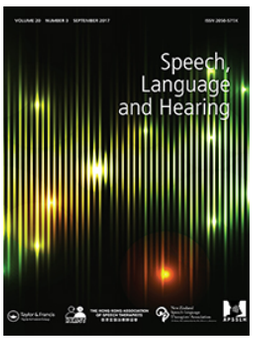

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A culturally responsive framework for enhancing phonological awareness development in children with speech and language impairment

Gail Gillon, Angus Hikairo Macfarlane

College of Education Health and Human Development, University of Canterbury, Christchurch, New Zealand

In this article an example of a culturally responsive approach to working with children with speech–language impairment is discussed. The approach is centered on the premise that early literacy success is critical to these children's academic achievement and that multiple variables will contribute to children's literacy development. The example is novel in that it integrates a science-based model, the Component Model of Reading, with indigenous writings related to indicators for academic success, namely the importance of cultural identity, resilience, a sense of place, bicultural education, and the importance of family. This framework is termed '*A Braided Rivers Approach*' and is used in this article to discuss how speech–language therapists and teachers can advance children's phonological awareness development in ways that maximize the benefits for their early reading and spelling development and that values and respects children's cultural identity and background, particularly for children with speech–language impairment who are at risk of experiencing written language difficulties.

Keywords: Phonological awareness, Reading, Culturally responsive, Speech–language impairment, Indigenous, Early literacy, Speech–language pathology, Māori

Introduction

At a global level we are challenged with raising literacy achievement for all children. Despite significant investment in literacy initiatives, the gains realized in raising literacy achievement for some children remain modest at best and for some ethnic groups the gap is widening (Nina *et al.*, 2012; The Education Trust, 2014). For example, in the USA the significant gap between the lower reading performance of children who identify as American Indian and Native Alaska and their peers in 2015, was similar to the achievement gap reported in 2003 (US Department of Education, 2015). In Australia's Northern Territory only 43% of Indigenous[1] children reach the minimum standard for Grade 3 reading ability compared to 92% of non-indigenous children (ACARA, 2015), In New Zealand, Māori, and Pacific children consistently underachieve in reading achievement compared to European and Asian children (Ministry of Education, 2014). It is important, therefore, to critically evaluate practices and frameworks for interventions focused on improving literacy outcomes, including those aimed at facilitating the oral language foundations for literacy. This article provides an example of a culturally responsive framework for young school-aged children with speech–language impairment aimed at facilitating their early phonological awareness knowledge as part of an integrated program to enhance literacy development. The culturally responsive framework discussed in this article is premised on the importance of the early years and effective instructional practices to subsequent educational achievement.

Early literacy development

When supporting a child with speech–language impairment, it is critically important to focus on facilitating the child's early literacy success in addition to

Correspondence to: Professor Gail Gillon, College of Education Health and Human Development, University of Canterbury, Private Bag 4800, Christchurch, New Zealand. Email: gail.gillon@canterbury.ac.nz

[1]There is not a universal definition of Indigenous Peoples as there is a fundamental criterion of self-identification. A common understanding is the term indigenous refers to those who are descendants from people who inhabited a geographical region or country at the time when people from a different ethnic background arrived (United Nations, 2013). In Australia the term indigenous is used to refer to Australian Aboriginal and Torres Strait Islander people. In New Zealand the term is used to refer to people who identify as Māori.

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resolving spoken language impairments. The early school years can set a child's trajectory of well-being in later life. Meta-analyses from longitudinal studies indicate early math, reading, and attention -related skills at age 5- and 6-years are the strongest predictors of later academic achievement (Duncan *et al*., 2007). Other studies highlight the importance of early successful reading development, for later academic outcomes (Juel, 1988; Neuman and Dickinson, 2011) and behavioral adjustment (Cree *et al*., 2012; McIntosh *et al*., 2012). Internationally, leaders are being urged to focus resources on improving literacy for all children as one of the key strategies in reducing inequalities, improving health outcomes, and facilitating economic growth (UNESCO Institute for Statistics, 2013).

Children with language impairment frequently demonstrate delayed early reading development (Schuele *et al*., 2007). Catts *et al*.'s (2008) findings indicated that although these children's reading improves with classroom instruction (their growth trajectory is similar to their peers) they do not show the accelerated reading growth necessary to overcome their early reading delays. They therefore reach much lower levels of reading achievement compared to their peers in the upper grades. Stoeckel *et al*. (2013) found that as many as 47% of children with speech–language impairment may show persistent reading and spelling difficulties well into their teenage years. Although not all children who have speech impairment will experience difficulty learning to read, children who exhibit atypical speech error patterns (Preston *et al*., 2013), have poor phonological awareness (Gillon, 2000) and have additional language impairments (Sices *et al*., 2007) are at increased risk for reading and or spelling difficulties. Young children with inconsistent speech errors may demonstrate particular difficulty learning to spell (Holm *et al*., 2008; McNeill and Gillon, 2014).

The incidence of speech–language impairment and associated early literacy difficulties in culturally diverse groups is difficult to estimate. Lack of cultural appropriate assessment measures and practices to determine language impairment is a barrier to accurate identification and there is a need for large-scale international epidemiological studies focused on communication abilities (Wylie, *et al*., 2013). In considering disability more broadly, The World Report on Disability (Bickenbach, 2011) indicated that over 5% of the world's childhood population 0 –14 years (93 million children) have a moderate to severe disability and that children from ethnic minority groups and children from poorer households are at significantly higher risk for disability compared to other children. An estimated 200 million children under 5 years fail to reach their potential in cognitive and social–emotional development (p. 37) placing them at significant risk for academic underachievement in their school years. The larger scale epidemiological study in the United States (Midwest) (Shriberg *et al*., 1999) involving over 7000 children aged 5– 6 years, who were monolingual speakers of English, provides some insight into ethnic prevalence data (acknowledging issues of potential cultural bias in the assessments used). The data indicated a higher incidence of specific language impairment in children identified as African American (approx. 11%) Native American (approx. 12%) and Hispanic (approx. 8%) compared to White American (approx. 7%) with an overall population incidence of specific language impairment of 7.3%. A subsample examined for speech sound disorder in 6-year-old children also indicated a higher rate of incidence for African American (5.8%) compared to the incidence for White American (3.8%) (Shriberg *et al*., 1999). The confounding influence of low socio-economic status on reading achievement also needs to be understood. However, as Wylie and Hodgen (2011) discussed, socio-economic status is not a destiny, and what is true for groups is not necessarily true for individuals. Some children and young people from low socio-economic backgrounds succeed in education. Teachers' and parents' interactions with students, what they do, what they provide, and the quality of their interactions matter significantly (Hattie, 2009). The authors of a longitudinal study report in the United Kingdom went so far as to state that the study findings showed that '*What parents do is more important than who parents are*' (Sylva *et al*., 2012, p.1). The next section of this article outlines these and other important influences on children's reading development.

Influences on reading development

Many factors influence a child's reading achievement. It is important to consider both the spoken and written language development of children with speech–language impairment within the context of their family and cultural background. One model that provides a useful framework to conceptualize the various influences on reading is the Component Model of Reading (CMR) (Aaron *et al*., 2008). In this model three domains are identified:

Cognitive domain: The first domain relates to the cognitive components involved in recognizing words in print (word recognition) and processes involved in comprehension.

Psychological domain: The second domain focuses on psychological components such as motivation and interest in reading, self-perception of reading abilities, and perceived expectations of teachers, family, or peers to succeed in reading.

Ecological domain: The third domain includes environmental components such as influences from home and school environments, cultural influences, and parental involvement in supporting the child's reading.

Successful reading acquisition may occur when strengths in each of these domains are evident. The domain that has received particular research attention is the cognitive domain since components in this domain have a more direct influence on reading performance (Aaron *et al.*, 2008; Tunmer and Chapman, 2012). Culturally responsive teaching practices, however, frequently draw upon aspects of the ecological and psychological domain in considering how best to support children's reading development in a manner relevant to their cultural identity, context, and indigenous knowledge. Evidenced -based practices in speech–language therapy have long been promoted (Justice, 2006). Such practices that incorporate cultural context necessitate an integrated model where knowledge from relevant research (including relevant indigenous research) practitioners' knowledge as well as the knowledge, perceptions, and values from the child's parents, family, or community are all taken into consideration (Macfarlane *et al.*, 2012; Macfarlane and Macfarlane, 2013). The challenge for the speech–language therapist is to blend together findings from predominantly western science models of research with knowledge from indigenous communities they may be working in to inform their practice. Research has just begun to consider how ecological, cognitive, and psychological domains of influence may interact (Kieffer and Vukovic, 2013) and this article presents a novel practical application as an example of integrating knowledge across domains.

Braided rivers approach

To help conceptualize the integration of differing knowledge bases from the dominant culture and indigenous cultures, Macfarlane *et al.* (2015) proposed a blended model or 'A braided rivers' approach. The visual image of how streams of a braided river merge in and out of each other as they cross the plains of a landscape is used to depict how traditional western science knowledge, assessment practices, and program content needs to merge with indigenous knowledge and culturally appropriate assessment practices and program content.

In Fig. 1, the Braided Rivers Approach is adapted to depict how both western knowledge and indigenous knowledge need to feed into the differing streams (domains) of influence that are relevant to successful reading experiences. In this approach the practitioner needs to consider the range of influences on children's reading development and develop their assessment, intervention, and evaluation practices in a manner that reflects both indigenous and western science knowledge and practices.

Many studies and Government reports have highlighted the poor reading outcomes of children from low socio-economic backgrounds where indigenous populations are disproportionally represented (e.g. Mullis *et al.*, 2012). Recent work, though, has begun to identify indicators of success within these populations. That is; factors that facilitate academic success for indigenous peoples are identified. In New Zealand, where Māori are the indigenous population, several factors have been associated with successful academic achievement for Māori (Macfarlane *et al.*, 2014). These factors include:

1. *A positive sense of cultural identity:* Successful students are more likely to experience a sense of belonging in their school and community and can engage meaningfully with their indigenous culture.
2. *A sense of courage and resilience*: Successful students are aspirational and have high expectations for their futures. They enjoy overall healthy well-being.
3. *A strong sense of place*: Successful students make the link between school-based learning and their cultural context. This is helped through their culture being valued within the school context and curriculum content.
4. *Bicultural education success*: The students can demonstrate success in their indigenous cultural context and in the dominant cultural context. They perceive that both identities contribute to their success.
5. *The importance of family*: Successful students are supported in succeeding by their parents and wider family.

Many of these factors, particularly the importance of family, are seen as central to the academic success of children from indigenous populations or culturally diverse backgrounds (e.g. Butler-Barnes *et al.*, 2013; Fan and Chen, 2001; Hope *et al.*, 2013; Jeynes, 2003; Schweigman *et al.*, 2011). Others pointed to the need for educators to develop an understanding of the socio-cultural context of their students and families (De Gaetano, 2007). In this article we propose that since ethnicity might be conceptualized as a socio-cultural contextualized meaning system, the need for a culturally responsive framework to enhance early reading development for children with speech–language impairment, particularly those from indigenous backgrounds, becomes more marked. Such a framework needs to incorporate the domains or streams depicted in Fig. 1. Traditionally, theorists and practitioners have placed emphasis on the cognitive domain and while cognitive aspects will be central to the intervention practices, the speech–language therapist and teacher also need to consider psychological and ecological factors within a culturally relevant context

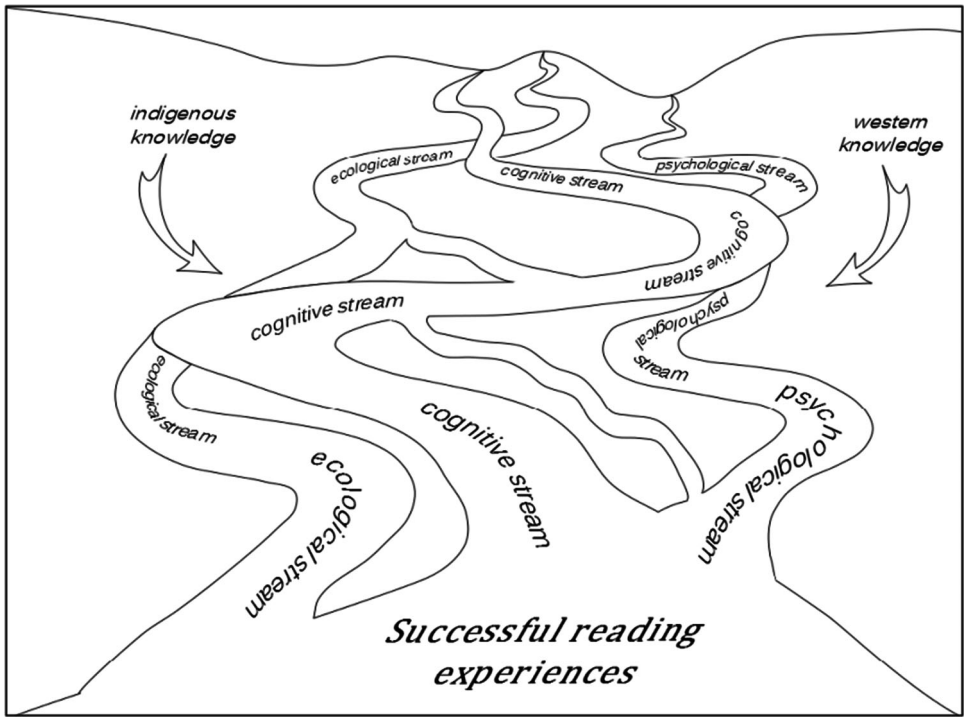

Figure 1 ***A Braided Rivers Approach*** **to the integration of knowledge to facilitate children's early reading success.**

(Champion *et al*., 1999; de Schonewise and Klingner, 2012). Culturally responsive intervention within this model may include the following: the intervention is based on relevant evidence from indigenous writings as well as western science perspectives; the importance of family and community engagement in the child's learning is clearly evident; the young child's growing sense of cultural identity is supported; the intervention

Table 1 Examples of activities to facilitate early reading success within a 'Braided Rivers Approach' integrating influences on reading with indicators of academic success for indigenous populations

Influences on reading development			
Indicators of academic success for indigenous students	**Ecological influences**	**Cognitive influences**	**Psychological influences**
Strong cultural identity	Encourage family or caregivers to share culturally relevant stories (both oral and written stories) with their child. Learn about the cultural values, myths, or legends cultural stories reflect	Develop skills for early reading such as phonological awareness and letter knowledge, utilizing stories, vocabulary, and teaching materials that are culturally relevant	Use successful older peers, community leaders, idols from the same cultural background as the child as role models; expect the child to succeed in literacy
Resilient, healthy well -being	Liaise with community leaders, and health professionals to ensure a holistic approach to managing health issues to allow the child to engage in literacy learning (e.g. hearing, vision, nutritional checks)	Create a positive learning environment, provide quality feedback on learning attempts, and scaffold tasks to create successful learning experiences	Liaise with teachers, family, and community leaders to help inspire the child to succeed. Help the child understand the importance and value of strong spoken and written communication skills
A strong sense of place and bicultural or multicultural identities	Understand the child's cultural customs and practices and acknowledge these when liaising with family, community and in working with the child	Integrate vocabulary from the child's native language into speech and language teaching activities. Use simple greetings in the child's native language	Demonstrate genuine interest in the child's cultural heritage; encourage the child's ability to speak different languages and to talk about cultural experiences
Family are engaged in child's learning	Take time to become involved in the community to build positive, trusting relationships; respect and value cultural differences. Listen and value the family's perceptions about the child's speech– language development	Engage family members or caregivers in therapy sessions, intervention activities, and planning learning goals; share assessment findings in culturally sensitive and relevant ways	Share successful learning outcomes; develop the family's pride in their child's spoken and written language achievements; Take an interest in the child's/ family's participation in cultural events (e.g. cultural festivals)

content is relevant to the child's cultural context, and other cultural identities the child may have in addition to the dominant culture of the school environment are valued. Table 1 provides examples of activities that might be included in a culturally responsive framework that acknowledges important influences on children's reading development.

To successfully implement culturally responsive interventions, speech–language therapists and teachers need to develop their own cultural competence and confidence. What is meant by the term cultural competence is debated, but recent research focuses on four key concepts:

1. Awareness of one's own culture and how culture influences thoughts and actions;
2. Sensitivity to cultural difference;
3. Ability to adapt to differing cultural environments; and
4. Metacognitive cultural awareness (awareness of the distribution of cultural knowledge within and across differing communities) (Chiu *et al*., 2013).

Cultural confidence will enable practitioners to use their developing cultural competence in their practice with children. Engaging with differing cultural communities will help to build such confidence. When working in differing communities adopting a position as a learner (rather than an expert), being responsive (rather than trying to control), and being an active listener (rather than a dominant speaker), may help build respectful relationships (Glynn, 2012). Professional codes of ethics in speech–language therapy highlight the expectation that practitioners will provide services in a manner that is culturally and linguistically responsive to the individual's needs. For example, ASHA code of ethics states: '*Cultural and linguistic competence is as important to successful provision of services as are scientific, technical, and clinical knowledge and skills*'(ASHA, 2013). Development of cultural competence and confidence may be best seen as a journey that will develop and mature over time, but being open to such learning is a key starting point. Enhanced professional education related to cultural competence and the development of assessments and interventions materials appropriate to differing cultural groups are current issues for the profession to address (McLeod *et al*., 2013). The next section of this article examines an example of how the model depicted in Fig. 1 and Table 1 can be applied to phonological awareness intervention for children with speech–language impairment as one part of a comprehensive intervention to enhance a child's spoken and written language development.

Effective practices in phonological awareness

It is now well established that phonological awareness is a strong predictor of early literacy success (Melby-Lervag *et al*., 2012). It is one of three cognitive areas across languages (along with letter knowledge and rapid automatized naming) that when impaired is casually associated with specific reading difficulties (Hulme and Snowling, 2013). Intervention studies examining the effectiveness of phonological awareness intervention to facilitate reading and/or spelling in children with speech –language impairment show promising results (Al Otaiba *et al*., 2009) (noting the continued need for rigorous research designs and further investigation of the transfer of improved phonological awareness to the reading process). The Gillon series of studies (Gillon, 2000, 2002, 2005; Kirk and Gillon, 2007) followed children with speech impairment post intervention to investigate longer term effects on the children's reading and spelling outcomes. The phonological awareness intervention was implemented by speech–language therapists in individual or small group settings and involved three key strategies:

- A focus on developing children's phoneme level awareness (phoneme identity, phoneme segmentation, phoneme blending, and phoneme manipulation activities);
- Integrated letter knowledge into the phonological awareness tasks;
- Teaching made explicit the link between the spoken and written form of the word.

The study results indicated that these strategies were associated with significant improvements in children's speech production, reading accuracy, reading comprehension, and spelling development. Other studies have also shown that concentrating intervention activities at the phoneme level may be particularly useful in gaining efficiency as well as effectiveness for preschool children (Ukrainetz *et al*., 2011) and for children with severe speech disorders such as childhood apraxia of speech (McNeill *et al*., 2009).

Recently, Carson *et al*. (2013) identified that this type of intervention can be successfully adapted to a Year 1 classroom setting and that such instruction can significantly reduce the number of children at the end of their first year of schooling requiring additional reading support. The percentage of children in the class who required reading support following class- based phonological awareness intervention was only 6% compared to 26% of children in the control group who received their regular classroom language curriculum.

A culturally inclusive approach to phonological awareness intervention

Adopting the framework presented in Fig. 1 and Table 1, the following section provides an example of a culturally responsive approach to integrating phonological awareness activities into therapy intervention.

Evidence -based practices are discussed in relation to the streams of influence in children's reading development and indigenous research findings related to successful academic outcomes. Practitioners working with children who speak additional languages to English may first need to consider the phonetic inventory and phonological structure of the child's home or indigenous language. ASHA (2014) and McLeod (2007) provides useful resources related to the phonetic inventories of a variety of languages.

The research evidence to support examples of developing phonological awareness in children with speech–language impairment using a culturally responsive framework is discussed below:

(1) Support children in developing a strong sense of their cultural identity, sense of place, and bicultural success through a bilingual approach to phonological awareness activities

Recent research has focused on phonological awareness development in bilingual or multilingual children (Anthony *et al*., 2009; Branum-Martin *et al*., 2012; Wren *et al*., 2013). Of particular relevance to the current discussion is whether phonological awareness skills transfer between English and other languages. Branum-Martin *et al*. (2012) indicated that four factors need to be considered in understanding cross linguistic phonological awareness effects:

- features of the language;
- characteristics of the phonological awareness tasks;
- age or cognitive level of the children; and
- the extent and type of reading instruction and linguistic experiences of the children (p. 933).

In their meta-analysis, Branum-Martin *et al.* (2012) examined 101 correlations over 38 studies for language, age, and phonological unit (i.e. syllable, onset-rime, or phoneme level tasks). Their findings suggested that there was a moderate to high level of consistency between English phonological awareness performance and that in other alphabetic languages, particularly for younger children (noting though that English–Spanish correlations dominated the analysis). In considering both alphabetic and non-alphabetic languages, the strongest correlations were reported between English and French (0.86) and the weakest between English and Mandarin and English and Hebrew (0.39).

In one of the few studies to examine bilingual phonological awareness development in bilingual speakers of English and a pacific language, Hamilton and Gillon (2006) found a group of New Zealand 5– 7-year-old children who were bilingual in English and Samoan showed similar levels of phonological awareness abilities on phoneme level tasks in both languages, but showed stronger performance in English for rhyme and alliteration recognition tasks. Most of the children's phonological awareness skills in English were either within or above age expected levels when compared to normative data gathered from monolingual speakers of English. Wren *et al*.'s (2013) research review focused on this latter finding and investigated whether bilingual children may show a linguistic advantage to monolingual speakers. They examined findings from nine studies with bilingual children (English being one language) where monolingual peers were also included. There was no consistent evidence that monolingual speakers perform better on phoneme level tasks (phoneme detection, segmentation, blending, and substitution) than bilingual speakers. Rather, bilinguals children's performance was either similar to monolingual children or if their second language was more closely related to English (e.g. French Spanish and Italian) the bilingual children showed stronger phonological awareness developmet.

The findings from bilingual phonological awareness studies have important practical implications for children who are learning a language in addition to English. Although noting current research limitations, discussed by Branum-Martin *et al*. (2012), the findings suggest speech–language therapists and class teachers could actively encourage the child's phonological awareness development across languages. For example, they could incorporate vocabulary items from a child's indigenous language into phonological awareness activities, encourage parent and family members to develop the child's phonological awareness skills at home in their native language, and increase the child's awareness of the relationship between speech and print through consciously reflecting on the phonology and orthography of how a word or concept is represented in differing languages. Inclusion of such activities supports a young child's understanding that their native or home language is important and valued. It supports the development of their bicultural or multicultural identities and may encourage them to be proud of their ability to speak more than one language, thus helping to shape their cultural identity.

(2) Help the child to develop resilience, take risks in their learning, and ensure their healthy well-being through (a) considering health influences on the child's engagement in phonological awareness tasks and (b) adopting effective teaching strategies in the phonological awareness activities.

Many children with speech–language impairment will find phonological awareness tasks challenging and success will require focus and concentration. The practitioner, therefore, needs to ensure optimal learning environments including paying attention to the child's physical well-being. Middle ear infections (otitis media) occur frequently in young children and if left untreated can cause long-term hearing

damage and associated academic underachievement (Yiengprugsawan *et al.*, 2013). Some indigenous populations are much more likely to be diagnosed with severe ear infections and have multiple episodes of otitis media compared to nonindigenous peers (e.g. see incidence in Aboriginal children in Australia (Yiengprugsawan *et al.*, 2013) and Inuit, American Indian (Moore, 1999). Hearing difficulties will obviously impede children's phonological awareness development and may be compounded for the child if their literacy and phonological awareness is being taught in classrooms or teaching spaces with poor acoustic properties (Berg *et al.*, 1996). Good and Gillon (2014) recently examined whether phonological awareness, in addition to enhanced acoustic signal of the teacher's voice via sound field system, led to significant improvement over and above sound field system alone. Study participants were 6-year -old children in low socio-economic Year 2 classrooms (over 30% of whom were from Pacific and Māori cultural backgrounds or other minority ethnic groups). Their study results suggested that optimizing the classroom listening environment in combination with explicit phonological awareness instruction had significant benefits for phonological awareness and early reading development in poor readers. The practical implications from this research and related research (Flexer *et al.*, 2002) suggest that for children with speech–language impairment who are particularly vulnerable for early reading difficulties, the speech–language therapist and class teacher need to consider a range of aspects that will affect the child's reading development, including classroom listening conditions, where the child receives their regular language and literacy instruction.

Successful classroom learning experiences will undoubtedly help the child build confidence and resilience in addressing the challenges of their speech or language difficulties. Hattie (2009) undertook a large-scale analysis of meta-analyses investigating effective instructional processes on children's learning. Phonological awareness has a moderate effect size (ES) (0.66) (Hattie, 2005, p. 401) Other leading instructional strategies Hattie identified included: quality teacher feedback (e.g. positive feedback, clarifying learning goals, scaffolding learning) (ES 0.81), direct instructional approaches (ES 0.81), quality of the teaching (ES 0.67) (e.g. teacher shows in-depth knowledge of subject, respects the learner, has a positive relationship with student, monitors and evaluates child's learning), early intervention (ES 0.64), setting challenging goals and high expectation of success (ES 0.59) peer- and self-assessment (ES 0.63 and 0.56). In helping to support children with speech–language impairment gain confidence and success in their early literacy development (which may in turn build their resilience) it will be important to optimize teaching strategies. Phonological awareness intervention that incorporates these features might include the following:

- Phonological awareness is provided early in the child's reading development (*early intervention*);
- Instruction is explicit in making the link between phonemes and graphemes (*direct approach*);
- the speech–language therapist develops a positive working relationship with the child, family, and class teacher (*positive relationships*);
- Clear phonological awareness learning goals (particularly in relation to using phonological awareness in reading and spelling) are established (*challenging goals*);
- The speech–language therapist and teacher scaffold the child's attempts to successfully complete phonological awareness tasks through specific feedback (*quality feedback*);
- The phonological awareness task involves the child consciously reflecting on their learning attempts (*self-assessment*); and
- The speech–language therapist and teacher monitor and evaluate effects of phonological awareness intervention on the child's reading and spelling attempts (*quality teaching*).

Speech–language therapists' and teachers' knowledge of phonological awareness and their own personal phonological awareness skills are also factors likely to contribute to teaching quality. Speech–language therapists typically have strong phonological awareness skills (influenced by their education in linguistics and phonetics), but teachers show wide variability in their level of phonological awareness. Professional development to advance teachers' knowledge may be necessary (Carroll *et al.*, 2012; Moats, 2009). Similarly, speech–language therapists may benefit from professional development in understanding the classroom language curriculum and class-based literacy assessment and teaching strategies (Brandel and Loeb, 2011; Wilson *et al.*, 2013). Quality professional development (see Hattie 2009, pp. 212–14 for characteristics of quality professional learning) where shared understanding can be developed between teachers and speech–language therapists may help facilitate optimal phonological awareness and early literacy learning in children with speech–language impairment.

(3) In culturally responsive ways the child's parents, family, or caregivers are actively engaged in supporting the child's phonological awareness and early literacy development.

Involving parents in speech and language therapy intervention for children with phonological problems is a common clinical practice (Joffe and Pring, 2008). The ecological domain of the culturally responsive

approach would require the speech–language therapist moving beyond simply requiring a parent or family member to reinforce a therapy goal (a goal which may have been determined by the clinician) to supporting the link between the culture of home and school or clinical setting. Moll *et al.* (1992) discussed how innovations in teaching practices can draw upon knowledge and skills from the children's home and the authors highlight the importance of teachers understanding the 'funds of knowledge' children bring to school from their home and community contexts.

There are many ways that speech–language therapists and teachers can support the link between a child's cultural community and the learning environment. For example, professionals from outside the child's culture could familiarize themselves (within reason) with the family's tribal affiliations or cultural background, and the protocols of the family's culture in terms of dress code, greetings, body language, and communication expectations. The professional could consider having a brief glossary of cultural terms appropriate to the child's background and to pay particular attention to the correct pronunciation of names and places. The inclusion of phonological awareness, reading, and assessment material could include icons and events that have cultural relevance for the child and family. Establishing a partnership with a tribal cultural specialist may also be beneficial to guide the practitioner in culturally appropriate practices (Inglebret *et al.* 2008). Consideration of place of intervention where the children and family feel at ease and culturally comfortable may also be important. Recently, Wake *et al.* (2013) implemented a randomized controlled study for 4-year-old Australian children with language delay. The authors reported that the home -based intervention (18 one-hour sessions weekly implemented in the child's home via a trained assistant and parental support) had significant benefits for enhancing phonological awareness and letter knowledge. Parents highly rated the intervention, but there were limited intervention effects for expressive and receptive language abilities.

Specific types of parental engagement when sharing books with children, such as using the books to enhance print awareness, phonological awareness, and letter knowledge have shown promising results for children with speech–language impairment (Justice *et al.*, 2005; Lovelace and Stewart, 2007; Piasta *et al.*, 2012; Ziolkowski and Goldstein, 2008) as well as children with cognitive delay (van Bysterveldt *et al.*, 2010). In this approach the parent is taught to directly bring the child's attention to print on the page through the use of story books with salient print features, (e.g. speech bubbles, large print, print under flaps to be discovered by the child) drawing the child's attention to specific words, letters, and sounds within words, and increasing the child's awareness between the spoken and written form of a word. In investigating the benefits of print referencing techniques, Justice *et al.* (2011) focused on an important variable to consider within a culturally responsive intervention framework, namely the effectiveness of parent -based intervention within the child's home context. As Justice *et al.* (2011) discussed, teaching parents or family members specific strategies that will enhance early literacy when sharing story books with children in their home context may have three advantages:

1. *Social validity*: participants' perception of the value and acceptability of the intervention. Home-based intervention involving reading with children may have high social validity. Few studies report on the social validity of reading -based interventions, but if the goal is to change or improve practice in relation to parent or teacher engagement with evidenced -based phonological awareness (or other early literacy -related interventions) then interventions that have strong social validity within the child's cultural context are important (Lindo and Elleman, 2010).
2. *Feasibility*: the likelihood of the intervention being implemented and maintained over time. Home -based storybook interventions, which include phonological awareness activities, may increase the opportunity for regular intervention as it provides convenience for working parents, opportunity for other family members (e.g. grandparents, older siblings) to engage in the intervention, integration into a commonly accepted practice in many cultures (i.e. sharing stories myths and legends) and intervention for children with significant health issues that interfere with school attendance.
3. *Efficacy*: the extent to which the intervention is associated with improved outcomes (e.g. improved phonological awareness, letter knowledge, and print awareness). Previous research with home -based print referencing studies for children with typical development show encouraging results.

Justice *et al.*'s (2011) investigation of the above factors involved 62 caregivers, mostly mothers, of 4-year-old children with language impairment from low- to mid-income backgrounds. The researchers visited the families in their homes to establish a 12 -week intervention program requiring 48 reading sessions with their child. All of the storybooks and intervention protocols were provided to the participants. Three conditions were compared (1) print referencing condition with parents using nine prompt questions during the story book reading to draw their child's attention to print concepts, letters, or words on the page. (2) Picture condition in which the prompt questions drew attention to the characters and actions in the story and (3) word sound condition, in which the prompt questions drew attention to the phonological

structure of words at the syllable and rhyme level. The results demonstrated that the intervention was feasible for 77% of the participants. Older mothers with higher levels of education were more likely to complete the program and completion rates were not significantly related to intervention condition or child -related factors. Children with language impairment in the print referencing group improved on print knowledge compared to the picture condition, but not compared to sound focus condition and, unexpectedly, they did not show gains in letter knowledge. The authors discussed that letter knowledge may need a more direct instructional approach for young children with language impairment. Parents reported high satisfaction and acceptability with all three conditions and the parents reported that their children found the reading experiences enjoyable, particularly the print referencing condition.

Justice *et al.*'s study (2011) provides the foundation for important new lines of research for developing phonological awareness and print awareness in children with language impairment from culturally diverse groups. The rapid expansion of high- quality digital technologies increased digital access and social media into communities and homes may also provide new opportunities to support families with home-based interventions that have high social validity and efficacy.

Summary

The critical importance of early literacy success to children's later development motivates the need to further harness our efforts in addressing the challenge of raising literacy achievement for all children. In this article a 'Braided Rivers Approach' is presented which highlights the need to consider ecological, cognitive, and psychological influences on children's reading development within the context of culturally responsive interventions that integrate indigenous and western science knowledge. Given the significance of children's phonological awareness knowledge to their early literacy development, examples of how phonological awareness intervention could be incorporated into a culturally responsive approach have been discussed. The framework presented challenges speech–language therapists and teachers to reflect on whether they need to adopt differing perspectives and approaches. In addition to facilitating the foundational cognitive skills for literacy, intervention approaches that enhance the child's cultural identity, sense of place, builds their resilience, and engages parents in their child's learning in socially and culturally valid ways may all support young children with speech–language impairment to succeed in their academic pursuits.

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