introduction : L'OAOO a créé un module en ligne portant sur le consentement et la capacité. Ce processus a nécessité de la recherche approfondie et une analyse juridique avancée, compte tenu des complexités propres à l'intention d'offrir de l'information à deux professions et devant englober trois lois pour des membres travaillant auprès de quatre ministères. Le résultat de ce travail est un outil informatif et accessible qui est axé sur des scénarios de pratique authentiques.

Réflexion sur les pratiques et lignes directrices pour l'enseignement clinique international

Lynn Ellwood, M.H.Sc., O(C), University of Toronto, Toronto, ON; Debra Cameron, Ph.D., OT Reg.(Ont.), University of Toronto, Toronto, ON

Introduction : Cette étude visait à évaluer un programme de stages cliniques internationaux à l'intention d'étudiants en sciences de la réadaptation au niveau de la maîtrise inscrits à une université canadienne. Après avoir mené des entrevues approfondies semi-structurées, nous avons utilisé une analyse de contenu dirigée pour déterminer les priorités à cibler en termes de politiques, de pratique clinique et de recherche. L'étude a isolé cinq thèmes liés au renforcement de l'enseignement clinique international, ainsi que des domaines nécessitant une recherche en éducation plus approfondie.

Le système « Language ENvironment Analysis » (LENA) : applications cliniques et en recherche

Alice A. Eriks-Brophy, Ph.D., University of Toronto, Toronto, ON; Hillary V. Ganek, M.A., CCC-SLP, LSLS Cert. AVT, University of Toronto, Toronto, ON; Leah R. Radziwon, B.A., University of Toronto, Toronto, ON

Introduction : Cette présentation décrira les applications actuelles d'une nouvelle technologie : le système LENA. Nous utiliserons des études de cas auprès d'enfants avec et sans perte auditive venant d'un contexte euro-canadien ou linguistique minoritaire pour illustrer le potentiel du système LENA tant pour la recherche que pour la pratique clinique. Les études de cas comprendront des données du système LENA, d'entrevues et de questionnaires.

Application d'une démarche axée sur la famille lors du traitement des troubles de la communication liés à la démence

J.B. Orange, Ph.D., O(C), membre OAOO, Western University, London, ON; Angela Roberts, M.A., orthophoniste, membre OAOO, Western University, London, ON; Marie Savundranayagam, Ph.D., Western University, London, ON; Barbara Purves, Ph.D., M.Sc., O(C), University of British Columbia, Vancouver, C.-B.

Intermédiaire : La recherche émergente illustre l'importance d'une démarche axée sur la famille auprès des personnes qui ont des difficultés de communication cognitive en raison d'une démence. Ce mini-séminaire présentera un survol d'une démarche axée sur la famille pour le traitement des troubles de communication liés à la démence, ainsi que les concepts et modèles théoriques pertinents pour la mise en place de telles démarches dans les contextes cliniques.

L'analyse du discours dans le cadre des troubles de communication chez les adultes : une séance d'enseignement dirigé pratique

Angela Roberts, MA, orthophoniste, membre OAOO, Western University, London, ON; J.B. Orange, Ph.D., O(C), membre OAOO, Western University, London, ON

Introduction : L'analyse du discours est un outil puissant pour les cliniciens œuvrant dans le domaine des troubles de la communication chez les adultes, parce qu'elle nous aide à comprendre comment s'intègrent les variables cognitives, langagières et motrices lors de la communication. Ce mini-séminaire offrira un enseignement dirigé sur l'utilisation de l'analyse du discours pour évaluer les troubles de communication chez les adultes.

La réflexion critique en tant que compétence nécessaire à un apprentissage et à une pratique efficaces

Susan J. Wagner, M.Sc.(CD), B.Sc.(SPA), O(C), membre OAOO, University of Toronto, Toronto, ON

Introduction : La réflexion critique est essentielle pour que l'expérience se transforme en apprentissages dans le but de renforcer la pratique clinique. Cette présentation examinera la réflexion critique dans les milieux d'enseignement et de pratique clinique afin de mettre en lumière ses répercussions sur la pratique et de cerner les occasions de maximiser cette compétence essentielle.

ARTICLES CONTRIBUÉS EN ORTHOPHONIE

Compréhension des inférences dans le discours narratif par les enfants d'âge préscolaire

Chantal Desmarais, Université Laval, Québec, QC; Pamela Filiatrault-Veilleux, Université Laval, Québec, QC; Caroline Bouchard, Université Laval, Québec, QC; Natacha Trudeau, Université de Montréal, Montréal, QC

Intermédiaire : La production d'inférences est importante pour le développement du langage, mais les orthophonistes ont peu d'outils pour cibler cette habileté. Dans cette présentation, nous décrirons une tâche créée pour l'iPad qui présente une histoire et des questions connexes. Nous examinerons les résultats et suggérerons des moyens d'évaluer et de renforcer cette habileté chez les enfants d'âge préscolaire.

Naviguer le mentorat à distance : stratégies et expériences

Kim Smith, M.H.Sc., O(C), membre OAOO, Sioux Lookout Meno Ya Win Health Centre, FIREFLY, Sioux Lookout, ON; Jackie Hummelbrunner, M.Sc., O(C), membre OAOO, Lake of the Woods District Hospital, École de médecine du Nord de l'Ontario, Kenora, ON

Introduction : Le programme de mentorat pour la pratique initiale est une composante clé du programme d'assurance de la qualité de l'Ordre des audiologistes et orthophonistes de l'Ontario (site Web de l'OAOO, 2013). Or, ceux qui pratiquent dans des milieux mal desservis peuvent avoir de la difficulté à trouver un mentor. Cette présentation partagera des stratégies novatrices utilisées pour réaliser un programme de mentorat à distance récent.

Établir un réseau de soutien professionnel local – Quoi, pourquoi et comment

Patty Matsuo, M.A., O(C), membre OAOO, Trillium Health Partners, Mississauga, ON; Lisa Sokoloff, M.S., CCC-SLP, membre OAOO, Baycrest, Toronto, ON; Janet Wu, membre OAOO, O(C), M.H.Sc., St. Michael's Hospital, Toronto, ON

Intermédiaire : Nous pouvons tous convenir que le réseautage et le partage d'information sont des aspects essentiels de notre profession, mais notre façon de s'y prendre peut varier. Cette présentation interactive examinera le processus de création d'un réseau de soutien professionnel, ainsi que le travail effectué par un groupe d'orthophonistes en milieu hospitalier jusqu'à maintenant.

Individualiser le traitement de l'apraxie verbale

Susan Rvachew, Ph.D., O(C); Université McGill, Montréal, QC; Tanya Matthews, M.A., CCC-SLP, Université McGill, Montréal, QC

Intermédiaire : Les enfants avec une apraxie verbale peuvent avoir de la difficulté avec la planification phonologique ou motrice. Nous démontrerons comment une tâche de répétition de syllabes peut être utilisée pour déceler des problèmes à différents niveaux du traitement phonologique, et nous expliquerons comment choisir une méthode de thérapie appropriée grâce à la présentation de données probantes et de démonstrations vidéos d'activités de thérapie pour la parole.

Physiologie de la déglutition normale : établir une perspective référentielle pour l'évaluation de la déglutition

Catriona M. Steele, Ph.D., O(C), Toronto Rehabilitation Institute - University Health Network, Toronto, ON; Shauna L. Stokely, M.H.Sc, O(C), Toronto Rehabilitation Institute - University Health Network, Toronto, ON; Melanie Tapson, M.Sc., O(C), Toronto Rehabilitation Institute - University Health Network, Toronto, ON; Ahmed Nagy, MD, Toronto Rehabilitation Institute - University Health Network, Toronto, ON, Melanie Peladeau-Pigeon, M.H.Sc., Toronto Rehabilitation Institute - University Health Network, Toronto, ON

Intermédiaire : L'évaluation vidéofluoroscopique de la déglutition est un outil d'évaluation de base pour détecter les troubles de déglutition. Lors de cette présentation, les participants examineront des exemples de déglutition chez des personnes en santé. Les présentateurs démontreront un ensemble de paramètres cinétiques et temporels hautement fiables et enseigneront aux cliniciens comment relever ces mesures.

Validation du « Stroke Swallowing Screening Test »

Linda Walsh, M.H.Sc, O(C), Hôpital de Moncton, Moncton, N.-B.

Intermédiaire : Le « Stroke Swallowing Screening Test » (SSST) identifie les patients ayant eu un AVC qui nécessitent une évaluation de la déglutition par un orthophoniste. Cette revue des patients admis à l'hôpital en 2011 et 2012 avec un diagnostic d'AVC a démontré que le SSST ciblait de façon juste les patients qui nécessitaient une évaluation de la déglutition par l'orthophoniste et ceux qui n'en nécessitaient pas.

ARTICLES CONTRIBUÉS D'INTÉRÊT COMMUN – ORTHOPHONIE ET PERSONNEL DE SOUTIEN

Pratique clinique auprès des enfants apprenant l'anglais : perspectives offertes par la CIF-EA

Lynn F. Dempsey, Ph.D., O(C), membre OAOO, Brock University, St. Catharines, ON

Intermédiaire : Dans cette présentation, les participants étudieront les fondements conceptuels de la CIF-EA et leur influence sur la façon dont les orthophonistes comprennent et gèrent les besoins et les capacités des enfants apprenant l'anglais. Nous utiliserons des études de cas pour démontrer l'optique multidimensionnelle du fonctionnement des enfants apprenant l'anglais fournie par le cadre.

Le développement de la communication chez les tout-petits avec des antécédents de difficultés d'alimentation

Chantal Lessard, M.H.Sc, S-LP(C), Reg. CASLPO, CHEO, Ottawa, ON; Karine Milliard, University of Ottawa, Ottawa, ON; Pascal Lefebvre, Ph.D., University of Ottawa, Ottawa, ON

Introduction : Dans le cadre de cette étude, nous avons effectué un examen rétrospectif de dossiers d'enfants au développement typique avec des difficultés d'alimentation. Les résultats indiquent que ces enfants sont à plus grand risque que leurs pairs d'avoir aussi un retard de la parole et du langage. Nous avons examiné les variables médicales et démographiques et déterminé que certaines d'entre elles étaient associées aux retards de parole et/ou de langage.

Rendre la communication accessible : un cours en ligne pour les professionnels de la santé

Lisa A. McQueen, M.H.Sc., O(C), membre OAOO, University Health Network - Toronto Rehab, Toronto, ON

Intermédiaire : Cette présentation décrira la création d'un cours d'enseignement en ligne visant à appuyer les professionnels de la santé dans leurs interactions avec les personnes qui ont des difficultés de communication. Nous partagerons le module, ainsi que les réussites et les défis rencontrés lors du processus de création.

Stratégies favorisant les progrès après un traumatisme crânien cérébral

Mary-Ellen Thompson, Ph.D., O(C), Belleville, ON; Fahmida Pardhan, M.A., orthophoniste

Intermédiaire : On sait que les TCC ont des effets dévastateurs, mais les observations cliniques démontrent que les gens peuvent avoir une vie enrichissante après leur accident. Cette étude a utilisé des entrevues structurées pour recueillir les histoires de survivants à un TCC. Notre analyse du contenu de ces entrevues a révélé plusieurs thèmes récurrents qui étaient importants pour l'ajustement psychosocial et la réintégration dans la vie familiale et communautaire.

AFFICHES EN AUDIOLOGIE

Effets des tests électrophysiologiques sur les acouphènes de divers sous-types et niveaux de sévérité

Victoria Milloy, audiologiste, Université d'Ottawa, Ottawa, ON; Amineh A.K. Koravand, audiologiste, Université d'Ottawa, Ottawa, ON

Intermédiaire : Cette étude vise à déterminer l'effet d'acouphènes de divers niveaux de sévérité et de diverses étiologies lors d'une batterie de tests électrophysiologiques, soit les PEATC, la négativité de discordance (MMN), les potentiels évoqués auditifs de longue latence et les potentiels évoqués auditifs de la parole. Les résultats de l'étude pourraient apporter de l'information sur la sensibilité de ces tests à détecter les acouphènes et l'origine des sous-types d'acouphènes.

Trouble de traitement auditif et entraînement à l'écoute dans le bruit : peut-on observer des bénéfices?

Mojgan Owliaey, Audiologiste, Institut Raymond-Dewar, Montréal, QC; Mélanie Gagnon, Audiologiste, Centre Montéregien de réadaptation; Chloé Phoenix, Audiologiste, Centre hospitalier Régional du Grand Portage, Rivière-du-Loup, QC; Benoît Jutras, université de Montréal, Montréal, QC

Intermédiaire : L'efficacité de l'intervention auprès des enfants ayant un trouble de traitement auditif (TTA) est très peu documentée. La présente recherche vise à déterminer si les enfants ayant un TTA peuvent bénéficier d'un entraînement à l'écoute dans le bruit au plan neurophysiologique, des comportements auditifs et de leur participation sociale.

Plan : déterminer la recette du succès pour respecter les pratiques optimales d'utilisation des potentiels évoqués auditifs du tronc cérébral (PEATC) à des fins diagnostiques

Kathy Packford, M.Sc., R.Aud, A(C), Glenrose Rehabilitation Hospital, Edmonton, AB, Laura Mumme, B.Sc., Glenrose Rehabilitation Hospital, Edmonton, AB

Intermédiaire : Partout en Alberta naissent des nouveau-nés avec des facteurs de risque pour une perte auditive, mais nombre d'entre eux vivent dans des régions où l'évaluation de l'audition des nouveau-nés à l'aide des PEATC n'est pas disponible. L'équipe de PEATC par télésanté a utilisé le cadre du National Implementation Research Network (NIRN) afin de déterminer les ingrédients essentiels pour mettre en place les PEATC à des fins diagnostiques par télésanté. Les chercheurs ont trouvé que le cadre fournit une façon systématique de mettre en œuvre les pratiques optimales avec fidélité.

AFFICHES D'INTÉRÊT COMMUN – AUDIOLOGIE, ORTHOPHONIE ET PERSONNEL DE SOUTIEN

Sondage sur la conscience publique et la connaissance de l'aphasie dans la région d'Ottawa/Gatineau

Mélanie Crousset, Université d'Ottawa, Ottawa, ON; Lauren Barlow, Université d'Ottawa, Ottawa, ON; Brittany Kruk-Mendes, Université d'Ottawa, Ottawa, ON; Elizabeth Rochon, Ph.D., O(C), University of Toronto, Toronto, ON; Carol Leonard, Ph.D., O(C), Université d'Ottawa, Ottawa, ON

Introduction : Dans le cadre de cette étude, nous avons effectué un sondage en personne dans des endroits publics (p. ex., parcs, plages, points de vente) dans la région d'Ottawa/Gatineau. Nous avons posé aux participants des questions concernant leur conscience de l'aphasie et leurs connaissances de base de l'aphasie. Cinq cent personnes ont participé. Comme l'ont démontré des sondages internationaux antérieurs, nous avons déterminé que la conscience publique et la connaissance de l'aphasie étaient peu répandues.

Pratiques optimales pour les AVC et l'aphasie : une collaboration canadienne pour le transfert et l'échange de connaissances

Aura Kagan, Ph.D., O(C), Aphasia Institute, University of Toronto, Toronto, ON; Mark Bayley, MD, FRCPC, Toronto Rehabilitation Institute - University Health Network, University of Toronto, Toronto, ON; Nina Simmons-Mackie, Ph.D., CCC-SLP, Southeastern Louisiana University, Hammond, LA; Sheila Cook, B.Sc., Aphasia Institute, Toronto, ON; Jane B. Gibson, B.Sc., M.Cl.Sc., Aphasia Institute, Toronto, ON; Ellen Hickey, Ph.D., CCC-SLP, Dalhousie University, Halifax, N.-É.; Linda Kelloway; Guylaine Le Dorze; Barbara Purves, Ph.D., M.Sc., O(C), University of British Columbia, Vancouver, C.-B.; Elizabeth Rochon, Ph.D., O(C), University of Toronto, Toronto, ON; Linda Worrall, Ph.D., University of Queensland, Brisbane, Queensland, Australie

Intermédiaire : Une équipe de leaders éclairés en matière d'AVC et d'aphasie ont travaillé pour intégrer les lignes directrices révisées pour l'aphasie aux Recommandations canadiennes pour les pratiques optimales de soins de l'AVC. Cette affiche décrit leur travail de collaboration afin d'améliorer les services offerts pour l'aphasie au Canada, y compris leurs activités jusqu'à maintenant, leurs objectifs à long terme et leurs prochaines étapes.

Un survol historique et personnel de nos professions au Canada

Virginia Martin, M.A., membre retraitée; Sharon G. Halldorson, Sc.D. Communication Disorders, Seven Oaks School Division, Winnipeg, MB; April W. Gregora, M.A. Communication Disorders, Pembina Trails School Division, Winnipeg, MB

Intermédiaire : Cette présentation partagera des histoires personnelles et professionnelles de certains pionniers des troubles de la communication au Canada. Ces personnes ont offert les premiers services au public, ont vu l'arrivée de la réglementation grâce à la mise en place de lois, ont créé des associations professionnelles et ont établi des programmes de formation universitaire. Notre association nationale a pris naissance en 1964, avec douze membres fondateurs.

AFFICHES D'INTÉRÊT COMMUN – AUDIOLOGIE ET PERSONNEL DE SOUTIEN

Le dépistage des troubles de l'audition chez les nouveau-nés en Nouvelle-Écosse

Greg A. Noel, M.Sc., A(C), Nova Scotia Hearing and Speech Centres, Halifax, N.-É.; Christine Santilli, M.Sc., A(C), Nova Scotia Hearing and Speech Centres, Halifax, N.-É.

Intermédiaire : Les Nova Scotia Hearing and Speech Centres (NSHSC) reçoivent un financement du Department of Health and Wellness pour offrir des services d'audiologie à tous les Néo-Écossais et des services d'orthophonie aux enfants et aux adultes. Les NSHSC avaient un programme de dépistage chez les nouveau-nés en place depuis plus de 30 ans, mais celui-ci n'est devenu universel qu'en 2005, quand les NSHSC ont reçu un financement partiel pour mettre en place le programme « A Sound Start ». Ce programme offre un dépistage universel des troubles de l'audition chez les nouveau-nés et un accès précoce aux services d'orthophonie dans toute la province.

AFFICHES EN ORTHOPHONIE

Développement d'une batterie de répétition de phrases

Josiane Bourgeois Marcotte, Université Laval, Québec, QC; Laura Monetta, Université Laval, Québec, QC; Maximiliano Augustin Wilson, Université Laval, Québec, QC

Intermédiaire : L'objectif de ce projet de recherche est de générer un outil d'évaluation standardisé, validé et normalisé auprès de la population franco-québécoise pour évaluer les capacités de répétition de phrases des patients aphasiques.

Comparaison de la réadaptation intensive à cours terme et de la réadaptation par une équipe d'AVC

Leah M. Dagenais, M.Sc., R.S-LP, O(C), University of Alberta/Alberta Health Services, Edmonton, AB; Teresa Paslawski, Ph.D., University of Alberta, Edmonton, AB; Linda Woodhouse, Ph.D., University of Alberta, Edmonton, AB; Carol Boliek, Ph.D., University of Alberta, Edmonton, AB

Intermédiaire : Cette étude compare les résultats en matière de communication chez des patients avec l'aphasie suite à un AVC qui ont reçu soit un programme de réadaptation multidisciplinaire de six mois ou un programme intensif de réadaptation de l'aphasie de cinq semaines. Les mesures de rendement comprennent les résultats à diverses évaluations de la parole et du langage. Nous interprétons les résultats en fonction de l'intensité du traitement, des cibles du traitement et des caractéristiques des patients.

Évaluer le développement du langage expressif en inuktitut : la LMÉ en morphèmes, mots ou syllabes?

Catherine B. Dench, M.Sc., O(C), Commission scolaire Kativik, Saint-Laurent, QC; Shanley Allen, Ph.D., University of Kaiserslautern, Kaiserslautern, Allemagne; Lindsay Coffin, Northeastern University, Boston, MA

Intermédiaire : Il existe peu de mesures du développement du langage en inuktitut. Nous avons calculé la LMÉ en morphèmes, en mots et en syllabes à partir d'échantillons de cette langue à morphologie complexe. Toutes les mesures se sont avérées prometteuses pour l'évaluation du développement du langage expressif. En particulier, la LMÉ-S semble fiable sur le plan linguistique et utile pour ceux qui ont une connaissance limitée de l'inuktitut.

Mise en place et évaluation d'un bracelet d'alerte à l'avelement pour identifier les patients dysphagiques en hôpital

Jennifer A. Dickson, B.Sc. (CD), M.Cl.Sc., O(C), L'Hôpital d'Ottawa, Ottawa, ON; Stephanie Amos, M.Ed., Ph.D., The SDP Group

Introduction : Il est important de pouvoir clairement identifier les patients dysphagiques pour gérer de façon efficace la dysphagie. Nous avons examiné les connaissances du personnel et des prestataires de soins concernant la dysphagie et évalué l'efficacité d'un bracelet d'alerte à l'avelement. Le personnel et les prestataires de soins ont rapporté avoir retiré des avantages de cet essai, et personne n'a indiqué d'inquiétude liée à la protection de la vie privée ou d'objection au port du bracelet.

Formation professionnelle continue à l'université pour les orthophonistes

Shawn J. Drefs, B.Sc., M.Sc., Faculty of Rehabilitation Medicine, University of Alberta, Edmonton, AB; Elizabeth Taylor, Ph.D., OT(C), FCAOT, Faculty of Rehabilitation Medicine, University of Alberta, Edmonton, AB

Introduction : En 2009, la Faculty of Rehabilitation Medicine de l'Université d'Alberta a créé plusieurs initiatives de formation continue à l'intention des cliniciens pratiquant dans des milieux urbains et ruraux partout au pays. Elle offre actuellement un certificat d'études supérieures en ligne en réadaptation post-AVC, ainsi que des webdiffusions pour les orthophonistes.

Explorer le potentiel du « Halifax Consciousness Scanner »

Carolyn M. Fleck-Prediger, O(C), Halvar Jonson Centre for Brain Injury, Ponoka, AB; Ryan CN D'Arcy, Ph.D. Neuroscience, Simon Fraser University (Med Tech & Research), Burnaby, C.-B.; Sujoy G. Hahra, B.A.Sc. Electrical and Computer Engineering, Simon Fraser University (Med Tech & Research), Burnaby, C.-B.; Bruce D. Dick, Ph.D., R. Psych (AB, N.-É.), University of Alberta, Edmonton, AB

Introduction : Le « Halifax Consciousness Scanner » au chevet (aHCS) utilise les potentiels évoqués auditifs du tronc cérébral pour quantifier/qualifier cinq composantes de l'éveil conscient : la sensation, la perception, l'attention, la mémoire de son propre nom et la compréhension. Notre étude a administré ce test à 28 patients avec un traumatisme cérébral sévère afin d'évaluer les ondes cérébrales élicitées par les stimuli et corrélés les scores du HCS à la présentation clinique afin de permettre l'établissement de pronostics.

Cotation et sensibilité de la tâche de traduction du Bilingual Aphasia Test

Karen A. Giannandrea, École des sciences de la réadaptation, Université d'Ottawa, Ottawa, ON; Pat M. Roberts, Ph.D., CCC-SLP, membre OAOO, O(C), École des sciences de la réadaptation, Université d'Ottawa, Ottawa, ON

Introduction : Le Paradis Bilingual Aphasia Test (BAT) a rarement fait l'objet d'un examen critique. Cette étude examine le rendement de 30 adultes non-aphasiques bilingues (français-anglais) à la tâche de traduction de phrases. Nous soulevons des questions concernant l'utilité et la validité de cette tâche, compte tenu du pauvre niveau de corrélation entre le niveau de bilinguisme global et les multiples problèmes à coter les réponses, et nous proposons une autre méthode de cotation.

Habilités de dénomination chez les personnes bilingues français-anglais et les personnes francophones unilingues

Maude Lemieux, Université Laval, Québec, QC; Christine L. Sheppard, M.S.W., Institut de recherche Bruyère, Ottawa, ON; Vanessa Taler, Ph.D., Université d'Ottawa, Ottawa, ON; Laura Monetta, Ph.D., Université Laval, Québec, QC

Intermédiaire : Le Canadian French-English Naming Test est une nouvelle tâche de dénomination conçue pour les personnes unilingues (français et anglais) et les personnes bilingues français-anglais. Nous avons administré la tâche préliminaire de 120 images à 60 personnes francophones unilingues et à 60 personnes bilingues français-anglais dans deux différents groupes d'âge. Notre étude a déterminé que les personnes bilingues avaient un meilleur résultat que les francophones unilingues quand elles pouvaient répondre dans une langue ou l'autre.

Les profils de pratique appuient l'évaluation de la communication chez les personnes avec un trouble du spectre de l'autisme

Erane C. McManus, M.Sc., R.SLP, O(C), Alberta Health Services, Edmonton, AB; Elizabeth Kelly, M.SLP, R.SLP, O(C), Alberta Health Services, Edmonton, AB; Laura Mumme, B.Sc., Alberta Health Services

Introduction : Le Glenrose Rehabilitation Hospital a adopté les cadres actifs du National Implementation Research Network pour combler l'écart entre la recherche et la pratique. Grâce à un travail collaboratif, l'équipe d'établissement de diagnostics des troubles du spectre de l'autisme a pris des mesures pour standardiser les pratiques optimales d'évaluation de la communication et en planifier systématiquement la mise en œuvre à l'aide d'un profil de pratique.

Habilités de navigation : comparaison d'enfants avec l'autisme et d'enfants avec un développement typique

Manon Robillard, Ph.D., Université Laurentienne, Sudbury, ON; Sylvie Rondeau, Université Laurentienne, Sudbury, ON; Annie Roy-Charland, Ph.D., Université Laurentienne, Sudbury, ON

Avancé : Cette étude examine la relation entre les habiletés cognitives des enfants et leur capacité à naviguer les pages dynamiques d'un iPad. Nous avons effectué une comparaison entre un groupe d'enfants avec un développement typique et un groupe de personnes avec un trouble du spectre de l'autisme. Les résultats ont révélé des différences importantes entre les deux groupes.

Que veulent les parents dans le rapport d'évaluation?

Ian D. Roth, M.H.Sc., O(C), membre OAOO, University Health Network, Toronto, ON; Sue E. Gowans, B.Sc. (PT), B.A., Ph.D., University Health Network, Toronto, ON

Intermédiaire : Dans cette étude, nous avons fait un sondage auprès de 56 parents d'enfants d'âge préscolaire pour comparer la façon dont les orthophonistes rédigent généralement leurs rapports aux préférences des parents concernant les rapports d'évaluation. Ces comparaisons ont révélé des différences significatives entre les rapports des orthophonistes et les préférences des parents, mais les orthophonistes pouvaient généralement prédire ce que les parents auraient préféré.

Indice de référence des temps d'attente pour les troubles des sons de la parole

Susan Rvachew, Ph.D., O(C), Université McGill, Montréal, QC; Susan Rafaat, M.Sc., R.SLP, O(C), Alberta College of Speech Language Pathologists and Audiologists, Calgary, AB

Introduction : L'Alliance pancanadienne des associations d'orthophonistes et d'audiologistes travaille à l'établissement d'indices de référence sur les temps d'attente pour divers groupes diagnostiques. Pour les troubles pédiatriques des sons de la parole, une revue exhaustive de la littérature a révélé que la période critique pour les services rapides était la période de deux ans précédant l'entrée à l'école.

Participation et difficultés de communication chez les enfants d'âge préscolaire : un examen critique

Claire M. Stirling, M.Cl.Sc., O(C), Blueballoon Health Services; Marilyn K. Kertoy, Ph.D., University of Western Ontario, London, ON

Introduction : Notre examen critique examine la relation entre les difficultés de parole et de langage chez les enfants d'âge préscolaire et leur niveau de participation, et ce, à l'aide d'une étude par sondage, d'une étude longitudinale mixte et de deux études intergroupes. Les résultats de l'examen critique démontrent que les habiletés de communication de certains enfants sont liées à des aspects importants de la participation.

Alimentation visant le confort seulement : défis liés à l'alimentation pour le plaisir à la fin de la vie

Jennifer C. Wong, M.H.Sc., O(C), membre OAOO, Sunnybrook Health Sciences Centre, Toronto, ON; Kristen L. Paulseth, M.H.Sc., O(C), membre OAOO, Sunnybrook Health Sciences Centre, Toronto, ON; Chris A. Watson, M.H.Sc., O(C), membre OAOO, Sunnybrook Health Sciences Centre, Toronto, ON; Evelyn Williams, MD, M.H.Sc., CHE, FCFP, Sunnybrook Health Sciences Centre, Toronto, ON

Intermédiaire : Une politique d'alimentation pour le confort seulement a été mise en place pour les résidents à la fin de leur vie qui avaient un apport oral insuffisant. Nous avons interrogé le personnel pour examiner les barrières à la mise en place de cette politique et envoyé des courriels hebdomadaires pour en renforcer la compréhension. Nous avons trouvé que les connaissances et les jugements du confort lors des évaluations après l'intervention s'étaient améliorées et que la mise en place d'une telle politique nécessitait une compréhension commune et une collaboration interprofessionnelle.

AFFICHES D'INTÉRÊT COMMUN – ORTHOPHONIE ET PERSONNEL DE SOUTIEN

Validation sociale du programme LSVT LOUD pour les personnes avec la maladie de Parkinson

Laura S. Boland, M.Sc., O(C), Ph.D.(c), Université d'Ottawa, Ottawa, ON; Ellen Hickey, Ph.D., CCC-SLP, Dalhousie University, Halifax, N.-É.

Intermédiaire : L'efficacité du programme LSVT LOUD pour les personnes avec la maladie de Parkinson est bien documentée, mais on en connaît peu sur l'utilisation du LSVT en milieu naturel. Nous avons évalué la faisabilité d'utiliser une méthodologie de validation sociale afin d'examiner la valeur pratique du LSVT LOUD pour les personnes avec la maladie de Parkinson.

Le programme « Partnering for Change » : un modèle innovateur de prestation de services collaboratifs

Wenonah N. Campbell, Ph.D., O(C), CCC-SLP, CanChild, McMaster University, Hamilton, ON; Cheryl A. Missiuna, Ph.D., OT (Reg.), CanChild, McMaster University, Hamilton, ON; Nancy A. Pollock, M.Sc., OT (Reg.), CanChild, McMaster University, Hamilton, ON; Robin Gaines, Ph.D., O(C), CCC-SLP, membre OAOO, Centre hospitalier pour enfants de l'Est de l'Ontario, Ottawa, ON

Intermédiaire : Le programme « Partnering for Change » (P4C) est un modèle innovateur de prestation de services initialement créé pour les ergothérapeutes selon lequel les éducateurs et les cliniciens travaillent ensemble dans la salle de classe pour renforcer la participation des élèves. Cette session expliquera les principes de base du programme P4C, présentera les données probantes appuyant le modèle et examinera sa pertinence pour les orthophonistes en milieu scolaire.

Utilisation novatrice des bénévoles pour améliorer la satisfaction et le soin des patients

Lyn A. Chaffart, M.S., membre OAOO, Hotel Dieu Shaver Health & Rehabilitation Centre, St. Catharines, ON; Julia M. Colangeli, M.A., M.Sc., O(C), membre OAOO, Hotel Dieu Shaver Health & Rehabilitation Centre, St. Catharines, ON; Katie Soares, M.Sc., O, membre OAOO, Hotel Dieu Shaver Health & Rehabilitation Centre, St. Catharines, ON

Introduction : Les orthophonistes du centre Hotel Dieu Shaver ont souvent recours aux bénévoles pour maximiser l'efficacité du travail et améliorer la satisfaction et les soins des patients. Les bénévoles jouent un rôle administratif et participent à des programmes de visites amicales et autres programmes spécialisés. Cette présentation décrira les divers programmes pour bénévoles du Centre et la façon dont ils aident le personnel de l'hôpital, les bénévoles et les patients.

Les contributions du langage pour les personnes avec la sclérose latérale amyotrophique

Katie M. Findlater, B.Sc., M.Sc., Western University, London, ON; J.B. Orange, Ph.D., O(C), membre OAOO, Western University, London, ON

Intermédiaire : Ce projet examine les répercussions du langage sur la qualité de vie liée à la santé des personnes avec la sclérose latérale amyotrophique.

Rôles des parents dans la CSA et répercussions de la technologie mobile

Anne Guillemette, orthophoniste, Université d'Ottawa, Ottawa, ON; Ann Sutton, O(C), Université d'Ottawa, Ottawa, ON

Introduction : L'arrivée des technologies mobiles a engendré une transformation du rôle joué par les professionnels de la communication suppléante et alternative (CSA) et les parents en ce qui a trait à l'évaluation et à l'intervention. Cette revue systématique analyse le rôle des parents dans la littérature récente sur la CSA et les répercussions potentielles que pourrait avoir la technologie mobile sur ces rôles.

Habilités de narration des enfants bilingues avec un trouble primaire du langage

Élisa Langlois, Université Laurentienne, Sudbury, ON; Chantal Mayer-Crittenden, Ph.D., Université Laurentienne, Sudbury, ON; France St-Louis, B.Sc.S., Université Laurentienne, Sudbury, ON

Intermédiaire : Des études ont démontré que les enfants avec un trouble primaire du langage ont des difficultés avec le récit, et que les habiletés de narration sont très pertinentes quand on mesure la compétence linguistique de ces enfants. Cet article examine les habiletés narratives d'enfants unilingues et bilingues avec et sans un trouble primaire du langage vivant dans une communauté bilingue.

Habilités de littératie émergente chez les enfants d'âge préscolaire avec une dyspraxie verbale

Pascal Lefebvre, Ph.D., membre OAOO et OOAQ, Université d'Ottawa, Ottawa, ON; Robin Gaines, Ph.D., OP(C), CCC-SLP, membre OAOO, Centre hospitalier pour enfants de l'Est de l'Ontario, Ottawa, ON; Laurie-Ann Staniforth, M.P.O, membre OAOO, Premiers Mots - Programme de services de rééducation de la parole et du langage pour les enfants d'âge préscolaire, Ottawa, ON

Introduction : Cette étude vise à comparer les habiletés de littératie émergente motrices et langagières de neuf enfants avec une dyspraxie verbale à celles d'enfants appariés avec un développement normal. Les résultats démontrent que la dyspraxie verbale comprend un regroupement de difficultés de parole et de langage parfois associées à des difficultés motrices.

Le programme « Making Alternative Therapy Choices Happen » (MATCH) : pour aller chercher les familles difficiles à rejoindre

Michelle P. Phoenix, orthophoniste, membre OAOO, KidsAbility Centre for Child Development, Hamilton, ON; Peter L. Rosenbaum, CanChild Centre for Childhood Disability Research, Hamilton, ON

Introduction : Le programme « Making Alternative Therapy Choices Happen » (MATCH) est un modèle de prestation de services innovateur visant à promouvoir l'engagement des familles difficiles à rejoindre dans les services offerts. Le programme MATCH a été conçu conformément aux pratiques optimales, piloté en 2012, et ensuite élargi grâce à une mise en place plus vaste et évalué en 2013. Nous avons utilisé la théorie du transfert des connaissances pour appuyer cette initiative.

La communication liée à la démence de la maladie de Parkinson : le point de vue des familles

Angela Roberts, M.A., orthophoniste, membre OAOO, Western University, London, ON; J.B. Orange, Ph.D., O(C), membre OAOO, Western University, London, ON

Intermédiaire : Dans cette étude, les auteurs ont exploré les perceptions des difficultés de conversation et le fardeau conséquemment vécu par de multiples membres d'une même unité familiale vivant avec la démence de la maladie de Parkinson. Nos résultats illustrent le besoin de méthodes d'intervention axées sur les expériences uniques des membres de la famille du patient afin d'optimiser la communication.

Étude sur la convivialité d'offrir sur Internet une thérapie d'analyse des éléments phonologiques

Tijana Simic, M.H.Sc., orthophoniste, membre OAOO, University of Toronto, Toronto, ON; Carol Leonard, Ph.D., O(C), Université d'Ottawa, Ottawa, ON; Laura Laird, University of Toronto, Toronto, ON; Elizabeth Rochon, Ph.D., O(C), University of Toronto, Toronto, ON

Intermédiaire : Cette étude évalue la convivialité d'offrir sur Internet un programme d'analyse des composantes phonologiques, notre traitement pour les difficultés de dénomination en aphasie. Jusqu'à maintenant, quatre personnes avec une aphasie de légère à modérée ont participé. Nous présenterons les résultats liés à l'efficacité et au rendement de cette procédure, ainsi qu'à la satisfaction des clients.

Groupes de renforcement vocal pour les problèmes de voix

Merrill A. Tanner, Ph.D., O(C), Glenrose Rehabilitation Hospital, Edmonton, AB

Intermédiaire : Les avantages cliniques des Groupes de renforcement vocal Glenrose sont évidents tant pour les patients que pour les cliniciens participant au programme. Ces rencontres de groupe, qui se produisent deux fois par semaine pour une durée d'un mois, combinent la thérapie de la voix et le chant pour desservir les patients externes avec des problèmes de voix découlant du vieillissement normal, d'un AVC, d'un traumatisme cérébral et de la maladie de Parkinson. L'hôpital procède actuellement à la collecte de données formelles.

Information for Contributors

The Canadian Journal of Speech-Language Pathology and Audiology (CJSLPA) welcomes submissions of scholarly manuscripts related to human communication and its disorders broadly defined. This includes submissions relating to normal and disordered processes of speech, language, and hearing. Manuscripts that have not been published previously are invited in English and French. Manuscripts may be tutorial, theoretical, integrative, practical, pedagogic, or empirical. All manuscripts will be evaluated on the basis of the timeliness, importance, and applicability of the submission to the interests of speech-language pathology and audiology as professions, and to communication sciences and disorders as a discipline. Consequently, all manuscripts are assessed in relation to the potential impact of the work on improving our understanding of human communication and its disorders. All categories of manuscripts submitted will undergo peer-review to determine the suitability of the submission for publication in CJSLPA. The Journal has established multiple categories of manuscript submission that will permit the broadest opportunity for dissemination of information related to human communication and its disorders. The categories for manuscript submission include:

Tutorials: Review articles, treatises, or position papers that address a specific topic within either a theoretical or clinical framework.

Articles: Traditional manuscripts addressing applied or basic experimental research on issues related to speech, language, and/or hearing with human participants or animals.

Clinical Reports: Reports of new clinical procedures, protocols, or methods with specific focus on direct application to identification, assessment and/or treatment concerns in speech, language, and/or hearing.

Brief Reports: Similar to research notes, brief communications concerning preliminary findings, either clinical or experimental (applied or basic), that may lead to additional and more comprehensive study in the future. These reports are typically based on small “n” or pilot studies and must address disordered participant populations.

Research Notes: Brief communications that focus on experimental work conducted in laboratory settings. These reports will typically address methodological concerns and/or modifications of existing tools or instruments with either normal or disordered populations.

Field Reports: Reports that outline the provision of services that are conducted in unique, atypical, or nonstandard settings; manuscripts in this category may include screening, assessment, and/or treatment reports.

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Contributors should use the electronic CJSLPA manuscript submission system at www.cjslpa.coverpage.ca to submit articles. If you are unable to use the electronic system, please send a file containing the manuscript, including all tables, figures or illustrations, and references in Word via e-mail to the editor at elizabeth.fitzpatrick@uottawa.ca.

Along with copies of the manuscript, a cover letter indicating that the manuscript is being submitted for publication consideration should be included. The cover letter must explicitly state that the manuscript is original work, that it has not been published previously, and that it is not currently under review elsewhere. Manuscripts are received and peer-reviewed contingent upon this understanding.

The author(s) must also provide appropriate confirmation that work conducted with humans or animals has received ethical review and approval. Failure to provide information on ethical approval will delay the review process. Finally, the cover letter should also indicate the category of submission (i.e., tutorial, clinical report, etc.). If the editorial staff

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All submissions should conform to the publication guidelines of the Publication Manual of the American Psychological Association (APA), 6th Edition. A confirmation of receipt for all manuscripts will be provided to the contact author prior to distribution for peer review. CJSLPA seeks to conduct the review process and respond to authors regarding the outcome of the review within 90 days of receipt. If a manuscript is judged as suitable for publication in CJSLPA, authors will have 30 days to make necessary revisions prior to a secondary review.

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All copies should be typed, double-spaced, with a standard typeface (12 point, non-compressed font) on 8 ½ x 11 paper size. All margins should be at least one (1) inch. An electronic copy of the manuscript should be submitted directly to the editor. Author identification for the review process is optional; if blind-review is desired, the documents should be prepared accordingly (cover page and acknowledgements blinded). Responsibility for removing all potential identifying information rests solely with the author(s). All submissions should conform to the publication guidelines of the most current edition of the Publication Manual of the American Psychological Association (APA), 6th Edition. The APA manual is available from most university and commercial bookstores. Generally, the following sections should be submitted in the order specified.

Title Page: This page should include the full title of the manuscript, the full names of the author(s) with academic degrees, each author's affiliation, and a complete mailing address for the contact author. An electronic mail address also is recommended.

Abstract: On a separate sheet of paper, a brief yet informative abstract that does not exceed one page is required. The abstract should include the purpose of the work along with pertinent information relative to the specific manuscript category for which it was submitted.

Key Words: Following the abstract and on the same page, the author(s) should supply a list of key words for indexing purposes.

Tables: Each table included in the manuscript must be typed double-spaced and placed at the end of the document. Tables should be numbered consecutively beginning with Table 1. Each table must have a descriptive caption. Tables should serve to expand the information provided in the text of the manuscript, not to duplicate information.

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Acknowledgements: Acknowledgements should be typewritten (double-spaced) on a separate page. Appropriate acknowledgment for any type of sponsorship, donations, grants, technical assistance, and to professional colleagues who contributed to the work, but are not listed as authors, should be noted.

References: References are to be listed consecutively in alphabetical order, then chronologically for each author. Authors should consult the most current edition of the APA publication manual for methods of citing varied sources of information. Journal names and appropriate volume number should be spelled out and italicized. All literature, tests and assessment tools, and standards (ANSI and ISO) must be listed in the references. All references should be double-spaced.

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Renseignements à l'intention des collaborateurs

La Revue canadienne d'orthophonie et d'audiologie (RCOA) est heureuse de se voir soumettre des manuscrits de recherche portant sur la communication humaine et sur les troubles qui s'y rapportent, dans leur sens large. Cela comprend les manuscrits portant sur les processus normaux et désordonnés de la parole, du langage et de l'audition. Nous recherchons des manuscrits qui n'ont jamais été publiés, en français ou en anglais. Les manuscrits peuvent être tutoriels, théoriques, synthétiques, pratiques, pédagogiques ou empiriques. Tous les manuscrits seront évalués en fonction de leur signification, de leur opportunité et de leur applicabilité aux intérêts de l'orthophonie et de l'audiologie comme professions, et aux sciences et aux troubles de la communication en tant que disciplines. Par conséquent, tous les manuscrits sont évalués en fonction de leur incidence possible sur l'amélioration de notre compréhension de la communication humaine et des troubles qui s'y rapportent. Peu importe la catégorie, tous les manuscrits présentés seront soumis à une révision par des collègues afin de déterminer s'ils peuvent être publiés dans la RCOA. La Revue a établi plusieurs catégories de manuscrits afin de permettre la meilleure diffusion possible de l'information portant sur la communication humaine et les troubles s'y rapportant. Les catégories de manuscrits comprennent :

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Comptes rendus cliniques : Comptes rendus de nouvelles procédures ou méthodes ou de nouveaux protocoles cliniques portant

particulièrement sur une application directe par rapport aux questions d'identification, d'évaluation et de traitement relativement à la parole, au langage et à l'audition.

Comptes rendus sommaires : Semblables aux notes de recherche, brèves communications portant sur des conclusions préliminaires, soit cliniques soit expérimentales (appliquées ou fondamentales), pouvant mener à une étude plus poussée dans l'avenir. Ces comptes rendus se fondent typiquement sur des études à petit « n » ou pilotes et doivent traiter de populations désordonnées.

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Toutes les présentations doivent se conformer aux lignes de conduite présentées dans le publication Manual of the American Psychological Association (APA), 6^e Édition. Un accusé de réception de chaque manuscrit sera envoyé à l'auteur-contact avant la distribution des exemplaires en vue de la révision. La RCOA cherche à effectuer cette révision et à informer les auteurs des résultats de cette révision dans les 90 jours de la réception. Lorsqu'on juge que le manuscrit convient à la RCOA, on donnera 30 jours aux auteurs pour effectuer les changements nécessaires avant l'examen secondaire.

L'auteur est responsable de toutes les affirmations formulées dans son manuscrit, y compris toutes les modifications effectuées par les rédacteurs et réviseurs. Sur acceptation définitive du manuscrit et immédiatement avant sa publication, on donnera l'occasion à l'auteur-contact de revoir les épreuves et il devra signifier la vérification du contenu dans les 72 heures suivant réception de ces épreuves.

Organisation du manuscrit

Tous les textes doivent être écrits à double interligne, en caractère standard (police de caractères 12 points, non comprimée) et sur papier 8 ½" X 11" de qualité. Toutes les marges doivent être d'au moins un (1) pouce. Un fichier électronique du manuscrit doit être présenté directement au rédacteur en chef. L'identification de l'auteur est facultative pour le processus d'examen : si l'auteur souhaite ne pas être identifié à ce stade, il devra préparer un fichier électronique dont la page couverture et les remerciements seront voilés. Seuls les auteurs sont responsables de retirer toute information identificatrice éventuelle. Tous les manuscrits doivent être rédigés en conformité aux lignes de conduite les plus récentes de l'APA. Ce manuel est disponible dans la plupart des librairies universitaires et commerciales. En général, les sections qui suivent doivent être présentées dans l'ordre chronologique précisé.

Page titre : Cette page doit contenir le titre complet du manuscrit, les noms complets des auteurs, y compris les diplômes et affiliations, l'adresse complète de l'auteur-contact et l'adresse de courriel de l'auteur contact.

Abrégé : Sur une page distincte, produire un abrégé bref mais informatif ne dépassant pas une page. L'abrégé doit indiquer l'objet du travail ainsi que toute information pertinente portant sur la catégorie du manuscrit.

Mots clés : Immédiatement suivant l'abrégé et sur la même page, les auteurs doivent présenter une liste de mots clés aux fins de constitution d'un index.

Tableaux : Tous les tableaux compris dans un même manuscrit doivent être écrits à double interligne sur une page distincte. Les tableaux doivent être numérotés consécutivement, en commençant par le Tableau 1. Chaque tableau doit être accompagné d'une légende et doit servir à compléter les renseignements fournis dans le texte du manuscrit plutôt qu'à reprendre l'information contenue dans le texte ou dans les tableaux.

Conflits d'intérêts possibles et engagement double

Dans le processus de présentation, les auteurs doivent déclarer clairement l'existence de tout conflit d'intérêts possibles ou engagement double relativement au manuscrit et de ses auteurs. Cette déclaration est nécessaire afin d'informer la RCOA que l'auteur ou les auteurs peuvent tirer avantage de la publication du manuscrit. Ces avantages pour les auteurs, directs ou indirects, peuvent être de nature financière ou non financière. La déclaration de conflit d'intérêts possibles ou d'engagement double peut être transmise à des conseillers en matière de publication lorsqu'on estime qu'un tel conflit d'intérêts ou engagement double aurait pu influencer l'information fournie dans la présentation ou compromettre la conception, la conduite, la collecte ou l'analyse des données, ou l'interprétation des données recueillies et présentées dans le manuscrit soumis à l'examen. Si le manuscrit est accepté en vue de sa publication, la rédaction se réserve le droit de reconnaître l'existence possible d'un tel conflit d'intérêts ou engagement double.

Illustrations : Toutes les illustrations faisant partie du manuscrit doivent être annexer avec chaque exemplaire du manuscrit. Chaque manuscrit doit être accompagné d'un fichier électronique pour chaque image et graphique en format JPEG, TIFF, AI, PSD, GIF, EPS ou PDF, compression minimale 300 ppp. Pour les autres types d'illustrations informatisées, il est recommandé de consulter le personnel de production de la RCOA avant la préparation et la présentation du manuscrit et des figures et illustrations s'y rattachant.

Légendes des illustrations : Les légendes accompagnant chaque figure et illustration doivent être écrits à double interligne sur une page distincte et identifiées à l'aide d'un numéro qui correspond à la séquence de parution des figures et illustrations dans le manuscrit.

Numérotation des pages et titre courant : Chaque page du manuscrit doit être numérotée, y compris les tableaux, figures, illustrations, références et, le cas échéant, les annexes. Un bref (30 caractères ou moins) titre courant descriptif doit apparaître dans la marge supérieure droite de chaque page du manuscrit.

Remerciements : Les remerciements doivent être écrits à double interligne sur une page distincte. L'auteur doit reconnaître toute forme de parrainage, don, bourse ou d'aide technique, ainsi que tout collègue professionnel qui ont contribué à l'ouvrage mais qui n'est pas cité à titre d'auteur.

Références : Les références sont énumérées les unes après les autres, en ordre alphabétique, suivi de l'ordre chronologique sous le nom de chaque auteur. Les auteurs doivent consulter le manuel de l'APA le plus récent pour obtenir la façon exacte de rédiger une citation. Les noms de revues scientifiques et autres doivent être rédigés au long et imprimés en italiques. Tous les ouvrages, outils d'essais et d'évaluation ainsi que les normes (ANSI et ISO) doivent figurer dans la liste de références. Les références doivent être écrits à double interligne.

Participants à la recherche – êtres humains et animaux

Chaque manuscrit présenté à la RCOA en vue d'un examen par des pairs et qui se fonde sur une recherche effectuée avec la participation d'êtres humains ou d'animaux doit faire état d'un agrément déontologique approprié. Dans les cas où des êtres humains ou des animaux ont servi à des fins de recherche, on doit joindre une attestation indiquant que la recherche a été approuvée par un comité d'examen reconnu ou par tout autre organisme d'évaluation déontologique, comportant le nom et l'affiliation de l'éthique de recherche ainsi que le numéro de l'approbation. Le processus d'examen ne sera pas amorcé avant que cette information ne soit formellement fournie au rédacteur en chef.

Tout comme pour la recherche effectuée avec la participation d'êtres humains, la RCOA exige que toute recherche effectuée avec des animaux soit accompagnée d'une attestation à l'effet que cette recherche a été évaluée et approuvée par les autorités déontologiques compétentes. Cela comporte le nom et l'affiliation de l'organisme d'évaluation de l'éthique en recherche ainsi que le numéro de l'approbation correspondante. On exige également une attestation à l'effet que tous les animaux de recherche ont été utilisés et soignés d'une manière reconnue et éthique. Le processus d'examen ne sera pas amorcé avant que cette information ne soit formellement fournie au rédacteur en chef.



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