



ACQuiring Knowledge in Speech, Language and Hearing

Volume 11, Number 2 2009

Literacy

In this issue:

Literacy instruction for
individuals with CCN

Phonological awareness
assessment and intervention

Assessing reading
comprehension

Dyslexia in secondary school
students

Mealtime behaviours
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For further information contact :

Ryan Smith
TEL 03 9823 1577
MOB 0419 330 118
rsmith@crkennedy.com.au
www.crkennedy.com.au/medical

Speech Pathology Australia

Level 2 / 11-19 Bank Place,
Melbourne, Victoria 3000
T: 03 9642 4899 F: 03 9642 4922
Email:
office@speechpathologyaustralia.org.au
Website:
www.speechpathologyaustralia.org.au
ABN 17 008 393 440 ACN 008 393 440

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From the editors

Literacy unlocks the door to learning

Marleen Westerveld and Nicole Watts Pappas



Marleen Westerveld (left) and Nicole Watts Pappas

“LITERACY UNLOCKS THE DOOR TO LEARNING THROUGHOUT life, is essential to development and health, and opens the way for democratic participation and active citizenship” (Kofi Annan). Dr Seuss puts it in a simpler way: “The more you read, the more things you will know. The more that you learn, the more places you’ll go” (Dr Seuss, *I Can Read With My Eyes Shut!*).

We have been overwhelmed by the level of interest following our call for submissions to this Literacy issue of *ACQ*. The result has been a wide range of literacy-related articles from both academic and clinical perspectives. It reflects a clear shift in our scope of practice as speech-language pathologists to include literacy assessment and intervention for children, adolescents, and adults.

Walsh begins this edition by defining literacy, which includes an interesting historical perspective, with the aim to assist speech-language pathologists in promoting their role in literacy. The issue then presents more peer-reviewed articles. Examples include a best practice review by Gillon and McNeill related to phonological awareness assessment and intervention, an overview by Clendon and Erickson on effective literacy instruction for individuals with complex communication needs, and insights into dyslexia in secondary school students by Marinac.

In this edition, you will also find several Clinical Insights papers to inform you of clinical initiatives related to literacy across the country, including an example of collaborative service provision in Victoria. We strongly recommend the Ethical Reflections paper, in which Leitão and her colleagues raise some very topical issues linking clinical report writing to our Code of Practice. Finally, the edition contains our regular columns. The Research Updates column reports on some exciting new literacy-related initiatives in Australia, and Caroline Bowen navigates us in cyberspace with her highly informative and entertaining 34th edition (marking the 10th anniversary!) of *Webwords*.

In concluding, we would like to bring to your attention the upcoming topics in *ACQ*, including mental health, motor speech disorders, and working with families. Please note that articles on other topics are always welcome. We encourage peer-appraisal for all research-related papers, including literature reviews and discussion papers, and are currently considering the stipulated word limits. *ACQ* uses a double-blind peer-review process that will help ensure high quality evidence-based publications. We look forward to your continued contributions and welcome your feedback and suggestions regarding the content, focus, or format of the journal.

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From the President

Literacy notes

Cori Williams



Cori Williams

LITERACY – IT’S SO IMPORTANT FOR ALL OF US. THOSE of us who have high literacy levels may well take it for granted. I can’t remember a time when I couldn’t read, and seem unable not to read everything I see in the environment around me. And print is everywhere around us, so I am continually reading. Some of you may remember a time when it was suggested that developments in electronic communication would mean that demands on literacy would decrease. We all know that this has not happened – if anything, literacy is more important than ever. Widespread literacy is, however, a relatively recent development in historical terms. The invention of the printing press in the mid 15th century made books available to more people, and so literacy rates began to increase. Of course, universal literacy is still some way off. The UNESCO Institute for Statistics states that more than 744 million people world wide are illiterate (http://www.uis.unesco.org/ev.php?URL_ID=6401&URL_DO=DO_TOPIC&URL_SECTION=201). Of these, some 64% are women. Literacy rates vary widely from country to country, and are lower in the less developed areas of the world. The UNESCO data centre has details on literacy rates in some, but not all, countries (see: http://stats.uis.unesco.org/unesco/TableViewer/document.aspx?ReportId=143&IF_Language=eng).

In Australia, information regarding literacy levels is collected by the Australian Bureau of Statistics. Five areas of literacy are considered – prose literacy, document literacy, numeracy, problem solving and health literacy – and five levels of skill. Level 5 is the highest ranking, and level 3 is seen as the minimum required to “meet the complex demands of everyday life and work in the emerging knowledge-based economy” (<http://www.abs.gov.au/ausstats/abs@.nsw/Latestproducts/4228.0Main%20>

[Features22006%20\(Reissue\)?opendocument&tabname=Summary&prodno=4228.0&issue=2006%20\(Reissue\)&num=&view=](#)). The report of the 2006 survey shows that significant numbers of Australians aged between 15 and 74 years scored at level 1 or 2 in each of the areas of interest. To be specific, 46% scored at this level for prose literacy, 47% for document literacy, 53% for numeracy and 70% for problem solving. The report shows that older people generally have lower levels of literacy, but that there has been an improvement in levels over the past decade. Despite it being a first-world country, Australia still needs to improve its literacy levels.

Literacy is clearly a crucial issue, and one which falls squarely within the scope of speech pathology. The significant body of evidence which demonstrates the existence of poor literacy levels in children with language difficulties reinforces the importance of the provision of speech pathology services to these children. This understanding is the basis for Speech Pathology Australia’s statement on the provision of services to school-aged children. The Association will continue to put this position forward to politicians, administrators and educators at every opportunity. Speech pathologists are also well equipped to provide a valuable service to those adults whose literacy levels are affected by stroke or other acquired difficulties, and to work with clients with complex communication difficulties. All of these areas are included in the range of articles contained in this edition of ACQ – it behoves the Association to ensure that they are also reflected in the range of position papers available. If you feel that there is a need to update the existing papers, or to develop new papers, please do let us know – either direct to National Office, or through the branch executive in your state.

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The big picture of literacy

Regina Walsh

Despite the relevance of the speech pathologist's professional skills to literacy learning and remediation, it is argued that the speech pathologist's limited knowledge of the "big picture" of literacy can be a significant barrier to promoting their role. Varying definitions, perspectives, and beliefs related to literacy may all impact on effectively conveying the role of speech pathologists in this area. This article provides information related to the big picture of literacy which may assist speech pathologists to better promote their own role in literacy.

Literacy education is an extremely complex and politically charged area and speech pathologists (SPs) risk being ignored if they attempt to promote their role without knowledge of how they fit within the "big picture" of literacy. SPs need to know about (ASHA, 2002):

- the nature of literacy, including spoken-written language relationships and reading and writing as acts of communication and tools of learning;
- normal development of reading and writing in the context of the general education curriculum;
- clinical tools and methods for targeting reciprocal spoken and written language growth; and
- disorders of language and literacy and their relationships to each other and to other communication disorders.

However, clinical skills alone are not sufficient. This article proposes that SPs also need to know about:

- the differing content of pre-service training in literacy for SPs and teachers;
- the various definitions of literacy;
- the range of perspectives on literacy in recent history; and
- the influence of opinion and ideology in literacy policy and practice.

Pre-service training in literacy

Significant differences in professionals' knowledge and approach to literacy instruction result from teachers' educational-based training and speech pathologists' medical-based training (McCartney & van der Gaag, 1996). Pre-service SPs tend not to be exposed to the literacy research literature outside their area (Snow, Scarborough & Burns, 1999; Westby, 2004). So, as graduates, SPs have

specialist knowledge in specific aspects of literacy, but limited understanding of how their knowledge connects with that of others', or the context within which they will use it (Richardson & Wallach, 2005). This lack of broad pre-service literacy training leaves SPs to make these connections once they are in a work context (Richardson & Wallach, 2005).

Conversely, there are recognised shortcomings in teacher pre-service training and an acknowledged need to change the focus of pre-service training related to literacy (American Federation of Teachers, 1999; Education Queensland, 2006; Torgesen, 2004). For example, New Zealand and UK research with pre-service and practising teachers found that very few could phonemically segment words accurately (Carroll, 2006; Scarborough, Ehri, Olson & Fowler, 1998). Additionally, Richardson and Wallach (2005) suggested that the lack of study in phonology, morphology, syntax and semantics in US pre-service teaching courses is an obstacle in the successful preparation of literacy teachers. Since literacy came to encompass all language arts in the 1970s, spoken language has been neglected in comparison to the teaching of reading and writing (Halliday & Hasan, 1976). The Australian government's National Inquiry into the Teaching of Literacy included a survey of all 4-year Bachelor of Education courses around Australia. It found that while many students undertaking these courses themselves lack knowledge of such concepts of phonemic awareness, phonics and the alphabetic principle, less than 10 per cent of course time was devoted to preparing student teachers to teach reading (Department of Education, Science and Training, 2005). Coltheart and Prior (2007, p. 7) stated that regarding the teaching of literacy "the situation in teacher training courses in Australia is grave".

Language is increasingly recognised as central to literacy (Ehren & Nelson, 2005). SPs are well aware of how spoken language underpins the development of literacy and how aspects of spoken language skills can indicate possible future literacy difficulties (Speech Pathology Australia, 2005). SPs use various images to promote the importance of the relationship between spoken and written language, typically "stepping stones" or "bridges" (Paul, 2007). However, such images may suggest that children "move on" from spoken language to the more important area of written language, inadvertently implying that once a child is about 7, spoken language can be "demoted" while the focus changes to literacy. These images fail to highlight the common language (symbolic representation) system that underlies both spoken and written language. In this writer's opinion, some

KEYWORDS

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ROLE

SPEECH
PATHOLOGY

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HAS BEEN
PEER-
REVIEWED



Regina Walsh

of the commonly used images may actually undermine the enduring importance of spoken language for literacy development and the relevance of SPs in the literacy area. SPs with knowledge about the shortcomings of pre-service training for teachers in language will be better equipped to promote the importance of spoken language for literacy, and their own role in both spoken and written language.

Various definitions of literacy

Every scientific investigation requires a clear statement of the topic under consideration. Wilson (2005) stated that without attention to definitions, we literally do not know what we are talking about, resulting in much theory and practice being disconnected from the real world. He cautioned that even commonly used terms for which we think we share definitions (for example, memory and cognition) are used

with a range of meanings. Lack of a single precise consensus definition of literacy is a serious issue in research and policy. Definitions vary widely and include (see Education Queensland [2008] for an extended list):

- literacy is the ability to read and write (De Lemos, 2002, p. 3);
- literacy [includes] listening, reading, speaking, viewing (still and moving images) and writing, for a range of purposes in a variety of contexts (Education Queensland, 2002, p. 6);
- literacy is the flexible and sustainable mastery of a repertoire of practices with texts of, and produced in, traditional and new communication technologies (Education Queensland, 2000, p. 9).

In addition, the word literacy is also used to mean “competence”, “skills with computers”, “critical thinking”, or even “communicating” generally. Unfortunately, if literacy has

Table 1. Summary of historical perspectives of literacy

Dominant perspective	Conditioned learning	Natural learning	Information processing	Sociocultural learning	Engaged learning	Reconditioned learning
Period	1950–1965	1966–1975	1976–1985	1986–1995	1996–2004	1996–2004
Motivating force	Political attention in US focused on “fixing” literacy problems	Dissatisfaction with behaviourism as an explanation for literacy learning	US government funding for the creation of literacy research centres	Clinical research findings proved less promising in practice than anticipated	Interest in students’ motivation and self-efficacy beliefs	Accountability and national testing Difficulties in testing literacy
Broader influences	Behaviourism	Psycholinguistics Advances in neurology	Cognitive psychology Kantian philosophy Artificial intelligence	Postmodernism, cultural anthropology	Computers redefine “text” and concept of literacy Experiential learning	Productivity agendas Concern about “falling literacy standards”
View of literacy	Literacy is conditioned behaviour	Literacy is a natural process, an innate human capacity, developed through meaningful use	Literacy is mechanistic information processing, organising and storing knowledge	Literacy is the creation of a mutual understanding in a social interaction within a context at a particular time	Literacy is expression of the individual’s construction of meaningful and socially valuable knowledge	Literacy is conditioned behaviour (although student’s motivation is important)
Focus on	Perceptual activities Observable behaviour Individual skill Controlled vocabulary	Exposure to written texts in meaningful situations Individual skill Authentic literature	Story grammar, text cohesion and structure, text genres Individual skill Controlled vocabulary	Social and contextual contributions Outcomes less important than process Authentic literature	Meaning making strategies Development over time Authentic literature	Sub-skills; mainly for beginning or struggling readers Individual skill Controlled vocabulary
Top down	Bottom up	Top down	Bottom up	Top down	Top down	Bottom up
Implications	Literacy can be broken into sub-skills which can be reinforced in systematic instruction Concept of deficiencies Interest in developing diagnostic instruments and remedial techniques	“Whole language” philosophy. Literacy encompassed all language arts “Diagnosis” is ascertaining how the “unexpected” responses reflected attempts to make meaning	Intervention focused on text-processing strategies, e.g., summarisation, mapping, self-questioning and predicting	Teachers are facilitators or guides only Emergence of “critical literacy”	An “integrated” view of literacy as cognitive, aesthetic and sociocultural	Garnered support from researchers and practitioners in special education
References	Pearson & Stevens, 1994; Skinner, 1974	Chomsky, 1975; Clay, 1976; Goodman & Goodman, 1980; Halliday & Hasan, 1976	Anderson, 1977; Reynolds, Sinatra & Jetton, 1996; Rumelhart, 1980; Stanovich, 1986	Chipman, 1993; Sfard, 1998; Vygotsky, 1934/1986	Dewey, 1910/1991; Gillingham, Young & Kulikowich, 1994	Coltheart, 2005; Paris & Urdan, 2000; Torgesen, 1998

such a wide range of definitions, the term is of limited value in scientific investigation which requires precision in technical terms (Wilson, 2005). The types of definitions currently favoured in research and policy (which focus on “use” of literacy) are abandoned when the research considers children who are struggling to learn literacy (Education Queensland, 2008). Speech pathologists should heed Wilson’s (2005) caution not to assume shared definitions even for the commonly used terms of language and literacy. The main implication of varying definitions is that the range of contributors to literacy teaching may be working at cross purposes (Education Queensland, 2008).

Perspectives on literacy in recent history

The wide range of definitions of literacy has grown from the varying “perspectives” which have dominated literacy research and practice over successive periods in recent history. Each perspective on literacy has focused on one particular feature as the most important characteristic, leading to different definitions. Alexander and Fox (2004) pointed out that these various perspectives on literacy have been influenced by changing beliefs about learning in general, but also by broader political trends, government funding for specific types of research, technology, workplace demands for literacy, and the growing accountability movement. They proposed that the perspectives on literacy over the past 50 years can be summarised under the following headings which refer to the dominant perspective of that era (Alexander & Fox, 2004):

- conditioned learning (1950–65)
- natural learning (1966–75)
- information processing (1976–85)
- sociocultural learning (1986–95)
- engaged learning (1996–2004) and reconditioned learning (1996–2004).

Alexander and Fox (2004) identified a number of recurring trends in the successive perspectives over the past 50 years. These include a shifting emphasis on whole event (top down) versus skill instruction (bottom up) over time, on individual’s skills versus literacy as a social tool, and on controlled vocabulary versus authentic literature. Familiarisation with the recent history of perspectives on literacy learning should be a part of the preparation of all literacy professionals. As Alexander and Fox (2004, p. 57) stated, knowledge of history: “might serve to temper some of the unabashed support for particular new reform efforts that are, in actuality, iterations or reincarnations of past reading approaches with qualified or questionable records of success”.

Each perspective is characterised by an emphasis on one aspect of literacy over the others. However, literacy is *necessarily* physiological, linguistic, behavioural, material and sociological. Alexander and Fox (2004) called for urgent attention to the integration of the perspectives on literacy into a unifying model. Such a model would provide a basis to articulate clearly which aspect of literacy is the focus for research. A unifying model would also be a useful tool for discussing the role of the various professionals who contribute to literacy teaching and remediation, including SPs.

The different perspectives on learning since 1950 have also influenced research in communication. SPs’ research is still heavily influenced by the legacy of the conditioned learning, reconditioned learning and the information processing approaches which represent “bottom-up”

approaches to learning (for one example see Hogan, Catts and Little, 2005). SPs need to be aware that the educational field has embraced other perspectives, and that many of their teacher colleagues trained when the sociocultural learning or the engaged learner perspective was dominant. Individuals tend to adopt the prevailing perspective (and practices) during their pre-service training and apply it with little subsequent analysis (Kjaer, 2005). SPs working in schools may find that some teachers have a firm belief in a holistic (top-down) approach to literacy teaching and believe it is unacceptable to teach literacy skills (De Lemos, 2002). Unless SPs understand the range of perspectives on literacy, they are likely to experience difficulty in communicating with their educational colleagues. In this writer’s opinion, the lack of a unifying model of the various perspectives on literacy is a considerable impediment to SPs making statements about their role that are easily understood by others.

The influence of opinion and ideology

Periodically, statements are made about the poor state of young people’s literacy and about the need to change how children are taught (e.g., “Schools fail the 3Rs test,” 2005). Debate then follows about whether absolute literacy standards are falling, or whether this perception is an artefact of the demand for higher literacy competencies for contemporary society (Snow, Scarborough & Burns, 1999). More than any other educational issue, literacy seems to generate heated disagreement, regular government investigations and deeply divided opinions. Opinions and ideology are as likely to be based on anecdotes, experience, and the perspective in vogue during professional training, as on scientific evidence (Kjaer, 2005).

Hornsby (1999) warned that literacy policies and mandates in Australia that may not have a foundation in rigorous or valid research findings had become widely accepted as being research-based through appeals to ideologically driven literature. Taylor (1998) detailed cases whereby “spin doctors”, rather than scientific evidence, had influenced literacy initiatives in the US. Widespread poor-quality educational and psychological research serves to compound the problem (Education Queensland, 2008; US Department of Education, 2002). Issues in research include lack of clarity about definitions (Wilson, 2005), methodological flaws (NICHD, 2000; Troia, 1999), confusion between correlation and causation (Hornsby, 1999), and political bias evident in interpretations of the literature (Hornsby, 1999; Taylor, 1998). Poor methodology is a significant issue. For example, of the 1962 studies published on phonemic awareness between 1996 and 2000, only 52 met the research methodology criteria required by the US Reading Panel’s enquiry (NICHD, 2000. For an extended discussion see Education Queensland, 2008.)

Even good quality research may be ignored in the name of ideology; those with a particular view cite those findings that support their belief, and those who do not believe dispute the findings and criticise the research (Torgerson, 2006; Wyse, 2000). To play an effective role in literacy, SPs need to appreciate the complexities and issues in literacy research and to be aware that opinions and ideology have considerable influence in literacy policy and practice.

Conclusion

Several potential barriers exist for SPs aiming to promote their role in literacy, including the differences in pre-service

training for SPs and teachers, various definitions of literacy, limited knowledge about the recent history of literacy research, and the strong influence of opinion and ideology in this area. SPs need to be aware that a chasm exists between their “skills analysis” view and the broader sociocultural views of the literacy “big picture”. Most importantly, SPs need to be clear about their own beliefs about literacy, and respect that others may hold different beliefs. SPs need to be part of the important discussions taking place in education (Ehren, 2005), but they need to demonstrate their relevance within the broad context of educational policy and practice. An understanding of the “big picture” of literacy can assist speech pathologists to overcome some of the barriers to negotiating effectively with educationalists about their role in literacy.

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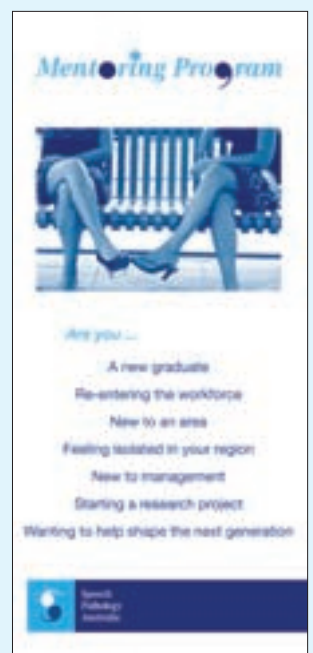
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Correspondence to:

Regina Walsh

Senior Speech Pathologist

Education Queensland

phone: 07 3239 6674

email: reginawalsh@powerup.com.au

Regina.walsh@ccypcg.qld.gov.au



Phonological awareness

Effective practices in assessment and intervention

Gail Gillon and Brigid McNeill

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Gail Gillon (top) and Brigid McNeill

Understanding the importance of phonological awareness development to reading and spelling performance has led to a rapid increase in phonological awareness interventions. Such practices are particularly important for children with speech and language impairment as these children are at increased risk for persistent literacy difficulties. There is, however, a wide range of assessment and intervention practices under the umbrella of “phonological awareness”. Emerging research has demonstrated that differing types of phonological awareness interventions are likely to produce varying levels of success in enhancing reading or spelling ability. This article summarizes the literature regarding phonological awareness assessment and intervention for children with speech and language impairment and provides a research-based checklist to guide practitioners in supporting literacy development for children at risk.

Exciting initiatives to raise reading achievement in all children are being implemented at an international level. Many governments are committing significant resources to national literacy strategies and to research that advances our understanding of reading development and reading pedagogy. Yet despite our current best efforts, there are clearly identified groups of children throughout the developed world who continue to underachieve in written language acquisition. Children from minority ethnic groups, indigenous populations, lower socioeconomic backgrounds, and children with spoken language difficulties in their native language continue to demonstrate poor reading achievement in comparison to majority populations. It is critical, therefore, that we continue to work within an evidence based framework to ensure our instructional methods and interventions are effective in enhancing reading development for all learners.

One area of reading research that has attracted much attention in recent years is phonological awareness (i.e., an individual’s awareness of the sound structure of spoken words). Understanding the critical role of phonological awareness in reading acquisition has been described as one

of the most significant scientific findings in education of the 20th century (Stanovich, 2000). Phonological awareness is a powerful predictor of early reading development and a deficit in this domain is considered a causative factor in severe and persistent reading disorders such as dyslexia. Speech pathologists’ expertise in normal and disordered phonology places them in a unique position within the educational team in addressing children’s phonological awareness development. They are able to assess children’s phonological awareness abilities, identify children at high risk for persistent reading failure, and facilitate children’s phonological awareness skills to enhance both reading and spelling development. This article provides an overview of research evidence related to effective practices in phonological awareness assessment and intervention for children with speech and language impairment.

Assessment

Phonological awareness development should be routinely evaluated within a comprehensive assessment battery for children with speech and language impairment (Boudreau & Hedberg, 1999). Measures of phonological awareness ability, together with letter name knowledge, are powerful predictors of early reading success (Hogan, Catts, & Little, 2005; Lonigan, Burgess, & Anthony, 2000). The phonological awareness performance of preschool children can predict early reading and spelling development more accurately than variables such as intelligence scores, age, and socioeconomic status (Bryant, MacLean, Bradley, & Crossland, 1990). The ability to use phonological information in the reading process (such as measured by non-word reading tasks and word decoding ability) become more powerful predictors of later reading success as children mature (Hogan et al., 2005).

The phonological awareness tasks administered in the assessment battery should reflect the hierarchy of difficulty of phonological awareness established in the literature (Gillon, 2004). More challenging tasks that require awareness at the phoneme level (e.g., phoneme segmentation) are appropriate for children 5 years and older. Early developing tasks of phoneme identity and rhyme would be appropriate to administer to children aged 4 and 5 years (Lonigan et al., 2000). In addition, tasks to assess phonological memory and rapid naming ability (retrieval of phonological information) are important to include in the phonological evaluation (Lovett, Steinbach, & Frijters, 2000; Wolf, Bowers, & Biddle, 2000), particularly for older children and when identifying children with dyslexia.

Assessment examples

Gillon (2004) and Torgesen (1999) discussed standardised and criterion-referenced phonological awareness tasks that may be useful. Examples of standardised assessment measures are presented in table 1.

Table 1. Examples of standardised phonological awareness assessment measures that are suitable across the lifespan

Assessment	Normed age group	Normed population
<i>Preschool and Primary Inventory of Phonological Awareness (PIPA)</i> (Dodd, Crosbie, MacIntosh, Teitzel, & Ozanne, 2000)	3;0–6;11	Australian and British
<i>The Phonological Awareness Test (PAT)</i> (Muter, Hulme, & Snowling, 1997)	4;0–7;11	British
<i>Queensland University Inventory of Literacy (QUIL)</i> (Dodd, Holm, Oerlemans, & McCormick, 1996)	6;0–12;0	Australian
<i>Sutherland Phonological Awareness Test – Revised (SPAT-R)</i> (Neilson, 2003)	Grade 1–4	Australian
<i>The Comprehensive Test of Phonological Processing (CTOPP)</i> (Wagner, Torgesen, & Rashotte, 1999).	5;0–24;0	American
<i>The Lindamood Auditory Conceptualisation Test (LAC)</i> (3rd ed.) (Lindamood & Lindamood, 2004)	5;0–18;0	American

Informal phonological awareness assessments and the development of assessment probes are useful to gather baseline data prior to and during intervention to monitor treatment effectiveness (see Gillon, 2004, for a discussion of phonological awareness assessment tools and a critique of their psychometric properties).

An evaluation of children’s phonological awareness skills should be carried out alongside other speech and language assessments. Areas of spoken language development known to specifically impact upon written language development should be included in a comprehensive assessment (e.g., children’s semantic and syntactic development). Children’s oral narrative abilities are also related to reading comprehension performance and oral narrative protocols that demonstrate optimal language sampling conditions should be administered to children suspected of having language impairment (Westby, 1999; Westerveld & Gillon, 1999/2000).

Working with families and teachers

Speech pathologists typically collaborate with families, teachers, and reading specialists in assessing children with speech and language impairment. Data collected related to children’s phonological awareness and phonological processing abilities should be integrated with teachers’ and parents’ knowledge in areas such as the children’s print concepts, letter knowledge, and literacy curriculum assessments, attitudes to reading, reading materials of interest, as well as visual and hearing abilities. Observing the child’s ability to use phonology in the reading and spelling process in classroom activities through analysing spelling attempts in writing samples or analysing reading errors when the child is reading aloud provides additional useful information.

The home literacy environment is an important influencing factor in young children’s reading acquisition (Frijters, Barron, & Brunello, 2000). The use of parent questionnaires such as the “Early Literacy Parent Questionnaire” (Boudreau, 2005) or an adapted version for parents of children with Down syndrome (van Bysterveldt, Gillon, and Foster-Cohen, in press) may be useful for speech pathologists to gain an understanding of the home literacy context. Developing an assessment profile that integrates knowledge about the child’s spoken and written language abilities from varying sources is recommended.

Intervention

Research has established cost-effective methods to improve both spoken and written language skills of children with spoken language impairment. Gillon (2000, 2002) demonstrated that 20 hours of phonological awareness intervention significantly improved speech production, reading and spelling performance for New Zealand children with spoken language impairment, including children with severe speech impairment.

An independent replication of Gillon’s (2000a) study was conducted in London with 5–7 year old British children who had speech impairment (Denne, Langdown, Pring, & Roy, 2005). The researchers based their intervention on the Gillon Phonological Awareness Training Programme (Gillon 2000b), but made some adaptations to the content and reduced the intensity of the treatment. Denne et al. (2005) found the intervention was effective in rapidly improving the children’s phonological awareness development. Consistent with Gillon’s results, large effect sizes were obtained for measures of phonological awareness. However, the transfer of phonological awareness skills to speech and reading was not evident following the 12 hours of intervention. Denne et al. highlighted the importance of program intensity and the need for increased time to ensure transfer effects. Alternatively, the adaptations made by Denne et al. to the program content may have weakened the component that specifically addresses the links between speech and print that were emphasised in the Gillon (2000) study.

Gillon’s results (2000) are consistent with a large body of research demonstrating the effectiveness of phonological awareness training for varying populations. For example; the following groups have all demonstrated positive reading and/or spelling outcomes in response to phonological awareness intervention:

- older children with specific reading disability or dyslexia (e.g., Gillon & Dodd, 1995, 1997; Lovett & Steinbach, 1997; Truch, 1994);
- young children from low socioeconomic backgrounds (e.g., Blachman, Ball, Black, & Tangel, 1994; Gillon et al., 2007);
- children diagnosed with moderate learning difficulties (Hatcher, 2000);
- children with Down syndrome (van Bysterveldt, Gillon, Foster-Cohen, 2009; Goetz et al., 2008);
- children with childhood apraxia of speech (McNeill, Gillon, & Dodd, in press);
- preschool and school-aged native speakers of: English (e.g., Brennan & Ireson, 1997; Torgesen, Morgan, & Davis, 1992); Spanish (Defior & Tudela, 1994); German (Schneider, Kuspert, Roth, & Vise, 1997); Danish (Lundberg, Frost, & Petersen, 1988); and Samoan (Hamilton & Gillon, 2005).

A meta-analysis of 52 controlled research studies in phonological awareness intervention confirmed that

phonological awareness instruction has a statistically significant impact on developing word recognition, reading comprehension, and spelling (Ehri et al., 2001). This is one of the most comprehensive analyses of intervention outcomes in any area of spoken and written language development and provides robust evidence to support speech pathologists' practices of integrating phonological awareness into interventions for children with speech-language impairments. Most researchers, however, caution practitioners that phonological awareness intervention should be implemented as part of a comprehensive program in literacy instruction or in early literacy experiences. The complexities of written language development preclude the possibility that one narrowly focused type of instruction such as phonological awareness can lead to successful reading and writing for all children. Rather, phonological awareness intervention must be seen in perspective with a host of other language experiences such as shared book reading, alphabetic instruction, storytelling, and involvement in meaningful reading and writing activities that all help to foster written language acquisition.

Intervention planning

A range of factors need to be considered in planning phonological awareness programs. The importance of program content is highlighted by conflicting findings in the literature related to the effectiveness of phonological awareness interventions. For example, Nancollis, Lawrie, and Dodd (2005) found that a school-based phonological awareness intervention focused on teaching young children rhyme and syllable awareness (with no integration of letter knowledge) was effective in developing children's rhyming skills, but had little long-term benefit for reading development. In contrast, Gillon's (2005) phonological awareness intervention that facilitated preschool children's awareness at the phoneme level and integrated letter knowledge had positive long-term effects for speech, reading and spelling development in children with speech impairment. Research findings suggest that intervention planning should consider the following aspects (see Gillon, 2004 for details):

- Phonological awareness intervention should be integrated with letter sound knowledge training and include activities to transfer phonological awareness knowledge to decoding and encoding written words.
- Phonological awareness intervention should focus on the development of skills at the phoneme level.
- A range of phoneme analysis and synthesis activities should be incorporated with particular attention given to phoneme segmentation and blending skills for school-aged children.
- A direct instructional approach to phonological awareness intervention has greater benefits for reading development than an indirect approach.
- Flexibility in program implementation is required to ensure individual needs are met.
- An intensive individual or small-group model of service delivery is necessary for children with severe phonological processing deficits.

Best practice in the intervention of children with phonological awareness difficulties should demonstrate consideration of these factors.

Commercial programs

Recent research has explored the effectiveness of commercial phonological awareness programs of an

intensive nature that claim benefits for children's literacy development. Pokorni, Worthington, and Jamison (2004) utilised a comparative group design to compare the benefits of Fast ForWord (FFW; Scientific Learning Corporation, 1999), Earobics Step 2 (Cognitive Concepts, 1998), and LiPs (Lindamood Phonemic Sequencing Program; Lindamood & Lindamood, 1998) to enhance the phonological awareness, language and reading skills for 7–9 year old children with language impairment. Twenty children were randomly assigned to each intervention condition which was implemented or supervised by a speech pathologist one hour each day for 20 days. The results indicated that only children who received Earobics or LiPs showed significant improvement in phonological awareness post intervention. However, these children's improved phonological awareness skills did not transfer to the reading context. The authors suggested that training in phonological awareness should be integrated with activities that help children apply phonological knowledge to the reading process to gain maximum benefit from the programs.

Summary

Best practice in the management of children with speech and language impairment requires speech pathologists to understand the relationship between spoken and written language disorders and to apply this understanding in assessment, intervention, and monitoring practices. Phonological awareness is one critical area in reading and spelling acquisition. Speech pathologists need to ensure they screen this area of development in all children with speech and language impairment and provide in-depth assessment and intervention as appropriate to the child's individual needs. A checklist for the assessment and intervention of phonological awareness summarises effective practices in this area.

Summary checklist: Assessment and intervention of phonological awareness

Assessment

1. Administer a formal test of phonological awareness skills appropriate to the child's age:
 - a. 4–5 years (e.g., syllable, rhyme awareness, and phoneme identity)
 - b. 5 years and older: more complex phoneme level skills (e.g., phoneme blending, segmentation, manipulation).
2. Evaluate other phonological processing skills, particularly in older children (e.g., phonological memory and rapid naming evaluation).
3. Assess letter-sound knowledge.
4. Observe the child's use of phonology in the reading and spelling process.
5. Consider phonological awareness assessment findings alongside other areas of spoken language related to written language ability.
6. Collect baseline data of phonological awareness and letter knowledge prior to intervention to evaluate intervention effectiveness.
7. Gather information about the home literacy environment with parents/carers as appropriate to a child's situation (e.g., parent questionnaire)
8. Collaborate with the class teacher/early childhood educators and other relevant school, educational, or health professionals in the assessment process.

Summary checklist: Assessment and intervention of phonological awareness (continued)

Intervention

1. Include phonological awareness activities at the phoneme level (e.g., initial phoneme identity for preschool children; phoneme segmentation and phoneme blending for school-age children).
2. Integrate letter-sound knowledge with phonological awareness activities.
3. Integrate phonological awareness activities with speech production and/or language goals where appropriate.
4. Plan activities across different settings (e.g., individual, small group, home, and classroom activities).
5. Collect data throughout the intervention program to determine intervention effectiveness and document outcomes from the intervention.
6. Include activities to facilitate the transfer of improved phonological awareness to reading and spelling.
7. Involve parents/carers, teachers and relevant others in the intervention.
8. Carefully monitor the ability of the child to integrate phonological awareness knowledge in the reading and spelling process following intervention.

Service delivery

1. Intensive individual or small group models may be necessary for children with severe phonological awareness deficits.

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Professor **Gail Gillon** is the Pro-Vice-Chancellor (Education) at the University of Canterbury. Her research focuses on understanding the relationship between spoken and written language disorders and the prevention of literacy difficulties for young children at risk. Her research is well known internationally and she was made a Fellow of the American Speech-Language-Hearing Association in 2007 in recognition of her contributions to the field of speech-language pathology. Dr **Brigid McNeill** is a lecturer in primary literacy education at the University of Canterbury. Her research focuses on the early identification and prevention of reading and spelling difficulties in young children at high risk of literacy failure, including children with childhood apraxia of speech.

Correspondence to:

Professor Gail Gillon

Pro-Vice-Chancellor

College of Education

University of Canterbury

Christchurch, New Zealand

email: gail.gillon@canterbury.ac.nz

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Literacy instruction for individuals with complex communication needs

Sally Clendon and Karen Erickson

This article outlines some of the key principles underlying effective literacy instruction for individuals with complex communication needs. These principles include: (a) the need for a comprehensive approach to instruction that addresses all of the constructs involved in literacy learning; (b) the need for direct intervention that focuses on an individual's area of greatest need; (c) the need to address language and literacy simultaneously; and (d) the need to maintain high levels of cognitive engagement while offering repetition with variety.

Literacy skills are extremely important in today's society and most would agree that being able to read and write effectively is essential for learning, personal development, and employment success. Perhaps there is no other group of individuals who highlight the power of literacy more compellingly than those with complex communication needs. These individuals are unable to use speech as their primary mode of communication and instead rely on the introduction of some form of augmentative and alternative communication (AAC) system. This may be an unaided system such as sign, a low-tech system such as a communication book or board, or a high-tech system such as a computerised AAC device. Whichever system is used, literacy skills are critical in AAC because until individuals with complex communication needs learn to spell conventionally, it is extremely difficult for them to communicate words or messages beyond those that are available to them in their AAC system (Clendon, 2006).

Today computerised AAC devices have the capacity to store large amounts of vocabulary. Programming every possible word that an individual might need, however, is problematic as the vocabulary becomes difficult to organise, manage, and access (Erickson & Clendon, 2009). Instead, it is common practice for educators, speech pathologists, and parents to try and predict which words are sufficiently important to warrant inclusion. Unfortunately, despite their best intentions, the vocabulary words they select are often inappropriate for the individual's personality, situation, and developmental profile (Carlson, 1981). In contrast, when individuals with complex communication needs develop conventional reading and writing skills, they are

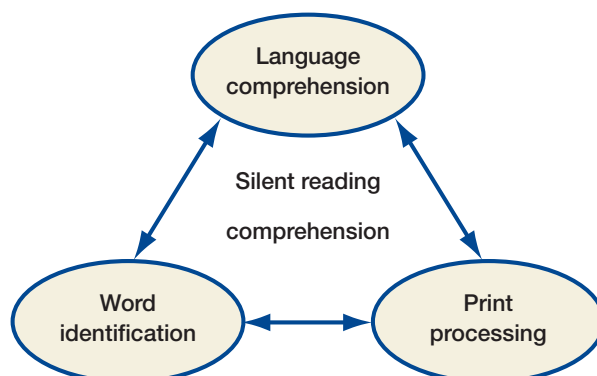
no longer restricted to the vocabulary words that others deem important, and can achieve independence in their communication. This paper will discuss some of the key principles that need to be employed in order to assist these individuals to maximise their literacy potential and acquire the literacy skills needed to become effective in both face-to-face and written communication.

Providing comprehensive literacy instruction

Beginning literacy instructional programs must be comprehensive and address all of the constructs involved in reading and writing. Cunningham's (1993) Whole-to-Part Model of Silent Reading Comprehension highlights the constructs that are believed to underlie successful silent reading comprehension and comprise comprehensive reading instruction. These constructs, as depicted in figure 1, are word identification, language comprehension, and print processing (see Cunningham, [1993], or Erickson, Koppenhaver, & Cunningham, [2006] for a detailed description of these constructs).

Historically, literacy programs designed for individuals with developmental disabilities have tended to focus on only a few constructs. For many years, for example, there was a prevailing belief that individuals with developmental disabilities, particularly those with cognitive disabilities, could be taught to read sight words, but that they could not learn to decode words using phonics-based strategies. The literacy instruction that these individuals received tended to focus on whole-word recognition and limited attention was placed on the internal make-up of words. Consequently, they

Figure 1. A simplified view of Cunningham's whole-to-part model



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Sally Clendon (top) and Karen Erickson

had limited knowledge of phoneme–grapheme relationships and were unable to figure out unfamiliar words encountered when reading (Erickson, 2006). Various researchers (e.g., Cupples & Iacono, 2002; Hoogeveen, Smeets, & van der Houven, 1987; Joseph & McCachran, 2003) have now demonstrated that this belief was unfounded and that if individual learning characteristics are taken into account, then these individuals can respond positively to analytic reading instruction.

The overemphasis on sight word instruction for individuals with developmental disabilities has also meant that insufficient attention has been placed on other critically important constructs involved in the reading process. Research has clearly demonstrated that children who are at risk for literacy learning difficulties do not always have isolated word identification problems. Many children have problems with the other constructs in the Whole-to-Part Model, namely language comprehension and/or print processing. This finding holds true for children with and without developmental disabilities. In fact, as few as 14% of 2nd graders classified as poor readers have isolated word reading deficits (Catts, Fey, Zhang, & Tomblin, 1999), and even fewer children with autism have isolated word reading deficits (Nation, Clark, Wright, & Williams, 2006). Given the understanding that individuals with complex communication needs often have deficits in vocabulary knowledge (Bishop, Byers Brown, & Robson, 1990), morphosyntactic knowledge (Soto, 1997, 1999), and receptive language in general (Binger & Light, 2008), it is reasonable to expect that this population would also have a relatively low portion of poor readers who struggle exclusively with word reading.

Comprehensive literacy instruction means that individuals with complex communication needs must have daily opportunities to build their skills across all the areas of the Whole-To-Part Model. This includes comprehensive word identification instruction that focuses on recognising words automatically (sight words) and strategies to decode unknown words. It also includes reading comprehension lessons that focus on developing background knowledge and schemata, expanding and enriching vocabulary, developing knowledge of text structure, and teaching metacognitive strategies (Staskowski & Creaghead, 2001).

There must also be frequent opportunities for individuals to engage in self-directed reading where individuals can choose books and read for pleasure independently in order to build their print processing skills. A myriad of books and other print materials that represent a variety of different text genres should be readily available. Historically, this has been a challenge for individuals with complex communication needs as many have reading levels far below those expected for their chronological age. Finding books that are interesting and motivating to older readers has been a struggle. Thankfully, the increase in resources available on the Internet is helping to rectify this situation with a large number of books being made available electronically. An example of this is the new Tarheel Reader website (<http://tarheelreader.org/>) created by researchers at the University of North Carolina at Chapel Hill that provides a collection of free, easy-to-read, and accessible books on a wide range of topics. It is possible to make your own books or to browse through the large collection of books that other people have made.

In addition to requiring frequent opportunities to read, individuals with complex communication needs must also have numerous opportunities to engage in writing for meaningful purposes. Writing instruction is an area that

has also been particularly neglected with this population (Koppenhaver & Yoder, 1992). Many individuals with complex communication needs have physical disabilities that prevent them from being able to write using a pencil, or type using a standard computer keyboard. Unfortunately, this has led to reduced opportunities to explore the alphabet and learn to compose written text. There are a number of alternative pencils available that can give these individuals access to the alphabet and the independence to write. These include low-tech options such as alphabet flip charts (see the Alternative Pencils developed by the Center for Literacy and Disability Studies, www.med.unc.edu/ahs/clds) as well as higher tech options like Intellikeys (IntelliTools). For many more ideas, strategies, and resources relating to supporting individuals with complex communication needs to engage in word study, guided reading, self-directed reading, and writing lessons, refer to Erickson and Koppenhaver (2007).

Addressing individual needs

The Whole-to-Part Model (Cunningham, 1993) is also a useful reference point for considering the role of the speech pathologist in supporting literacy development in individuals with complex communication needs (and other individuals with literacy learning difficulties). The model can be used to examine individuals' profiles of ability and prioritise targets for instruction. Researchers at the Center for Literacy and Disability Studies employ an assessment process that relates to this model. It involves comparing performance across each of the constructs of the Whole-to-Part Model to determine the area of greatest need, and insuring that the area of greatest need receives the "greatest proportion of available time and intervention, and intervention is delivered by the most highly qualified personnel" (Erickson et al., 2006, p. 321).

This process encourages professionals to consider word identification, language comprehension, and print processing as possible priorities for intervention. In addition to providing comprehensive instruction as part of the individual's daily educational program, speech pathologists or other professionals target the areas of greatest need during direct intervention. If the area of greatest need is language comprehension, then that will be the target for intervention. In contrast, if the area of greatest need is word identification, then the focus of intervention will be on building decoding skills and automatic word identification. The team will determine which professionals are most capable of providing the type of intervention that the individual needs.

This intervention approach holds much promise for promoting collaboration between team members. It uses individual profiles to divide the labour and capitalises on the relative strengths and qualifications of available professionals. It allows each professional to focus energy on a particular instructional approach or intervention, or on figuring out how to infuse a particular language or literacy goal into the existing curriculum. This is more effective and efficient than all professionals feeling they are responsible for learning all aspects of literacy instruction. The effectiveness of this approach is therefore highly dependent on regular communication between team members (Erickson et al., 2006; Erickson & Clendon, 2005).

Targeting language and literacy simultaneously

The Whole-to-Part Model (Cunningham, 1993) is also important because it supports the integration of language

and literacy instruction. One example of this is the Personalized Key Words Strategy developed by researchers in the Center for Literacy and Disability Studies (Erickson, 2005). This strategy helps individuals with complex communication needs learn to decode words. It involves teaching a set of key words and strategies to use those key words to read and spell unfamiliar words. The strategy is derived from the first Benchmark School approach (Gaskins, Gaskins, & Gaskins, 1991, 1992), but the critical difference is that the key words chosen are personalised, rather than predetermined. The starting point for determining key words involves examining Wiley and Durrell's (1970) list of phonograms. This list includes the 37 most common word endings in written English (e.g., -at, -ain, -ake). From this list, team members identify key words that they consider to be highly meaningful, familiar, and motivating to the individual (e.g., rat, train, cake). Once the individual can read and spell the 37 key words, they use these words with analogy-based strategies to read and spell more than 500 primary grade words. A variety of strategies can be employed to teach the key words, for example word wall and structured writing activities (see Erickson & Koppenhaver [2007] for a full description of these strategies). The Personalized Key Words Strategy approach addresses language and literacy simultaneously as the instruction focuses on teaching the meaning of the key words and modeling how to locate the words within an individual's AAC system, as well as focusing on reading and spelling the words, and using the words to figure out unfamiliar words.

Hanser and Erickson (2007) recently examined the effectiveness of an integrated word identification and communication intervention for three children aged 7–13 years. The children completed the Literacy Through Unity: Word Study program. This program was specifically designed for the Unity language system that is incorporated into the communication devices manufactured by the Prentke Romich Company (e.g., Vanguard, Vantage, and Pathfinder). The children completed 75 lessons across a 4–6 week period. All three participants demonstrated improvements in their word identification, developmental spelling, icon sequencing, and expressive communication abilities. There was also generalisation beyond the program, with increases in icon use and spelling evident outside of the lesson environment.

Promoting cognitive engagement – repetition with variety

Another important consideration when designing literacy instructional programs for individuals with complex communication needs is the need for meaningful and motivating learning activities that actively promote cognitive engagement. Many individuals with complex communication needs require a large amount of repetition in order to grasp new concepts. The challenge for professionals who work with these individuals is to find ways in which we can provide that repetition, while at the same time maintaining high levels of cognitive engagement, interest, and motivation. There are a number of strategies that can be employed to deal with this challenge. One strategy is to personalise the curriculum as much as possible so that individual interests and motivations are incorporated into the literacy program. Another strategy is to provide repetition with variety. One example of this is rereading the same book for multiple

purposes using the Five-Step Comprehension Lesson Framework.

The Five-Step Comprehension Lesson Framework is based on the work of Tierney and Cunningham (1984). It supports individuals to employ scientifically validated comprehension strategies; before, during, and after reading. The complete framework is described in Erickson (2003) and Erickson and Koppenhaver (2007). Each lesson involves setting a purpose for reading. While individuals eventually need to learn how to set their own purposes when reading, purposes should always be set for them during instruction. If this is not done, then individuals are essentially expected to either guess what the teacher thinks is important or to remember everything, both of which can be extremely challenging (Erickson & Clendon, 2005). The idea of setting a purpose is to focus the reader's attention, and to help the individual understand what is important. Purposes can be set whether the individual is listening to a story or reading the story. Examples of purposes include:

Read this so that you can:

- sequence these events (written on sentence strips).
- identify five words that describe the story setting.
- tell two ways this story is just like the one we read last week.
- tell which of these adjectives describe the main character in the story.

Setting purposes enables repetition with lots of variety. The same book can be used across a week for multiple purposes promoting depth of understanding, while at the same time maximising cognitive engagement.

Summary

Learning to read and write is a complicated process that is particularly challenging for individuals with complex communication needs who often have cognitive, language, sensory, and motor limitations. This article describes some of the key principles underlying effective literacy instruction for individuals with complex communication needs. These principles are:

- the need for a comprehensive approach to instruction that addresses all of the constructs involved in literacy learning;
- the need for direct intervention that focuses on an individual's area of greatest need;
- the need to target language and literacy goals simultaneously; and
- the need to maintain high levels of cognitive engagement while offering repetition with variety.

This list of principles is not exhaustive. There are other important considerations such as having high expectations, believing that all children are readers and writers, and providing access to appropriate assistive technologies. A key aim of this article is to spark interest and provoke further discussion and study about what needs to be considered when assisting individuals with complex communication needs to develop conventional reading and writing skills.

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Sally Clendon is a senior lecturer in the Speech-Language Therapy Programme in the School of Education at Massey University in New Zealand. **Karen Erickson** is the director of the Center for Literacy and Disability Studies at the University of North Carolina at Chapel Hill, USA and a professor in the Division of Speech and Hearing Sciences, Department of Allied Health Sciences, School of Medicine. Their areas of interest are language and literacy development for children with significant disabilities, particularly those with complex communication needs who use augmentative and alternative communication (AAC). Current research efforts focus on the development of literacy assessment and instructional materials that are accessible to students with significant disabilities.

Correspondence to:

Dr Sally Clendon

Speech Language Therapy Programme

School of Education at Albany

Massey University College of Education

PO Box 102 904, North Shore Mail Centre

Auckland, New Zealand

phone: +64 9 414 0800 ext 9883

fax: +64 9 443 9717

email: s.clendon@massey.ac.nz



Measuring reading comprehension ability in children

Factors influencing test performance

Marleen Westerveld

To obtain a complete picture of children's language abilities during the school years, the speech pathologist's assessment battery should contain a test of reading comprehension. There are many tests to choose from, however, and evidence suggests that not all tests tap the same underlying construct. The aims of this article are twofold. It will first present a brief summary of the types of reading comprehension assessments that are available. Using the *Simple View of Reading* as a framework, this article will then provide insight into the implications these different types of reading assessments may have for diagnostic purposes.

The important role of speech pathologists in the assessment and treatment of individuals/children with reading disabilities has gained increasing acceptance (e.g., Serry, Rose, & Liamputtong, 2008), as it is now widely recognised that weaknesses in spoken language skills underlie most reading difficulties (Kamhi & Catts, 2005, p.1). Therefore, to obtain a complete picture of children's language abilities during the school years, international best practice indicates assessment should not only occur across the domains of morphosyntax, semantics and phonology, but should also include both spoken and written modalities (Gillon, Moriarty, & Schwarz, 2006). Although most speech pathologists are expected to feel confident about the types of assessments that are needed to assess a child's spoken language skills, choosing the appropriate reading comprehension assessment tool may be less straightforward.

The Simple View of Reading – A reading component model

The Simple View of Reading provides a useful basic model for understanding the skill domains that underlie reading comprehension. It proposes that skilled reading comprehension is the product of two *independent* components, namely word recognition (decoding) and listening (or language) comprehension (Gough & Tunmer, 1986; Hoover & Gough, 1990). Difficulties in word recognition may be reflected in measures of phonological awareness (which assess underlying skills), as well as word

or non-word reading accuracy and efficiency. In contrast, difficulties in listening comprehension are reflected in a range of oral language areas including measures of vocabulary, verbal memory, and language processing. The independent contributions of word recognition and listening comprehension to reading comprehension change during the course of reading development. In the early stages, word recognition and listening comprehension are unrelated, and although both skills are associated with reading comprehension, word recognition shows the strongest correlation (Catts, Hogan, & Adlof, 2005). Consistent with a limited capacity working memory processing model (see Baddeley, 2003), it seems likely that the slow and/or inaccurate word recognition shown by beginning readers utilises much of the available processing resources with little remaining for text comprehension. In later stages of reading development this pattern changes. The strength of the relationship between word recognition and listening comprehension increases and by eighth grade listening comprehension is the dominant factor contributing to reading comprehension (Catts et al., 2005).

Based on the Simple View of Reading, three main subgroups of children with reading comprehension difficulties can be identified:

- children who have difficulties in word recognition alone (often referred to as dyslexic or specific poor decoders; see Catts, Adlof, & Weismer, 2006),
- children who have difficulties in listening comprehension but not in word recognition (referred to as having a specific comprehension deficit), and
- children who have deficits in both word recognition and listening comprehension (referred to as demonstrating a mixed reading disability).

Differentiating between these different subgroups of poor readers and their associated patterns of weaknesses is critical in determining appropriate targets of intervention (Catts, Hogan, & Fey, 2003, see also Roberts & Scott, 2006).

Reading comprehension assessments

Although the main aim of standardised reading comprehension assessments is to determine a child's level of functioning, it is important to understand that different tests may tap into different underlying components or skill areas (Cutting & Scarborough, 2006; Nation & Snowling, 1997). More importantly, depending on the type of assessment that is used and whether a child demonstrates strengths and

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Marleen Westerveld

weaknesses in word recognition and/or listening comprehension skills, a reading comprehension deficit may go unnoticed (Bowyer-Crane & Snowling, 2005).

To assess reading comprehension, most tests require children to read sentences or passages, either silently or out loud. Children's comprehension of this written material is then tested by: 1) asking open-ended questions (with or without the text to refer back to), 2) asking multiple choice questions, or 3) using a cloze type procedure in which the children are asked to fill in the missing (key) words. Some frequently used reading comprehension assessments in Australia are listed in table 1. The main issues that need to be taken into consideration when choosing a specific test for reading comprehension include:

- test format – the way in which the test measures reading comprehension;
- passage dependency – do you need to read the passage to be able to answer the questions?;
- a child's test taking strategies – e.g., attention to detail, persistence.

These factors will be discussed in more detail below.

Test format

The most commonly used test formats to measure reading comprehension ability are cloze tests and question-and-answer tests. An example of a test utilising a cloze task is the Passage Comprehension subtest from the *Woodcock Reading Mastery Tests – Revised* (WRMT-R; Woodcock, 1998), in which the child is required to silently read one or two sentences (the first 30 items), or a short passage (the remaining 38 items), and identify a missing key word. In contrast, the comprehension score derived from the *Gray Oral Reading Tests – 4th edition* (GORT-4; Wiederholt & Bryant, 2001) is based on the child's ability to answer multiple choice questions which are read out by the examiner, after the child has read aloud a short passage and the text is removed. Other examples of question-and-answer tests are the *Wechsler Individual Achievement Test – 2nd edition* (WIAT-II; Wechsler, 2001) and the *Neale Analysis of Reading Ability – 3rd edition* (NARA; Neale, 1999). In both the WIAT and the NARA, children read out loud and are asked open-ended questions by the examiner while the text stays in view.

Nation and Snowling (1997) investigated whether an older British version of the NARA (Neale, 1988) and the *Suffolk*

Reading Scale (Hagley, 1987, cited in Nation & Snowling, 1997) tap different underlying skills. The Suffolk Reading Scale is a group-administered reading test, which uses a multiple choice sentence-completion (cloze) format (much like the WRMT-R), although there is a test time-limit of 20 minutes and the children are encouraged to spend the maximum time allowed. A total of 184 children, attending year 3 and year 4 of primary school, participated in the study. The results from Nation and Snowling's study showed that the reading comprehension measure derived from the NARA was dependent on both word recognition and listening comprehension ability. In contrast, performance on the Suffolk Reading Scale was mostly dependent on word recognition ability as measured by single word reading. In practice this means that children who fit a specific comprehension deficit profile (i.e., reading comprehension difficulties as a result of listening comprehension deficits) may show adequate reading comprehension performance on tests using cloze formats, for example the WRMT-R or the Suffolk Reading Scale, but impaired performance on the NARA. Based on these results Nation and Snowling recommend the use of either the NARA or an individually administered test of listening comprehension to ensure adequate detection of specific comprehension deficits in children with reading difficulties.

A more recent study into the NARA's ability to differentiate between reading accuracy and reading comprehension problems, however, found that children with poor word recognition skills may be incorrectly identified as demonstrating a reading comprehension deficit (Spooner, Baddeley, & Gathercole, 2004). Because of the nature of the NARA, in which testing is discontinued once a child exceeds the number of permitted decoding errors on a passage, the correlation between reading accuracy and reading comprehension scores is inherently high for children with word recognition difficulties. In a response to this study Cain and Oakhill (2006) argued that the NARA is an effective tool in identifying children with specific comprehension deficits when used in conjunction with independent measures of listening comprehension skill and decoding ability.

Keenan, Betjemann, and Olson (2008) attempted to confirm previous research regarding reading comprehension tests' dependence on word recognition and listening comprehension skills. They also investigated if the

Table 1. Examples of frequently used reading comprehension assessments

Reading comprehension assessment	Test procedure	Format
NARA: <i>Neale Analysis of Reading Ability – 3rd ed.</i> (Neale, 1999)	Student reads passages out loud. Decoding mistakes are corrected by examiner. Testing is discontinued if the student makes more than 12 decoding mistakes in one passage. Open ended questions about the passage are asked immediately afterwards. The text stays in view.	The examiner asks open-ended questions
GORT-4: <i>Gray Oral Reading Tests – 4th Ed.</i> (Wiederholt & Bryant, 2001)	Student reads narrative or expository passages out loud, as quickly as possible. Examiner asks 5 multiple choice questions immediately following the reading. Text is removed from view. Testing is discontinued when students answers 3 out of the 5 questions incorrectly.	The examiner asks multiple choice questions
TORCH: <i>Test of Reading Comprehension</i> (Mossenson et al., 1987)	Student reads silently. There are 12 reading passages. Student reads a passage and then uses a cloze answer sheet to retell the passage, filling in the gaps in his/her own words to demonstrate understanding.	Untimed. Modified cloze procedure; cloze style pencil and paper test
WRMT-R: <i>Woodcock Reading Mastery Test – Revised: Passage Comprehension</i> (Woodcock, 1998)	The student is required to silently read one or two sentences (the first 30 items), or a short passage (the remaining 38 items), and identify a missing key word.	Cloze procedure

developmental stage the child is at might influence the child's test performance. Four different reading comprehension tests were administered to a sample of 510 children, ranging in age from 8 to 18 years. The tests were:

- GORT-3 (see table 1);
- *Qualitative Reading Inventory – 3* (Leslie & Caldwell, 2001), in which the students read long passages out loud; it involves two assessments of comprehension: open-ended short-answer questions and retelling of one of the passages;
- *Peabody Individual Achievement Test* (Dunn & Markwardt, 1970, cited in Keenan et al., 2008); the student silently reads single sentences and short passages and indicates comprehension by selecting from four pictures the one that best fits the meaning of the sentence/passage just read;
- WRMT-R Passage Comprehension subtest (see table 1).

In addition, children's listening comprehension (at passage level) and word recognition skills were assessed. Consistent with previous studies, it was found that tests using a cloze format were more heavily dependent on word recognition skill. More particularly, tests using very short passages (one to two sentences) were the most sensitive to word recognition ability. Keenan et al. (2008) reasoned that the longer the passages are, the more chance the child has to use the context (and thus demonstrate his listening comprehension skills) to understand the passage, even if he has trouble decoding one or two specific words. In contrast, in very short passages, a child may fail to understand the meaning of the material when unable to decode one or two keywords. Unfortunately, these researchers did not investigate whether oral or silent reading of the text influenced task performance. It can be argued that reading out loud may distract some children from attending to the meaning of the text. Further research is required to test this hypothesis.

When examining developmental differences (as a function of chronological age and of reading age) in test performance, Keenan et al. (2008) found that, consistent with the simple view of reading, word recognition skills accounted for more variance in reading comprehension in the younger age group (mean age 9;1 years) than in the older age group (mean age 13;1). In addition, the findings demonstrated that tests using cloze formats were more dependent on word recognition ability in young children or in children with reading difficulties than those tests using longer passages and question and answer formats.

Passage dependency and previous world knowledge

Question-and-answer tests can be divided into multiple choice tasks and open-ended-question tasks. For example, the GORT-4 uses multiple choice questions following the reading of a passage, whereas the NARA requires the child to answer a set of open-ended questions about a passage, immediately after the child has read the passage out loud. Keenan and Betjemann (2006) conducted a study to investigate if the multiple choice format that is used by the GORT-4 would be passage dependent. Passage dependent (PD) questions can only be answered correctly by using information from the passage, whereas passage independent (PI) questions can also be answered without reading the text. A total of 77 undergraduate students in Education participated in a passageless administration of the GORT-4. This procedure involved asking the students the comprehension questions without exposing them to the

corresponding passage. The results indicated that 86% of the questions used in the GORT-4 were answered correctly more than 25% of the time (i.e., above chance level). No significant correlations were found between performance on the PI items and other spoken language comprehension test measures, and performance on the PI items was not sensitive to reading disability (as identified by word recognition difficulties). Keenan and Betjemann (2006) concluded that performance on the reading comprehension measure of the GORT-4 yields information about the child's previous general world knowledge, rather than the child's ability to derive meaning from a written text.

Box 1. The simple view of reading

Reading comprehension = Word recognition X Listening comprehension

Source: Gough & Tunmer, 1986

The contribution of pre-existing content-relevant knowledge was highlighted in a study investigating the comprehension and memory for spoken and written texts of 181 adults, aged between 18 and 86 years (Hambrick & Engle, 2002). Hambrick and Engle found that the participants' knowledge of the game of baseball significantly facilitated their performance on questions (tapping their memory of the game details) following exposure to a tape-recorded narration of a baseball match. Participants who were familiar with the game of baseball were better able to answer questions related to the progress of the game as well as more specific questions related to the performance of the batsmen.

Test taking strategies

To determine if children's test taking strategies would influence their performance on a reading comprehension test, Bornholt (2002) administered the *Test of Reading Comprehension* (TORCH; Mossenson, Hill, & Masters, 1987) to 30 children (aged 9 and 10) attending year 4 of their local primary school. The TORCH uses a story booklet and an answer booklet and children have to fill in blanks left in a passage. In addition, children's test-taking strategies were observed, including procedural initiative, task involvement and item responses (e.g., number of questions attempted). Following the pre-test, all children participated in two 1-hour class discussions about test-taking strategies and were reassessed in week 4. Results indicated that most improvement in reading test scores was observed for children with initially poor test-taking strategies. Post-intervention these children showed higher test completion rates, and were more likely to attempt various items rather than persisting with the items in a set order. Increased awareness of this possibility in clinical practice may thus help improve the accuracy of diagnosis.

Summary

This paper has discussed issues that may influence children's performance on tests of reading comprehension. Research clearly indicates that the choice of reading comprehension assessment in clinical and research practice is critical as some tests may incorrectly identify children as demonstrating good or poor reading comprehension skills (Cutting & Scarborough, 2006; Keenan et al., 2008). The test format plays an important role. To ensure adequate detection of a child's strengths and weaknesses in word recognition

and listening comprehension (see Box 1), the following routine may be recommended in clinical practice:

- administer separate assessments to determine a child's skills in word recognition and listening comprehension; and
- administer a reading comprehension test that requires the child to read passages and answer open-ended questions following the reading.

Other issues that need to be taken into consideration involve a child's general world knowledge as well as his test-taking strategies.

Further research is clearly required to determine the passage dependency of the NARA. In addition, it seems likely that comprehension of some of the passages in the NARA will rely on previous experience (or world knowledge). For example, the passage about scuba diving will be much harder to understand for children who have never heard of this activity. Finally, some children may do better reading aloud and some may prefer to read silently. At this stage it is not clear how a child's preference may affect their test performance.

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Marleen Westerveld is a senior lecturer at Massey University in Auckland and a senior research fellow at Canterbury University in Christchurch, New Zealand. She has been a practising paediatric speech-language therapist for more than 20 years and has extensive experience in working with children with language and/or literacy difficulties. Marleen's clinical and research interests include spontaneous language sampling, narrative language development and reading disorders. Marleen and her family live in Brisbane, Qld.

Correspondence to:

Dr Marleen Westerveld

School of Education

Speech and Language Therapy programme

Private Bag 102 904

NSMC, Auckland 0745, New Zealand

email: m.westerveld@massey.ac.nz ; m.westerveld@gmail.com



Dyslexia in secondary school students

Evidence from the literature

Julie Marinac

Dyslexia, as a reading disability, has been widely studied with consistent evidence being reported regarding underlying deficits, aetiology, and effects. Almost all of this research has focused on the primary school sector where students are still developing literacy skills. Very little research is available to guide those who work with students who have similar deficits in secondary school. This can lead to a situation in which data taken from the developmental population are applied to students who are expected to have mature rather than emerging literacy skills. This report provides an overview of different types of dyslexia and summarises the research relating to dyslexia in secondary school students. It proposes that secondary school and adult populations present with phonological processing (PP) based dyslexia rather than developmental reading impairments, and presents clinical implications for speech pathologists and teachers.

Defining dyslexia

Dyslexia is defined as a “complex, biologically rooted behavioural condition resulting from an impairment of reading-related processes and manifested in difficulties related to the mastery of reading up to the level of population norms under the conditions of adequate education and a normal developmental environment” (Grigorenko 2001, p. 94). It is a complex disorder, found in children, adolescents and adults, demonstrated by unexpected difficulty in learning to read that is not attributable to general cognitive delay, psychiatric or neurologic disorders, sensory impairment or inadequate instruction (World Federation of Neurology, 1968). Current practices may lead to the use of alternative terminology or a complete avoidance of such “labelling”. For example, reading difficulties or impairment may be used, as the term dyslexia “has often been avoided in educational practice because of its predominant emphasis on within-child causative factors and its perceived effects on social policy” (Reason, Frederickson, Heffernan, Martin, & Woods, 1999, p. 16). From the evidence in the literature, it would

appear that this inexplicable and unexpected failure to achieve age-appropriate literacy skills has not changed over time in nature, occurrence or presentation. What appears to have changed is the social acceptability of the terminology used to describe literacy learning failures, and our understanding of this phenomenon.

There is general consensus that dyslexia is a complex syndrome that moves beyond the traditional “reading” to “reading-related processes” (i.e., beyond “reading” to include spelling, and written language), and changes in presentation with age and learning experiences (e.g., Benson, 1994; Blachman, 1997; Grigorenko, Wood, Meyer, & Pauls, 2000; Oakhill & Beard, 1999; Richardson & Weydell, 2003). A further complication to the terminology and definitional debate has been introduced in the 2000 revision of the Diagnostic and Statistical Handbook of Mental Disorders (DSM-IV American Psychiatric Association). This reference text, which provides definitive clinical diagnostic guidance for medical professionals, no longer includes “dyslexia” per se but rather describes two learning disorders that correlate with dyslexia – Reading Disorder (RD, 315.00) and Disorder of Written Expression (DWE, 315.2) (DSM-IV TR, 2000). Under this system, students who experience difficulty in both reading and spelling could be diagnosed as having either co-morbid or sequential disorders. For example, those who have difficulty acquiring age appropriate reading skills before demonstrating delays in written language and/or spelling would be diagnosed as having RD. If the student then demonstrates functional reading abilities but still experiences difficulties in producing age appropriate written work, the diagnosis would become DWE (e.g., sequential disorders).

Diagnostic subtypes of dyslexia

Notwithstanding these terminological issues, those who work in the field rely on diagnostic subtypes of dyslexia to guide assessment and intervention (Morris et al., 1998). At least three primary subtypes have been reported: 1) “visual” or “visual-perception” (Warnke, 1999), 2) “surface” dyslexia (Castles & Coltheart, 1993), and 3) “deep” or “phonological” dyslexia (Stanovich, Siegel, & Gottardo, 1997).

Visual dyslexia

The first category involves the letter reversals that suggest the classic dyslexia of “strophosymbolia” (Orton, 1995). Anecdotal evidence regarding the success of therapy (e.g., the introduction of “coloured glasses”, etc.) has been reported, but Evans (1998) suggests that such visual confusion, in isolation, should not even be defined as

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Julie Marinac

dyslexia. Whether identified as a form of “dyslexia” or a visual perceptual deficit, this disorder can be attributed to the visual system, and comprises only a “small (5–10%)” proportion of the dyslexic population (Warnke, 1999, p. 6).

Surface dyslexia

In contrast to visual dyslexia, surface and deep dyslexia are reported to belong to the language centres of the cognitive system and may thus fall into the assessment and remediation domain of speech pathologists. Castles and Coltheart (1993) describe surface dyslexia as difficulties in the use of correct orthography that primarily affect the reading of words that are “irregular” and typically learnt as “sight” words because direct sound-letter correlations do not apply. Surface dyslexia, therefore, does not usually affect the ability to sound words out or to decipher regular yet unfamiliar words (Castles & Coltheart, 1993). As in visual dyslexia, this subtype is believed to affect only a small proportion of those who have RD or DWE. Furthermore, Stanovich and colleagues (1997) suggest that this form is weak and unstable and that it may, in fact, only represent a developmental delay in this particular skill.

Phonological dyslexia

Marshall and Newcombe (1966) described “deep” dyslexia as a condition in which reading unfamiliar and non-words is more difficult than reading familiar and irregular words. In more recent work, the term “phonological” frequently replaces “deep” to more specifically describe the underlying skill deficit (e.g., Allor, Fuchs & Mathes, 2001; Bishop & Snowling, 2004; Grigorenko, 2001; Milne, Nicholson, & Corballis, 2003). Furthermore, phonological dyslexia is frequently extended to become “developmental phonological dyslexia” (DPD) to reflect the expectation that the dyslexia will become apparent during the developmental period of literacy learning. For those who work with secondary school students, adolescents and adults who have dyslexia, the term “developmental” may not be applicable as that population is assumed to be beyond the literacy learning stage. As a result, an additional subtype of phonological dyslexia may be required for that population.

Within any definition of phonological dyslexia, the initial term primarily refers to phonological awareness as a precursor and literacy skill. This is the conscious awareness of sounds that allows them to be isolated, identified, manipulated and blended within words (Gillon, 2004). Such deficits in young children have repeatedly been identified as having a close correlation with future reading abilities (Kamhi, Catts, Mauer, Apel, & Gentry, 1988; Wagner, Torgesen, & Rashotte, 2003). Phonological awareness deficits have also been identified in compensating adults (i.e., reliance on sight word reading) (Bruck, 1993; Felton, Naylor & Wood, 1990; Lyon, 1995). Furthermore, phonological awareness skills have core features (e.g., the inability to work at sound level) that may be reflected in very poor reading abilities in young children and then be more influential in spelling in adolescents and adults due to compensatory strategies (Grigorenko, 2001). At present, the literature quite clearly reports that DPD is driven by deficits in phonological awareness and is often diagnosed when reading impairments are apparent in primary school-aged children. Beyond that age, there does not appear to be a consistently applied term for the type of phonological dyslexia demonstrated. One possibility is the use of phonological core dyslexia (PCD) as opposed to, or sequential to, DPD to

describe a condition that has its beginning in phonological awareness deficits, but that may have a variable presentation as students acquire compensatory skills. Although many primary school-aged children are now diagnosed and treated for phonological awareness deficits, a significant number of compensating students may enter secondary school with unidentified, unremediated phonological awareness deficits. These students may be described as having PCD.

Phonological core dyslexia

The use of the term “core” in this diagnostic marker reflects the findings of Grigorenko (2001) that although dyslexia is first reliably diagnosed in primary school, the

pressure imposed by an industrialised society on a child with Developmental Dyslexia to master reading is of remarkable magnitude; this pressure often changes the phenotype so that, while an individual may still have difficulties with reading, core features of the deficit change over time. (p. 92)

A number of authors have postulated the concept of a subtype of dyslexia having as its core problem a deficit in phonological skills with an ensuing range of written language problems (Morris et al., 1998; Snowling, 2000; Stanovich & Siegel, 1994). This appears particularly applicable to secondary school students and adults as it reflects the essential nature of their difficulties. Furthermore, it recognises that dyslexia may not have the same characteristics in students who have moved beyond the developmental stages of both spoken and written language acquisition. In addition to these changes in presentation (i.e., due to the acquisition of compensatory strategies in the presence of at least a degree of phonological awareness skills), the situation is reported to be further complicated by delays in diagnosis (and intervention), as well as secondary motivation and self-esteem issues.

Secondary school students with dyslexia – factors influencing diagnosis, assessment and intervention

Development of compensatory strategies

Over time, students may develop compensatory strategies and functional literacy, with underlying PCD not being recognised until the capacity to compensate is exceeded by changes in learning paradigms, decreased motivation, and expectations of greater proficiency. This may lead to the “compensated adolescents and adults” that are reported in the dyslexia literature (Birch & Chase, 2004; Wilson & Lesaux, 2001). These compensatory strategies can be self-taught or acquired from explicit instruction or direction. Students may become totally reliant on sight word reading, may use avoidance strategies or demonstrate selective reading when the complexity of preferred reading materials is determined by reading abilities. Examples of this from clinical evidence may be the student who found “Harry Potter too boring to read” (yet loved the movies); the student who always “did the artwork” on a project (regardless of his lack of artistic talent); or the student who did all her reading aloud homework to her three-year-old brother. Even though the use of such strategies may allow students to demonstrate basic literacy skills, there is a body of literature suggesting that the phonologically based deficits will influence the degree of print literacy achieved (e.g., Hatcher, Snowling, & Griffiths, 2002; Paulesu et al., 2001). The implications arising

from the persistence of such deficits, even in those students who have developed compensated reading skills, have not yet been extensively researched. Evidence to date suggests that early reading difficulties, with reliance on sight word reading alone, may have flow-on effects on fluency and rate of reading, vocabulary development and spelling abilities (Felton et al., 1990). Therefore, some students may present with “age appropriate” literacy skills if untimed reading comprehension is the single standard assessment, and if word fluency, spelling, and so on are not considered. If asked “Can you read?”, most of our secondary school students who have PCD answer “Yes”; if asked, “Can you read the way you want to?”, the answer is usually negative.

Matthew Effects

An additional complicating issue affecting secondary school students with dyslexia is the “Matthew Effect” (Stanovich, 2000). This occurs when students who have early reading impairments read less frequently and select less complex reading materials. These texts may have simple, familiar vocabulary and syntactic structures. In addition, the content may be “too young”, thus weakening the incentive to read. The result can be a reduction in both the quantity and quality of the student’s exposure to age-appropriate print literature. The student’s experience with age-appropriate literacy, vocabulary and syntactic structures may then fail to keep pace with peers who experience a rich world of complex and varied writing styles, concepts and ideas. The net hypothesised result of the Matthew Effect is a widening gap between the reading-related skills of students with reading difficulties and their more literate peers. Although a recent study has failed to provide evidence of the Matthew Effect (Catts, Bridges, & Little, 2008), further research investigating spelling, grammatical constructs and vocabulary (among a range of other spoken language skills), as well as reading comprehension, rate, and fluency, may help determine the extent to which both the gap and effect exist, and the type of students who may be affected. The Matthew Effect may explain the deficits found in the secondary school students who attend a speech pathology clinic supervised by the author. These deficits include the use of a restricted, immature vocabulary and syntax; poor planning and organisation of written work; poor use of punctuation (reflecting word-by-word reading); spoken language skills not replicated in written work; and extremely poor spelling, especially for unfamiliar and low frequency words. These clinical observations reflect the findings of “hidden language impairments” in children with reading disability reported by Nation, Clarke, Marshall and Durand (2004).

Very slow reading rate

Shaywitz and colleagues (1999) described the effects of approaching adolescence with accurate reading but a very slow reading rate and with major deficits in the ability to spell. In their longitudinal study of students with dyslexia, the authors warned that older students who demonstrate adequate but slow word reading accuracy may no longer be recognised as having dyslexia. In this situation resources may be withdrawn even though the condition remains, albeit with an altered presentation. In addition, Shaywitz et al. suggested that the diagnosis of dyslexia in secondary school and college students may be the first step in management, even if the student appears to have similar abilities in reading word recognition as his/her peers. The breakdown may be manifested in a slow reading rate to such an extent that the student requires additional time to decode each word and to

apply strategies to those that cannot be decoded phonologically. Such deficits may not be revealed unless time pressure is factored into the assessments and possible interference of sight word skills has been taken into account.

Wilson and Lesaux (2001) investigated the implications arising from allowing additional time in examinations for students with underlying phonological dyslexia deficits. They reported that the examination time may be “better determined on the individual’s phonological processing speed and in relation to the demands of the reading and writing task” (p. 400) than at a predetermined level. This study also found that allowing such additional time did not provide the students with an unfair advantage over their unaffected peers who undertook the examinations under the usual conditions. Research to date thus suggests that, although secondary school students with phonological core dyslexia will be able to read, they may be reliant on slower, less fluent systems and self-developed compensatory strategies to demonstrate academic competence. The reality of this situation may not become evident until isolated investigation of reading abilities is seen as an inappropriate measure of dyslexia, and assessments include skills such as phonological awareness, spelling, syntax, written language, and vocabulary.

Conclusion

Evidence suggests that DPD persists as students mature, but that it changes in presentation and should be definitively described (e.g., as PCD). This diagnosis implies that the deficits are no longer developmental but have a phonological core that is revealed by difficulties in reading accuracy and fluency, spelling, syntax, genre specific writing, and in independent task completion; the components of a Disorder of Written Expression (DWE) as per the DSM-IV TR. What PCD suggests, in addition to DWE, is that the disorder arises from a specific area of deficit. At present, sufficient research has not been undertaken in the secondary school population to determine if PCD and DWE are the same disorder. It may be that PCD is a subtype of DWE, just as DPD is a subtype of RD as per the DSM-IV TR. This is certainly suggested by the experiences of students who report adequate reading skills due to intense instruction and the use of compensatory techniques, but who demonstrate unexpected written language deficits at secondary school.

In addition, present research supports the concept that secondary school students who have PCD will continue to experience difficulties in the academic, behavioural, and social domains. There is still a paucity of definitive findings in the literature and this, along with the requirements of evidence based practice, defines the urgent need for research in this area. Until that information is available, clinicians who work with secondary school students should continue to raise the awareness of PCD among educational staff ensuring that students are not disadvantaged because they “can read”. As a group, we can also advocate for the retention throughout secondary school education of the learning support / speech pathology resources and services that are presently provided in primary schools.

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Julie Marinac is a lecturer in speech pathology at the School of Health and Rehabilitation Sciences, The University of Queensland, and her primary research interest lies in literacy learning failure across the life-span. For the past five years, Julie has worked with several Queensland high schools to raise awareness of this issue in that sector. Julie also leads the research section of the newly created Literacy for Life Unit at UQ where the team develop, publish and research the ELF, PAL, PATHS and APPEAL programs (among others). Her ongoing interest in this area may be due to her enviable position as the only one of four siblings in her family not affected by phonological awareness disorder!

Correspondence to:
Dr Julie Marinac
 School of Health and Rehabilitation Sciences
 The University of Queensland
 Ph: 07 3365 6161
 email: j.marinac@uq.edu.au



Ethical reflections

Readability of written speech pathology reports

Suze Leitão, Nerina Scarinci and Cheryl Koenig

Peter had been struggling at school since year 1. He was now in year 3 and his teacher suggested he be assessed by a speech pathologist as he was still not reading fluently. Peter's dad was keen for him to be assessed – he himself had left school early with limited education and did not want the same for his son. Peter's mum felt that he would grow out of it, as his older sister had “got the hang of reading in the end”, but she agreed to the testing.

The assessment was carried out by a speech pathologist employed by the school and the report arrived by post. It included the following:

A series of non-words were presented to Peter to assess his ability to apply letter-sound correspondence rules in reading. He scored 0/5 on this task. Peter used a top down approach when attempting these words, and tended to guess them as real words according to the first one or two phonemes.

On the phonemic decoding efficiency subtest from the Test of Word Reading Efficiency Peter's standard score was 60.

Working memory and semantic knowledge were tested using the Word Classes subtest from the CELF-4 which evaluates the ability to perceive the associative relationships between word concepts. Peter obtained a standard score of 6.

In summary, Peter has weak reading skills with a profile concomitant with a diagnosis of dyslexia. He will require support.

training, academics focus their teaching on the difference between objective, factual observations (e.g., the child cried during the session) and subjective interpretations (e.g., the child was tired and unhappy today). We may argue that both of these observations are “true” but we must be clear about the difference.

While many of the tests we use in clinical practice allow us to gather numerical “objective” data, the interpretation of these data and the language we use to report our findings will be influenced by our own therapeutic philosophies and theoretical constructs. The choice of test itself may even be influenced by a service provider's policy about eligibility for services. When we come to gathering informal assessment data, it is even more important to understand how the underlying framework we draw on (consciously or unconsciously) dictates not only what we observe, but also how we interpret and understand our observations, i.e., our version of “the truth”.

Our Code of Ethics also talks about *beneficence* – seeking to benefit our clients and not knowingly causing harm. This balance can sometimes be hard to achieve. An example would be the tension we may feel when wishing to advocate for services for a client, but at the same time meeting our professional responsibility to accurately report the client's assessment results. How do we deal with the desire to have a child accepted into a service if their data don't exactly fit the eligibility criteria – do we downplay aspects of it, emphasise others? And if we do so, is this being truthful? Another situation may be when reporting information that we feel may be unexpected or distressing to a family – how do we strike a balance between accuracy/truth and beneficence/non-maleficence? How do we “word” a document such that the truth is told, but in the most sensitive way possible? The importance of showing sensitivity to parents' and carers' feelings and concerns must be acknowledged by speech pathologists. Research suggests that parents value reports which document both their child's strengths as well as weaknesses in order to portray a complete picture of their child (Donaldson, McDermott, Hollands, Copely & Davidson, 2004). Perhaps inclusion of such information may help speech pathologists to meet the ethical principle of beneficence.

In terms of competencies, CBOS element 2.5 is the most relevant to reporting: “Provides feedback on results of interpreted speech pathology assessments to the client and/or significant others, and referral sources, and discusses management.” This involves us determining the following:

- Who is to receive the feedback/report?
- How will we consult with the client and/or significant others, and/or the referral source about the content of the report?
- How is the report to be provided (oral and/or written)?

In this column of “Ethical reflections” we have chosen to focus on the topic of report writing. Why should we need to draw on our professional Code of Ethics (2000) when we have to write a client report? We know that the Competency Based Occupational Standards (CBOS, 2001) require us to record information objectively, effectively, accurately and in accordance with the requirements as stipulated by our workplace. We also know that on request, our documentation must be supplied for legal purposes. And, when we think about ethics and clinical reporting, it is clear we must adhere to confidentiality guidelines and obtain consent for distribution of information about a client. But what about ethical principles such as truth, fairness, autonomy and beneficence?

Let us start with *truth* (we tell the truth) and *fairness* (we provide accurate information, strive for equal access to services and deal fairly with all our clients). When working with speech pathology students in the early stages of their

- How will we modify the language within our report to meet the needs of our client (and other readers)?

Reports often form the primary source of communication between speech pathologists and clients – they provide one way of facilitating communication and including the parent/carer in the assessment and intervention process. What happens however if the report cannot be understood? Are speech pathologists meeting their ethical obligations if reports are not accessible to the reader? Unfortunately it is common practice to see phrases such as the ones below included in paediatric speech pathology assessment reports:

On the phonemic decoding efficiency subtest from the Test of Word Reading Efficiency Stephen's standard score was 60.

The phonological processes: stopping, assimilation, final consonant deletion, and context-sensitive voicing indicate a phonological delay. The processes of initial consonant deletion, medial consonant deletion, and consonant cluster simplification are deviant processes.

Aidan achieved a standard score of 4 on the Formulating Sentences subtest. He was unable to use coordinating conjunctions and did not consistently use conjunctive adverbs in his discourse.

For practising speech pathologists, such terminology may be easy to understand; however for the parents and carers of our clients who come from varied educational backgrounds and occupations, these types of phrases are extremely difficult, if not impossible to understand. Research suggests that when parents are confronted with such terminology, they either completely disregard that section of the report, or attempt to guess the meaning of the unfamiliar terms (Donaldson et al., 2004).

So how do you make a report “readable” for our clients? Perhaps the best way to address this is to use a working example. Consider: “Sarah’s phonological awareness, assessed by the SPAT, demonstrated her difficulties with phonemic segmentation, especially clusters, identification of coda, and phoneme deletion.” This sentence is not accessible to Sarah’s parents because professional jargon and acronyms have been used. A more accessible version of this report could read:

Phonological awareness refers to the ability to rhyme, break words into parts and blend sounds in words – these skills are important when learning to read and spell. Sarah's phonological awareness was tested using the Sutherland Phonological Awareness Test. This test is commonly used to assess children's reading skills. Results of this test showed Sarah is able to identify the sounds at the beginning of words (e.g., what is the first sound in “bike”?). However, she had difficulties identifying sounds in longer words when there were two sounds together, such as “dr” (e.g., tell me the sounds in “dream”) and in identifying the final sounds in words (e.g., what is the last sound in “knife”?). Sarah also had difficulty removing one of the sounds from a word and then saying the word that remained (e.g., say “farm” without the “f”).

In order to foster respectful and effective relationships between families and clinicians, speech pathology reports must be accessible. Research into professional reports consistently indicates that the usefulness of reports to

consumers is limited. Studies suggest that reports are often poorly written, poorly organised and easily misunderstood (Cranwell & Miller, 1987; Donaldson et al., 2004; Flynn & Parsons, 1994). Reports from speech pathologists tend to be ambiguous, contain excessive jargon, and are frequently written at a level that requires high level language skills (Tallent & Reiss, 1959; Weddig, 1984). This results in poor understanding and misinterpretation by parents, which in turn prevents effective communication and excludes the reader from the therapeutic process (Weddig, 1984).

To overcome issues of readability and access, reports should wherever possible not contain jargon, abbreviations or ambiguous language. In addition, reports should use short sentences, and should explain and interpret the assessment results in functional terms (Cranwell & Miller, 1987; Donaldson et al., 2004; Flynn & Parsons, 1994; Grime, 1990). Recommendations should be concrete, and test scores should be clearly interpreted with reference to the referral question.

The ethical principle most relevant to issues of readability and clarity is that of *autonomy*. Speech pathologists must respect clients’ rights to self-determination and autonomy, by providing written material that allows them to make informed decisions and to be active in a meaningful way in the therapeutic process. After all, parents will be central to affecting change in their child’s communication ability, and therefore, as specialists in communication, we have an ethical obligation to ensure that parents have access to the information they require. Parents have a legal right to be properly informed – failure by a clinician to provide information that is understandable to a parent may mean that informed consent has not been obtained.

Consumer response

Surviving the initial stages of shock and often denial following a child’s diagnosis of speech and/or language difficulties is challenging for any parent. Families may be confused and overwhelmed, and these emotions can destroy a family’s confidence and trust in their own judgment.

Compassion and empathy for this upheaval to family life is greatly appreciated by families. Most families respect and understand the need for professionals to adhere to their clinical training, but a “softening” of fixed and scientific views of humans as “statistical” beings is also greatly appreciated by consumers. Of course science has its important role to play, but human development cannot always be accurately determined by science, nor can potential be predicted, or spirit measured.

At times parents may feel bombarded with so much information that any information conveyed, especially verbal, has the potential to be forgotten, mislaid, or not understood. Sometimes parents may be so overwhelmed with the situation they won’t always ask the “right” questions, and communication lines between therapist and parent may become blurred. Clear, concisely written reports are required. Further to this, information regarding services to be provided and fees payable, especially any additional fees for written reports and assessments, must be preferably produced in written format, must be openly discussed and formally agreed to, prior to intervention commencing.

Also worth noting is that when parents and families are meaningfully engaged as part of a “team”, better outcomes will ultimately be achieved! As stated by Dr Lisa V. Rubinstein, president of the US Society of General Internal Medicine, “Sharing in decision-making will help raise the

quality of care given by any clinician, because it will sharpen the focus on the key decision points and help the clinician put a plan in place that the client understands and agrees with" (Chen, 2009).

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Suze Leitão is a senior member of the Speech Pathology Australia Ethics Board. Suze works part-time at Curtin University as a senior lecturer in Human Communication Sciences and part-time in private practice. She teaches the application of the code of ethics within a clinical science framework.

Nerina Scarinci is an elected member of the Speech Pathology Australia Ethics Board. She is a lecturer in the Division of Speech Pathology at the University of Queensland where she teaches ethics in speech pathology and has a research background in report writing practices and third-party disability.

Cheryl Koenig is a consumer and carer representative on seven different government and NGO committees, including the Speech Pathology Australia Ethics Board. She is the author of two publications for NSW Health (2006, 2007) and has recently published her third book, *Paper Cranes* (Exisle, 2008). Cheryl is passionate about improving policy and services for consumers in all areas of health and is inspired by the increasing voice and credibility now being afforded consumers in relation to health issues.

Correspondence to:

Marie Atherton

Senior Advisor Professional Issues

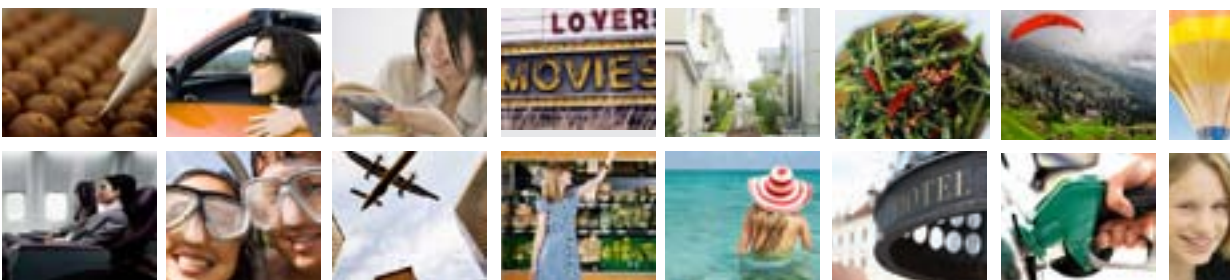
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Mealtime behaviours in people with dementia in the absence of dysphagia

Education of nursing staff in an acute care setting

Crystal Ensell and Natasha Matheson

KEYWORDS
DEMENTIA
DYSPHAGIA
MEALTIME BEHAVIOURS
NURSING EDUCATION

THIS ARTICLE HAS BEEN PEER-REVIEWED



Crystal Ensell (top) and Natasha Matheson

This paper describes a quality improvement project targeting improved mealtime management by ward nursing staff of dementia specific behaviours, with the aim of improving appropriateness of speech pathology referrals. In 2007, the speech pathology department of Royal Perth Hospital received a large number of referrals related to management of mealtime behaviours in people with dementia in the absence of dysphagia. A questionnaire was compiled to assess nursing knowledge of mealtime management in this population, with the subsequent development of an education package to target the gap in knowledge. Post education questionnaires indicated an increase in overall knowledge of dementia-related mealtime behaviours, and improved management of these behaviours has been noted at a nursing level. A reduction in referrals to speech pathology regarding management of mealtime behaviours was noted in 2008, after implementation of the education package. This project highlights the importance of nursing education with the aim of improving service provision.

Dementia refers to a spectrum of brain disorders involving cognitive decline, that vary greatly in terms of cause, progression and prognosis (Agronin, 2004). Villareal and Morris (1999) described dementia as an acquired loss of cognitive function that may affect memory, attention, language, personality and abstract reasoning. They explained that the condition constitutes an emerging public health crisis. In 2006, it was estimated that 210,000 people in Australia suffered from dementia (Alzheimers Association of Australia, 2006), and it is projected that 52,000 people will be newly diagnosed in Australia each year, equating to 1000 per week.

People with dementia frequently present with challenging behaviours at mealtimes, which affect oral intake and compromise nutrition and hydration. Eighty percent of people with dementia have difficulty eating and drinking, particularly in the late stages of the condition, with 50% no longer able to feed themselves (Chang & Lin, 2005).

Berkhout, Cools and Van Houwelingen (1998) reported feeding dependence is strongly correlated with weight loss. Difficulty eating and drinking may stem from a combination of mealtime behaviours, as well as dysphagia. Oral dysphagia is more common than pharyngeal dysphagia in the dementia population (Feinberg, Ekberg, Segall & Tully, 1992), but both are observed. There is little research on swallowing impairment in different types of dementia (Kindell 2002). Both cognitive features (such as memory disturbance) and non-cognitive features (such as aggression) impact on eating skills.

It is essential to differentiate between dysphagia and mealtime behaviours related to dementia. Dysphagia is defined as disordered swallowing (Brockett, 2006), due to weakness or incoordination affecting oro-pharyngeal biomechanics (Hammond & Goldstein, 2006). Mealtime behaviours, however, are atypical behaviours exhibited during oral intake related to the dementia process, and have a negative impact on nutrition, hydration and weight maintenance (Beattie, Algase & Song, 2004; Kindell, 2002). People with dementia can have both dysphagia and atypical mealtime behaviours, but they are not one and the same. Mealtime behaviours related to dementia often occur in the absence of dysphagia.

Kindell (2002) described multiple mealtime behaviours related to the dementia process including food and drink refusal, spitting out of oral intake, inattention, wandering during meals, inappropriate speed of intake, and eating of non-food items. Often these behaviours are misdiagnosed as dysphagia. Kindell also discussed the importance of evaluating sensory impairments, dentition, mental state and ability. It is vital that staff working closely with people who have dementia identify mealtime challenges and provide holistic management (LeClerc, Wells, Sidani, Dawson & Fay, 2004).

At Royal Perth Hospital Wellington Street Campus (acute care), 34 referrals relating to the management of mealtime behaviours, in the absence of dysphagia, were received from a particular general medicine/geriatric ward in 2007. These referrals had a negative impact on resource allocation and time management of a small speech pathology department. A new approach to dealing with this issue was prompted by a presentation at the 2007 Speech Pathology Australia National Conference by speech pathologists Nailon, Scott and Benjamin (2007). Nailon, Scott and Benjamin completed a study focused on nursing education regarding mealtime management. They compiled a mealtime management

template that outlined behaviours and appropriate management strategies, which was then adapted for individual patients' post speech pathology assessment and kept in the nursing care plan. This idea was expanded upon and modified for an acute care facility. Improved management of mealtime behaviours in the dementia population at the hospital was targeted, with a view to improving quality of care for people with dementia, as well as service provision and allocation of speech pathology resources.

Method

Initially, standard management of dementia mealtime behaviours was identified through a literature review. A pre education questionnaire with general dysphagia and dementia questions was designed (see Table 1), covering the prevalence of mealtime behaviours in the dementia population, management strategies for several dementia behaviours seen frequently in the hospital, and appropriateness of speech pathology referral. The questionnaire was completed by nursing staff on a general medical and geriatric ward, with 100% return rate (37/37). A variety of question formats was used including true/false, multiple choice and one open-ended question.

A nursing education package was then compiled based on management strategies cited in the literature and on the questionnaire results, with the information tailored to suit staff and patients at an acute care facility. The sole focus of the package was management of dementia mealtime behaviours, in the absence of dysphagia. McGillivray and Marland (1999) emphasised the importance of nursing staff education in the area of interpretation and management of challenging feeding behaviours. Multiple studies have concluded that nursing staff are inadequately trained to assist patients and residents during mealtimes, and consequently have difficulty coping appropriately with complex mealtime behaviours (Sidenvall & Ek, 1993; Watson, 1990).

Nursing education was provided in multiple formats to accommodate different learning styles, and included A1-sized reference posters, education sessions and A4-sized summary sheets for nursing care plans (Appendix 1 provides a list of behaviours and strategies covered in the education package). The reference poster gave a brief explanation of dementia and mealtime challenges, and outlined 16 mealtime issues. A variety of practical and relevant management strategies were provided for each of these 16 issues. Referral to other disciplines such as dietetics and occupational therapy were suggested where appropriate.

Education sessions of 45-minutes duration were completed during regular working hours on the pilot ward over a month-long period, with 67% attendance (25/37 nurses). The content of the session included the purpose of the education program, an overview of Australian dementia statistics, feeding behaviours in the dementia population and their prevalence, and management strategies for feeding behaviours relevant to the acute care setting. The same session was presented on four occasions in an attempt to educate nursing staff from a range of shifts. The education session was practical and interactive to encourage participation and learning. Chang and Lin (2005) emphasised the importance of using a practical, hands-on, interactive approach during nursing education, to enhance participation, skill development and consolidation of knowledge. All permanent morning and afternoon nursing staff on the ward attended an education session. A copy of the PowerPoint presentation from the package was made available to night

nursing staff, as they were unable to participate in formal education.

For consolidation of learning, the information presented during the education session correlated with that on the reference poster. As a further point of reference, the information sheet for inclusion in the nursing care plan summarised the 16 behaviours and associated strategies. Only those nursing staff who participated in formal education completed a post education questionnaire to assess improvement in knowledge. All 25 questionnaires were returned.

Results

When examining the results of the pre education questionnaires, it was apparent that nursing staff understood the definition and symptoms of dysphagia, but were not as well informed about mealtime challenges, feeding issues or



Natasha Matheson and Crystal Ensell

associated management strategies for the dementia population. Table 1 provides an overview of the pre and post education questionnaire results. Nursing staff were able to identify when a speech pathology referral was warranted (i.e., coughing or voice changes present during a meal), however could not distinguish when a speech pathology referral was *not* warranted (e.g., 44% of respondents indicated that a referral to the speech pathologist was necessary when a patient's dentures have been left at home).

The education session was tailored to meet this identified knowledge gap. Post education questionnaire results in Table 1 show an improvement in knowledge. A repeated measures t-test was completed to determine progress. Participants who did not complete education, and hence did not complete a post education questionnaire, were removed for the purpose of this statistical data analysis. The mean number of questions correctly answered by participants prior to education was 8/15. This improved to a mean of 13/15 which was found to be statistically significant (using a paired samples t-test: $t(1,24) = 9.35, p < 0.001$).

Thirty-four referrals to speech pathology for management of mealtime behaviours, in the absence of dysphagia were received in 2007 from the ward in question. The education package was implemented in early 2008, following which only six referrals for management of mealtime behaviours alone were received for the remainder of the year. Additionally, spontaneous, subjective reports from the clinical

Table 1. Results of pre and post education questionnaires		
	% correct pre in-service	% correct post in-service
Q: What is dysphagia? A: <i>Difficulty swallowing food, fluid or saliva</i>	87% (32.5/37)	100% (25/25)
Q: What percentage of people with dementia experience feeding difficulties? (multiple choice) A: 80%	13% (5/37)	84% (21/25)
Q: What complications might arise if feeding difficulties are not managed appropriately? (multiple choice) A: <i>Dehydration, weight loss & malnutrition</i>	86% (32/37)	92% (23/25)
Q: Do you need to refer a patient if they eat non-food items? A: <i>No</i>	59% (22/37)	88% (22/25)
Q: Do you need to refer a patient if they cough while eating and drinking? A: <i>Yes</i>	91% (34/37)	92% (23/25)
Q: Do you need to refer a patient if their dentures have been left at home? A: <i>No</i>	56% (21/37)	100% (25/25)
Q: Do you need to refer a patient if they eat /drink very slowly? A: <i>No</i>	40% (15/37)	88% (22/25)
Q: Do you need to refer a patient if they have voice changes during meals? A: <i>Yes</i>	89% (33/37)	100% (25/25)
Q: Do you need to refer a patient if they have been transferred from a nursing home on modified diet and thickened fluids? A: <i>No, unless not managing pre admission diet and fluids</i>	8% (3/37)	100% (25/25)
Q: Encouraging exercise prior to meals can stimulate appetite (T/F) A: <i>True</i>	73% (27/37)	84% (21/25)
Q: Offering fruit juice prior to meals does not stimulate appetite (T/F) A: <i>False</i>	46% (17/37)	80% (20/25)
Q: If a person is spitting out food during meals, offering intake in liquid form can help (T/F) A: <i>True</i>	73% (27/37)	88% (22/25)
Q: If a person has left neglect, you should assist from their right (T/F) A: <i>True</i>	65% (24/37)	96% (24/25)
Q: ALL people without teeth should be offered a minced/moist diet (T/F) A: <i>False</i>	40% (15/37)	60% (15/25)
Q: What percentage of people with dementia are unable to feed themselves? (multiple choice) A: 50%	30% (11/37)	76% (19/25)

Note. Number of correct responses out of the total number of responses are reported in brackets.

nurse manager on the pilot ward indicated that staff were displaying a more positive attitude towards people with dementia since implementation of the education package, however no objective data was attained.

Discussion

The findings from this study correlate to those discussed in previous studies. For example, Nailon, Scott and Benjamin (2007), after implementation of a similar project, found increased knowledge and confidence of nursing staff regarding managing people with dementia during mealtime. Similarly, Chang and Lin (2005) reported improved nursing knowledge and a positive shift in attitude towards people with dementia after introducing a comprehensive feeding skills training program. Improved empathy towards this population post nursing education was a common finding, as discussed by Astrom, Nilsson, Norberg and Winblad (1990), Chang and Lin (2005), and McGillivray and Marland (1999).

After participating in the education package nursing staff appeared to display a more positive attitude toward people with dementia. It is felt this shift in viewpoint is due to a more holistic understanding of dementia and related mealtime issues. Further investigation into the attitude of nursing staff toward people with dementia after implementation of the education package would have been useful and will be considered when education is completed on other wards.

The education package will be implemented on other wards that care for patients with dementia (i.e., geriatric rehabilitation unit, orthopaedic ward and other general medical wards), as the need for education on these wards is becoming apparent. The reduced number of referrals for management of dementia-related mealtime behaviours on the pilot ward has motivated speech pathology staff to discuss the package with nurses on other wards. Nursing staff are keen for such education to take place and have indicated that management of challenging mealtime behaviours is a topic rarely addressed. Sidenvall and Ek (1993) and Watson (1990) reiterate that nursing staff are inadequately trained to assist patients or residents during mealtimes, and support the initiative of nursing education to address this.

Numerous studies consider weight maintenance and nutritional status, and monitor these both before and after nursing education (Beattie, Algase & Song, 2004; Nailon, Scott & Benjamin, 2007). Nutritional status and weight maintenance were not measured in this study, however will be considered for potential projects. In the future, ways to disseminate the education package to speech pathologists in the community will be considered, for implementation in community hospitals, hostels and nursing homes.

Limitations

This study did not control for speech pathology attention, making it difficult to attribute the results to the education package alone. It would be beneficial in future to compare multiple groups – a group that receives education, a group that does not, and a group that receives speech pathology attention (unrelated education) – in attempt to further scrutinise how the education package improves nursing knowledge and referral appropriateness. Chang and Lin (2005) compared a control and treatment group, with nursing staff in the treatment group receiving comprehensive feeding skills training. They found a considerable difference between the groups in knowledge and attitude towards people with dementia, and were able to attribute these results to their program.

Screening patients post implementation of the education package is also planned on future wards, in an attempt to monitor missed referrals to speech pathology for people with dysphagia. It is possible that implementation of the education package could lead to generalised use of the strategies on those that warrant speech pathology assessment. Missed referrals were not considered in this study.

Conclusion

A large proportion of people with dementia present with mealtime behaviours that can be difficult to handle. As these difficulties are a natural progression of this disease they can not be eliminated altogether, but can be managed with strategies in place. This project focused on the development and implementation of an education package for nursing staff targeting this issue, with the aim to reduce referrals to speech pathology for mealtime behaviours, as opposed to dysphagia. A reduction in referrals was noted, and improved nursing knowledge after implementation of the education package was statistically significant.

Nutritional status, positive attitude change towards people with dementia and the potential issue of overgeneralisation of these strategies to people with dysphagia will be considered in the future.

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Crystal Ensell is a speech pathologist at Royal Perth Hospital and manages an acute, adult neurosurgery caseload. She graduated from Curtin University of Technology in 2004 and has been working at Royal Perth Hospital since. **Natasha Matheson** is a speech pathologist at Royal Perth Hospital and manages an acute, adult general medicine caseload. She graduated from Charles Sturt University in 2005 and moved to Perth in 2006.

Correspondence to:

Crystal Ensell and Natasha Matheson
 Speech Pathology Department
 GPO Box X2213 Perth WA 6847
 phone: 08 6477 5212; fax: 08 6477 5127
 email: crystal.ensell@health.wa.gov.au

Appendix 1. Mealtime behaviours and strategies included in the education package

Holding food or drink in the mouth	<ul style="list-style-type: none"> • Provide verbal cues to chew and swallow • Bring an empty spoon to the person's mouth to remind them to swallow the prior mouthful • Trial a range of tastes and temperatures
Spitting out food and fluids	<ul style="list-style-type: none"> • Offer a variety of food and drink • Take note of food and drink that is accepted, and offer readily • Liaise with the dietitian regarding supplements and offer intake in liquid form
Food/drink refusal	<ul style="list-style-type: none"> • Try to stimulate appetite prior to meals by offering fruit juice and encouraging exercise • Use indirect prompts e.g., "that looks nice" • Encourage the person to try the first mouthful to "get a taste" • Offer "grazing" meals or snacks throughout the day • Attempt to offer the person familiar foods e.g., ask family to supply home cooked meals as able • Ensure meal is high in calories/protein and liaise with dietitian • Offer a range of options and cater to preferences • Offer finger foods if appropriate • Reduce distractions

Appendix 1. Mealtime behaviours and strategies included in the education package (continued)

Problems with teeth	<ul style="list-style-type: none"> • If dentures have been left at home/care facility, organise someone to bring dentures to hospital • While waiting for dentures, offer a minced and moist diet • If the person usually eats without dentures, offer their usual diet • Use denture fixative for loose dentures • Oral hygiene after all oral intake
Eating non-food items	<ul style="list-style-type: none"> • Lock away all harmful or inappropriate items • Ensure all involved are aware of the problem
Reduced level of consciousness	<ul style="list-style-type: none"> • Only offer intake when the person is alert enough to swallow and able to maintain for a sufficient amount of time • Use a cold, wet face cloth to fully rouse the person before meals • Sit the person out of bed, or reposition in bed, to help them wake up
Food residue in mouth post meals	<ul style="list-style-type: none"> • Prompt the person to clear residue with finger or tongue • Encourage a drink to aid oral clearance • Massage cheeks to move residue centrally • Mouth care at the end of each meal • Upright positioning post meal for at least 30 minutes
Wandering during meal times	<ul style="list-style-type: none"> • Use gentle physical prompts at the table e.g., put cup/cutlery back into the person's hands • Use simple verbal prompts and show the person their meal to aid understanding • Offer finger foods that can be consumed when "on the move" • Gently guide the person back to the table when they wander, and prompt them to continue their meal • Reduce distractions
Dry mouth	<ul style="list-style-type: none"> • Encourage regular sips of fluid during the day, particularly prior to meals • Swab the person's mouth with grape seed oil before meals • Use an artificial saliva • Offer extra sauce/gravy to moisten meal • Encourage the person to alternate diet and fluids
Eating or drinking too slowly	<ul style="list-style-type: none"> • Serve each course separately to retain warmth and appeal • If only small amounts are taken, liaise with the dietitian to ensure food is high in calories • Offer snacks between meals • Provide full assistance if required
Eating too quickly/taking large mouthfuls	<ul style="list-style-type: none"> • Minimise distractions and attempt to create a calm environment • Serve courses separately • Ensure food is chewed, swallowed and cleared prior to the next mouthful • Provide smaller/modified utensils e.g., teaspoon, spouted cup • Provide verbal and physical prompts to reduce rate of intake
Eating from others' plates	<ul style="list-style-type: none"> • Ensure individual boundaries are clear • Use physical or verbal prompts to help the person identify their food and utensils • Supervise meals
Lack of initiative during meals	<ul style="list-style-type: none"> • Draw the person's attention to their meal • Describe what is on the plate • Place cutlery into the person's hands • Guide them to take the first mouthful • Give verbal and physical prompts to continue their meal • Sit the person with those more able, so they can be prompted by their example
Difficulty with utensils or messy eating	<ul style="list-style-type: none"> • Cut food before serving • Serve one course at a time • Verbally orientate the person to the meal, plate and cutlery • Place cutlery directly into the person's hands • Refer to occupational therapist for modified utensils if required e.g., lipped plate, built-up cutlery, non-slip mat • Consider offering finger foods
Hemianopia/neglect	<ul style="list-style-type: none"> • Place the meal on the person's good side • Assist the person from their good side • Turn the plate during the meal • Provide verbal and physical prompts to attend to the neglected side during the meal
Pre-admission diet and fluids	<ul style="list-style-type: none"> • Refer to nursing home/hostel transfer summary (if available) to determine pre-admission diet and fluids • If transfer summary is unavailable or unclear, contact the nursing home/hostel directly • If diet or fluids are modified, inform catering staff



Clinical insights

Oral Language Basic Concepts Program: An example of collaborative service provision in Victoria

Ed Gillian and Sue Williamson

At the start of 2005, a program to connect oral language to literacy and numeracy was implemented for preparatory students at a primary school in Victoria. This paper starts with an overview of the rationale for this project, followed by a description of the program and a summary of the implementation of this program. Although research into the effectiveness of such a program is urgently needed, the benefits of collaboration between teachers and speech pathologists were evident.



This project was motivated by the desire to improve the literacy and numeracy standards of all preparatory students attending a government primary school in Victoria. This motivation arose from the school's poor performance in these areas in the years 1999 to 2004. The annual school report (a report produced yearly detailing the literacy and numeracy results for each school) for 2004 noted that the school was performing below "like schools" and below the state benchmark in literacy and numeracy data (the targets for reading and mathematics that each school must achieve for each year level) for the preparatory year. In the previous four years, the school had failed to meet the benchmark for the state or "like schools". It is mandated by the Victorian Department of Education and Early Childhood Development (DEECD) that for literacy benchmarking, preparatory students attempt to read a Level 5 text to a teacher by November of the academic year. A Level 5 text is an unfamiliar text for the student which has one to two sentences per page with picture cues. The text has high frequency words in simple sentences, dialogue with quotation marks and questions. For the numeracy benchmarking, DEECD mandates that preparatory and grade 1 students complete a numeracy interview (a criterion referenced tool for screening numeracy) with a teacher to achieve key growth points, or targets, for the numeracy curriculum areas of number, space and measurement.



Ed Gillian
(top) and **Sue Williamson**

Oral Language Basic Concepts Program

School characteristics

The enrolment at this school was 862 at the August census of 2006. The students came from a variety of language backgrounds. A majority (74.1%) of students were from language backgrounds other than English (LBOTE) and in this cohort, 84.4% of the children did not have English spoken in the home. Many students come from a low socioeconomic background. The school was in the "like school" group nine, which is categorised by medium to high LBOTE and medium to high socioeconomic risk factors. "Like school" groupings refer to the Victorian Department of Education and Early Childhood Development's matching of schools according to factors concerning students' background to more effectively compare schools' performance in literacy and numeracy testing.

With the poor performance of the school in literacy and numeracy results, the Early Years Literacy (first 3 years of schooling) and Numeracy Coordinators and the school-

employed speech pathologist met to discuss how to improve the literacy and numeracy benchmarking data. At the end of 2004, the Early Years Literacy and Numeracy Coordinators, in consultation with the speech pathologist, designed the Oral Language Basic Concepts Program (OLBCP).

Program characteristics

Results from longitudinal studies have shown the significant correlations between spoken and written language development in students (e.g., Bishop & Adams, 1990; Dickinson, Anastapoulos, McCabe, Peisner-Feinberg, & Poe, 2003). Many basic oral language concepts are important literacy concepts (Justice, Invernizzi, & Meier, 2002; Justice, Kaderavek, Fan, Sofka, & Hunt, 2009). For example:

- the concepts of “start”, “end”, “same” and “different” are important for learning phonological awareness skills such as rhyming that have been identified as key foundation skills for reading. For example, “Listen for the sounds that are the same at the end of the words” (Justice et al., 2002);
- the concepts of “left”, “right”, “top” and “bottom” are important for learning the directionality of English words and sentences when reading (Justice et al., 2002, 2009);
- the concepts of “big” and “little” are important for learning the difference between upper and lowercase letters for reading and writing. For example, the teachers talk about “big” vs. “little” letters once these concepts are established (Justice et al., 2009; Justice & Ezell, 2004).

Many of these basic oral language concepts are also important numeracy concepts in the areas of number (counting and ordering), space (shapes and locational language) and measurement (comparing and contrasting) (Fleer et al., 2006; Pasnak, MacCubbin, & Ferral-Like, 2007). For example, the concepts of “big”, “little”, “same” and “different” are important for learning the concept of number, as in “Is 4 the same as 3?”, “Is 2 bigger than 1?”. The size concepts of “big” and “little” are used in the teaching of ordering in numeracy, as in “Group the teddy bears from little to big.” (Fleer et al., 2006).

Program implementation

The OLBCP was implemented in 2005 and was the only major change in teaching practice in the early years at this school in this academic year. The OLBCP consisted of two streams of specific strategies. One stream focused on professional development of the teachers in basic oral language concepts (Dickinson & Caswell, 2007) and on the development of an oral language concept folder. The professional development was delivered by the speech pathologist at fortnightly meetings attended by the preparatory teachers as well as the Early Years Literacy and Numeracy Coordinators. The meetings concentrated on the basic language concepts and included information related to their developmental sequence and assessment practices.

Table 1. Concept planner: “top” and “bottom”

Literacy	Numeracy	Fitness	Other	Resources
Directionality Reading – show me where to start, look at the top of the page, page number – is it at the top or bottom of the page? Handwriting Instructions – Start writing at the top of the page.	Positional language Vertical algorithms – what number is at the top, what number is at the bottom? What is on top and bottom of the pile? Ahmed your hat is at the bottom of the box. Please put the box on the bottom shelf.	Directions Run to the top of the mound. Slide to the bottom of the slide.	Playground Top/bottom of the slide Body parts Top of your head Bottom of your legs Extension word: middle	Books Ten apples up on top! (Geisel & Geisel, 1989) Songs/rhymes Simon Says: Put your hands on top of your head

Table 2. Concept planner: “big” and “little”

Literacy	Numeracy	Fitness	Other	Resources
Oral language: Choose a big/little book Other words for big/little Big/little letters, upper/lower case, capitals Activity sheets attached First names – capital letters Brainstorm big/little – students naming objects – obvious objects that provide maximum contrast (elephant/ant) Use this list to make a class book	Here is something big, find me something little – comparison Bigger than/smaller than – sheets attached Sorting into big /little using hoops as Venn circles. Comparing students’ size to teacher Work sheets attached	Big/little balls Obstacle course – big/little slide	Computer KIDPIX – select paintbrush, choose picture, click & drag to alter size	Books <i>Big and little.</i> (Meadows, 1995) <i>We’re going on a bear hunt</i> (Rosen & Oxenbury, 2006) <i>The bear concepts</i> (Foster & Foster, 2001), pp. 21–24 Songs/rhymes “John had great big waterproof boots on” “Five little ducks”

They also covered explicit teaching and modelling and activities to teach the concepts. Collaborative planning and discussion focused on: 1) deciding which concepts would be taught throughout the year, 2) planning activities targeting each concept in different curriculum areas, and 3) sharing of successful strategies used in teaching lessons.

During the collaborative planning and discussion, teaching concept planners were created as a teacher resource to be used in teaching practice. These planners on A4 sheets contained a heading with the target concepts as well as headings outlining the curriculum areas such as literacy, numeracy, and fitness. The planners also contained a heading for resources used. Table 1 outlines a concept planner for the language concepts of top/bottom and table 2 outlines a concept planner for the language concepts of big/little.

The second stream of the OLBCP dealt with the pedagogy, or teaching practice. It specifically targeted explicit teacher talk in relation to these concepts and embedding the concepts in all curriculum areas. The teaching of basic oral language concepts was carried out by the preparatory teachers using the concept planners from 9:30 am to 10 am Monday to Friday. The concepts were reinforced in a weekly language experience activity for approximately one hour in different curriculum areas.

Program evaluation

Although a formal evaluation of this program, using an experimental design, is clearly needed, the Literacy and Numeracy Benchmark data from 2005 revealed some interesting trends. In literacy, the year 2005 indicated an improvement in the students' literacy results on the state literacy benchmark data. Preparatory students read the Level 5 text at or above 90% accuracy in November. This represented an 18.5% increase in 2005 when compared to the previous year's cohort of children reading at or above 90% accuracy. More importantly, the school in 2005 performed at a similar level to other "like schools", whereas in previous years it performed well below the "like schools". The year 2005 also showed an improvement in the students' numeracy skills. The 2005 prep cohort improved by 64% to 71% in the percentage of students achieving key growth points for the numeracy curriculum areas of number, space and measurement.

Conclusion

In 2007, the school won an Australian Government National Award for Quality Schooling for the OLBCP and the improvement in literacy and numeracy results. The award noted that the literacy and numeracy results have risen significantly. We would like to think this improvement in literacy and numeracy was a result of the OLBCP, which was developed and implemented by a multidisciplinary team of teacher leaders, classroom teachers and a speech pathologist. Unfortunately, the lack of an experimental design with a control group prevents any such definite conclusions to be drawn. On a more positive note, in the years 2006 to 2008, the school has maintained its literacy and benchmarking results first achieved in 2005.

The professional development and pedagogy streams of the OLBCP demonstrated how speech pathologists can work collaboratively with teachers to affect school-wide change with the ultimate aim of improving literacy and numeracy skills. The pedagogy stream of the OLBCP also highlighted the need to revise pedagogy in the early years to target basic language skills needed for early literacy and numeracy skills. Results from recent research suggests that

by involving the early years teaching staff in the planning and implementation of the program, the effectiveness of the program was increased (Dickinson & Caswell, 2007). Therefore, speech pathologists must become familiar with educational curriculum documents to facilitate discussion of intervention concepts and delivery with their teacher colleagues.

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Ed Gillian is a speech pathologist working in private practice in the western suburbs of Melbourne since 2002. **Sue Williamson** is the Early Years Literacy Coordinator at the school where the project took place.

Correspondence to:

Ed Gillian

Speech Pathologist

phone: 03 9364 0200

email: ed_gillian@hotmail.com



Literacy for Life Unit

An activity update

Carolyn Burrows and Julie Marinac



The Literacy for Life Unit was established in the School of Health and Rehabilitation Sciences, at The University of Queensland, to ensure that the early seminal work of speech pathology researchers in the school continues to support speech pathologists and educationalists who work with those who have phonological processing-based literacy learning failures. The unit is managed by speech pathologist and business manager Carolyn Burrows, and includes a team of academics and clinicians whose interests lie in the issue of reading and writing difficulties across the lifespan – especially those related to phonological awareness difficulties.

When the unit was established, the team members identified three major areas of activity: research, service and education. The research team includes Dr Julie Marinac, whose interest is primarily literacy learning failure in adolescence, and, for his audiological expertise, Dr Wayne Wilson. Professor Bruce Murdoch, Head of the School of Health and Rehabilitation Sciences, maintains a mentoring and consultation role in relation to the research activities of the unit.

In addition to the ongoing input from the team's speech pathologists, the service and education aspects are delivered by other team members, including our learning support teacher, Kate Pitty, and an occupational therapist. Three former team members who must also be acknowledged are occupational therapist Heather Allison, and speech pathologists Tessa Barnett (now in Sydney) and Elizabeth Savina. Their authorship of the Phonological Awareness for Literacy (PAL) and Early Literacy Fundamentals (ELF) programs was of the highest quality.

The work of the Literacy for Life Unit has led to the publication of the ELF program (originally published as the UQELF – Early Literacy Fundamentals; School of Health and Rehabilitation Sciences, 2003, 2004); the PAL (originally published as the UQPAL; School of Health and Rehabilitation Sciences, 2000, 2008), and the Phonological Awareness Training in High Schools (PATHS; Marinac, 2009). The UQELF and UQPAL lost the tag “UQ” when the unit licensed all three products to an international publisher. The programs were developed as support programs for learning support teachers to use in consultation with their school-based speech pathologists. In conjunction with the ELF and PATHS support programs, our team have produced the ELF – CA (classroom activities) and a classroom edition of PATHS. Further products are on the horizon – we are in negotiations with a major health group to develop and deliver adult

literacy programs, and we are almost ready to publish our preschool literacy support program. All of our programs are copyright to the University of Queensland, so the income derived from these programs is channelled directly into the work of the unit.

The education activity of the unit has led to over 3000 speech pathologists, learning support teachers and other education professionals receiving training regarding phonological awareness and addressing literacy learning failure, through programs built on the principles of phonological awareness (PA) remediation. To date, we have undertaken training seminars throughout Queensland, in northern New South Wales, the Northern Territory, Thailand and Singapore. The training is not limited to a single profession, as our premise is that literacy learning failure needs to be addressed through an interdisciplinary approach. Hence our integration of the skills and knowledge inherent in speech pathology, occupational therapy and teaching professions – as is reflected in the composition of our Literacy for Life team.

For those who are not convinced about training others to deal with PA-based difficulties, our experience is that this training leads to better recognition in the classroom of students who are at risk, and to better understanding of the implications of PA difficulties across the curriculum and into adulthood. In our programs and training we constantly emphasise the need for consultation with, and referral to, both speech pathologists and occupational therapists. We particularly draw attention to the difference between identifying children “at risk” and undertaking diagnostic decisions. We also stress that children whose literacy difficulties cannot be addressed at the school level need to be referred to a speech pathologist, and that ultimate diagnostic and treatment decisions must lie with the appropriate professional. Based on feedback that we receive from schools, we believe that the rate of appropriate referrals has improved overall.

Several of the schools that have implemented our programs have won both state and federal awards for the improvements in the overall literacy achievements demonstrated by their students. Blackwater North State School, in Central Queensland, received a Highly Commended Award in the 2006 National Literacy and Numeracy Excellence in Australian Schools Awards. After implementing the ELF program, Blackwater North nearly halved the percentage of students identified as requiring extra intervention for reading in the year 2 “net” (from 51.9%

of students in 2002 to 26.8% in 2004). This percentage decreased to 19.6% in 2005 – representing a 32.3% improvement over the 2002–05 period.

Boondall State School, a community with 26 language groups, began implementing ELF in 2003. Students who participated in the ELF program in year 1 showed sustained improvement in their literacy scores in year 3, with only 3% of this cohort in the bottom 15% of the state, as compared to 21% in previous years. These results led to Boondall winning Education Queensland's 2006 Showcase Award in the Early Phase of Learning category. In 2007, the school received a Highly Commended "Quality Schooling" Award from the federal government. Boondall State School is now undertaking field studies of the PAL Screener – one of our programs that is still under development.

Brisbane State High School, while not yet receiving similar awards, has provided major support for our work in developing the PATHS-S (Support program) and CII (Classroom Identification Instrument). Since 2002, BSHS has collaborated with the Literacy for Life Unit in various research projects, speech pathology clinics and training development. In 2008, three individual honours programs were running simultaneously at the school. Our latest combined ventures are to investigate the practicality of adapting a test of maths language for local conditions, and a randomised, controlled efficacy study for the PATHS-S program. Our long-standing experience in the primary school sector was our starting point, which has underpinned this relatively new stream as well as the most recent direction – into phonological processing-based adult literacy learning.

In addition to our interdisciplinary approach in which each profession recognises the abilities, boundaries and responsibilities of their peers, we believe that a proactive approach will prove to be more effective in dealing with PA difficulties and the resultant literacy learning difficulties. We support the view that early intervention and prevention are preferable to later remediation (Neumann & Dickinson, 2003) and we have suggested that the traditional sequence of "teach–assess–identify–remediate" should be reordered to a proactive "assess–identify–remediate–teach" to ensure that the final phase is as successful as possible – hence our drive to provide screening tools, normative data, validated support programs, and specific classroom follow-up.

Having achieved international publication of three of our programs, our focus is now moving to the essential validity, reliability and efficacy studies that speech pathologists, in particular, need to meet the demands of evidence based practice. In addition to projects in our eight local "research schools", studies will be undertaken in collaboration with the National Education and Employment Foundation (NEEF, Australia) to ensure our research efforts extend beyond Queensland, and meet the essential rigor and independence of best practice.

We are now poised to extend our life-span approach to literacy learning by providing similar, or adapted, programs for even younger children, adults, and for use in rehabilitation intervention.

The foundation on which our unit is built is, of course, the extensive research on phonological awareness-

based literacy learning failure, its prevalence, aetiology, identification and remediation (for those who would like to delve deeper in that research a suggested reading list follows). In addition to our work with NEEF (Australia), we have established strong links with both government and private schools where we are presently 1) validating the PATHS-Classroom Identification Instrument (PATHS, Marinac, 2009); 2) obtaining normative data for the new PAL whole-class screening instrument; 3) investigating the effects of whole-class sound field amplification on year 3 students' educational outcomes; 4) investigating the effects of a PA classroom program on educational outcomes in year 9 students; and, 5) implementing an efficacy study for both the PAL and PATHS support programs in learning support and clinical situations.

In addition to these studies, our intent is to continue to support both speech pathologists and educationalists with the tools and training they require to identify and treat PA-based literacy learning difficulties across the whole life-span. Through our Literacy for Life Unit, we are also committed to providing the best possible evidence to inform clinical practice, and to further the inter-professional ties between speech pathology and education.

For more information, see: www.uq.edu.au/literacyprograms

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Ms **Carolyn Burrows** and Dr **Julie Marinac**, both speech pathologists, are senior members of the Literacy for Life Research Unit in the School of Health and Rehabilitation Sciences at The University of Queensland, along with Ms Kate Pitty, a registered teacher. As the school's business manager, Carolyn initiated and directed the development of the unit's literacy programs. As an academic staff member of the school, Julie has authored several of the unit's programs, and is now in the process of validating both current and planned additions. Kate's role within the team is as co-author, trainer and expert web weaver. To date, the unit has produced the ELF, PAL, PATHS and APPEAL programs, with more planned by the end of this year.

Correspondence to:

Carolyn Burrows

Speech Pathologist, Manager, Business & Community Engagement Unit,
School of Health and Rehabilitation Sciences,
The University of Queensland,
Brisbane, Australia.
phone: 07 3365 7150
email: c.burrows@uq.edu.au

Julie Marinac

Lecturer,
School of Health and Rehabilitation Sciences,
The University of Queensland,
Brisbane, Australia.
phone: 07 3365 6161

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Melbourne is proud to host the 2010 Speech Pathology Australia National Conference. *Participation 2010* will be held at the Crown Promenade Conference Centre in central Melbourne. Following member feedback, Council has decided to shorten the Conference to three full days, and will be held Monday 17 – Wednesday 19 May 2010. Additionally there will be opportunity to participate in a Master Class session to be held in the afternoon on Sunday 16 May, just prior to the Conference Welcome Function.

Participation 2010 will showcase the innovative contributions of speech pathologists in advancing choices, knowledge and access.

This is the opportunity to display the many and varied ways you contribute to our professional knowledge base. Consider how you support and enhance independence, undertake research or education, lobby, advocate or promote **participation** in our modern, changing society. **Participation 2010** will allow you to share the breadth of your experience. **Submit your paper, workshop or poster now to be part of this celebration of the diversity and importance of our profession.**

For further details please visit the website www.speechpathologyaustralia.org.au and see the 2010 National Conference webpage.

Pamela Richards
National Conference Manager



Raising awareness of the importance of functional literacy skills

The Communication Resource Centre – Scope

Cathy Basterfield

Functional literacy refers to how a person uses the information they read, regardless of their level of schooling, or their scores on a test. The Australian Literacy and Life Skills Survey 2007 identified that up to 46% of the Australian adult population (15–74 years) do not have the functional literacy skills required to meet the demands of today’s literate society.

The Accessible Information Service at the Communication Resource Centre – Scope has been working with different organisations for a number of years to develop accessible written information for consumers. There have been many positive outcomes in ensuring written information is accessible to all consumers.

Challenges will continue, as awareness of the need for – and personal right to – accessible written information is limited. It is anticipated that with increasing understanding of this need, resources for the development of accessible written information will be enhanced.

Scope is a not-for-profit organisation providing disability services throughout Victoria to thousands of children and adults with physical and multiple disabilities. Scope is committed to overcoming the personal, structural and attitudinal barriers that prevent those with disability from participating in community life and works to make our community more inclusive, more accessible and more welcoming (Scope, 2009).

The service provides:

- training
- partnerships with organisations
- consultation to develop your accessible documents
- some writing/translation services
- resource development, e.g., Easy English Writing Style Guide www.scopevic.org.au/therapy_crc_easyenglishstyleguide.html

Historically, *accessibility* has focused on physical access, hearing access and visual access. The Australian laws are well known by individuals and organisations regarding compliance to these particular accessibility needs. “Accessibility is a general term used to describe the degree to which a product (e.g., device, service, environment) is accessible by as many people as possible. Several definitions of accessibility refer directly to access-based individual rights laws and regulations”, (Wikipedia 2009). The concept of “communication accessibility” is new, and is not the same as access to communications technology or use of computers and computer software to improve access to information. More recently, information access has also been included to describe improved access to written information. This concept can be further extended to include way-finding access related to appropriate signage within buildings or social spaces.

The Australian Bureau of Statistics released the Australian Literacy and Life Skills Survey in 2007 (ABS, 2006). This survey highlighted the significant needs of people with limited reading skills. The report highlighted that up to 46% of the Australian adult population (15 to 74 years) do not have the functional literacy skills to meet the demands of today’s literate society.

So how do people who do not have functional literacy skills access written information in their environment? What rights and responsibilities do organisations have to provide written information in a way that is accessible to most people?

What are functional literacy skills?

Have you read your phone bill, your Neighbourhood Watch newsletter, or a public transport timetable? Do you need to read a medicine bottle to check the dosage? Perhaps you need to read your diary to check the time and place to meet a friend? These are all functional literacy tasks.

Functional literacy skills can be considered in a variety of domains, including prose, document, numeracy, and problem-solving. English as a second language often compounds these issues and affects functional literacy abilities. Evidence also suggests that recent school leavers and the aged population have reduced functional literacy skills compared with the general adult population. The amount of time available, stress and new situations also have an impact on someone’s functional literacy. There are specific skills and abilities we all need in order to be

KEYWORDS

ACCESSIBLE
CONVENTION ON THE RIGHTS OF PEOPLE WITH DISABILITY (2006)
FUNCTIONAL LITERACY
HEALTH LITERACY
PARTICIPATION



Cathy Basterfield

functional in a variety of contexts, including health literacy, legal literacy, financial literacy, and work literacy. These are discussed, in turn, below.

Health literacy

Health literacy is the ability to use written health information meaningfully. As we move towards a more self-managed health environment, health literacy becomes critical. There is clear evidence that people with limited functional health literacy have poorer health outcomes. Examples include:

- incorrectly reading tablet bottles/medication dosages,
- missing specialist appointments,
- not knowing about health promotion and educational opportunities, or
- not understanding medical terms in documentation.

The statistics identify that people who may have functional literacy skills in a range of media and topics often have less functional literacy when health literacy is involved.

Legal literacy

Legal literacy is the ability to access information in the legal environment. It also includes the need to recognise when or if the situation is one in which a legal right or responsibility is being compromised. Examples of legal literacy needs and opportunities include:

- understanding complaints, or rights and responsibilities information from organisations,
- completing and signing forms providing consent or releasing information to other people,
- reading brochures given by police or courts about how the system works,
- reading or writing a statement taken from police, or
- locating appointment times in letters from lawyers, government departments or courts.

Financial literacy

How many people really understand their superannuation documentation, or all their rights in their insurance policy? Financial literacy is also the ability to interpret banking information, sales information, mortgages, loans, bills and invoices and other everyday financial details. A lot of financial information is contained in lengthy, complex and legal prose.

Work literacy

Every work environment has its individual language. Who has walked into a new work environment and thought there was a new language being spoken? Rather than a new language, it is often the acronyms and short-hand discussion that is going on between familiar team members. Workforce literacy is more than the ability to read, write, add and subtract. It is a continuum of skills that are vital to effective performance in the workplace. Workplace literacy includes the ability to:

- communicate ideas and opinions,
- use information and maths skills,
- make decisions and solve problems, and
- use information systems, technology and tools.

Literacy demands in the workplace have increased as a result of more computerised processes and self-managing teams. There is also a greater need for critical thinking, problem-solving and compliance. Even those in less-skilled roles need higher levels of literacy. Technological change makes communication and information processing more sophisticated and immediate, with constant innovations in communication networks, online ordering and stock control management.

International obligations, human rights and responsibilities

The Convention on the Rights of People with Disability 2006, which came into effect in May 2008, is reported to be one of the fastest treaties ever negotiated. Australia is a signatory to this convention. While the convention comprehensively refers to all of the human rights related to persons with disability, there are five articles (out of the first 30) which are specifically relevant for people who have severe communication difficulties. Three articles are described below.

Article 2, Definitions

Article 2 describes a broad range of modes and methods of communication: "Communication includes languages, display of text, Braille, tactile communication, large print, accessible multimedia as well as written, audio, plain-language, human reader and augmentative and alternative modes, means and formats of communication, including accessible information and communication technology" (UN, 2006, p. 5).

Article 9, Accessibility

Article 9 addresses communication access as well as "access to the physical environment, transportation, information and other facilities and services open or provided to the public in urban and rural areas." For example, Article 9 specifies the need for states (governments) to provide public signage in Braille and in other forms that are easy to read and understand. Also, it acknowledges that some people with disabilities require "live assistants and intermediaries, including guides, readers and professional sign language interpreters to ensure access to information, buildings and other facilities open to the public" (UN, 2006, p. 9).

Article 9 requires countries to identify and eliminate existing barriers and to take steps to ensure that people with disabilities gain access to their communities. The importance of article 9 is that it defines access broadly and extends accessibility issues well beyond physical access and access to information. It specifies communication access to other services (such as electronic services, emergency services and the Internet), as rights. It recognises, but does not specify, that providing communication access to persons with limited or no speech is needed for them to participate equally in society, and that they too require a full range of accommodations (e.g., technologies, strategies, techniques as well as human supports).

Article 21, Freedom of expression, and opinion and access to Information

Article 21 affirms that people with disabilities should have the "freedom to seek, receive and impart information and ideas on an equal basis with others through all forms of communication of their choice". It further states this information needs to be presented at the same time as all other information.

Article 21 specifies that signatories promote access to information as well as freedom of expression and opinion by:

- providing information intended for the general public in accessible formats and technologies,
- facilitating the use of Braille, sign language, and other forms of communication (e.g., picture/symbol modes, means and formats),
- encouraging media and internet providers to make online information available in accessible formats.

Importantly, Article 21 states that alternative methods are legitimate ways to communicate during official interactions.

It extends the right to communicate not only to people with sensory impairments, but also to people with other disabilities (e.g., people who have limited or no speech, people with cognitive/linguistic or intellectual or acquired disabilities) (UN, 2006, p. 14).

In summary, it is a universal and international right for everyone to have access to written information in a way in which that person needs it. The concept of communication accessibility ensures more people with limited literacy are included.

The Communication Resource Centre – Scope

How do poor literacy skills impact on access to information, being socially included and being able to participate meaningfully through the life span? How do government, non government and businesses become more aware of the need to provide information for people with poor literacy skills?

The Communication Resource Centre – Scope is working with government, non-government and corporate organisations to become more aware of the literacy needs of their environments. The Communication Resource Centre endeavours to work with these groups to challenge them to write clearly, using everyday language, in simple sentences, and to not use complex and/or corporate language. The aim is not to teach people reading; it is to provide opportunities for people with limited literacy to be included in the information exchange currently available to other people. As a consequence of this strategy, there have been a number of additional benefits:

- organisations are looking at their public domain information with new, critical eyes;
- information is being revised to contain less jargon, be clearer and logical;
- organisations are gaining the benefit of more people accessing their services;
- organisations are reviewing the access to information on their websites and
- individuals who are supported to read the Easy English information have:
 - increased knowledge in an area not previously known about,
 - increased confidence to “have a go”,
 - increased self-esteem,
 - more time spent reading, and
 - more social participation.

Recent work conducted in partnership with the Victorian Electoral Commission demonstrates how large organisations and services can successfully address the needs of people in communities with limited literacy skills. A number of publications and posters have been developed to support the Victorian Electoral Commission to improve their written information for the Victorian community. The publications have had an overwhelming and positive response from many different people in the community. There have been four major publications completed. These are:

- *Voting in Victoria: State Government Elections* (2006)
- *Local Council Elections: Attendance Voting* (2008)
- *Local Council Elections: Postal Voting* (2008)
- *Running Your Own Election* (2008).

In addition, the Victorian Electoral Commission recorded an Auslan DVD about the local council elections. It is based on the content of the Easy English local council books. Information is also available in large print or Braille.

Future challenges and opportunities

The Communication Resource Centre – Scope is committed to raising the awareness of the need for people with limited functional literacy skills to have accessible written information. Awareness of this will, in time, increase the understanding, need and resources for accessible information to be developed as a common occurrence. The Communication Resource Centre is keen to hear of any organisations that are also developing accessible written information, or from anyone who may be interested in developing the strategy further within their own organisations or partner organisations.



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Resources

<http://www.un.org/disabilities/documents/convention/convoptprot-e.pdf>

<http://www.vec.vic.gov.au/files/EasyEnglishFPTP.pdf>

<http://www.vec.vic.gov.au/files/EasyEnglishGuide.pdf>

<http://www.vec.vic.gov.au/files/GuideAttendancevotingeasyEnglish.pdf>

<http://www.vec.vic.gov.au/files/GuidePostalvotingeasyEnglish.pdf>

Correspondence to:

Cathy Basterfield

Consultant Speech Pathologist

Co-ordinator Accessible Information Service

Communication Resource Centre – Scope

phone: 03 9843 2012

email: cbasterfield.crc@scopevic.org.au



Let's Read

A universal intervention to promote literacy in very young children

Sharon Goldfeld, Natasha Napiza, Jon Quach, Carly Veness, Sheena Reilly, Obioha C Ukoumunne, and Melissa Wake

KEYWORDS

EARLY INTERVENTION

EMERGENT LITERACY

LITERACY

PARENT-CHILD INTERACTION

PRESCHOOL



The last decade has seen an increasing number of early literacy promotion programs across the globe. This paper takes a brief look at the current research around emergent literacy and identifies some of the factors found to influence children's literacy success. The paper then reports on the Let's Read initiative, an early literacy promotion program that emphasises shared reading with young children, aged 0 to 5, taking place across Australia. The effectiveness of this program is currently being investigated, utilising a cluster randomised controlled trial.

Few would dispute that literacy attainment is one of the most important foundations for academic success. It is similarly now well established that attaining literacy skills depends on multidimensional influences, including: parental beliefs and goals about education and literacy; the way that families engage with or stimulate children; the environment in which children are raised; the school they attend and the way they are taught. Unfortunately, many children struggle to reach the minimum benchmarks set for literacy acquisition, and these deficits can be tracked with increasing prevalence from childhood through to adolescence and adulthood (Ministerial Council on Education, 2007; Persampieri, Gortmaker, Daly, Sheridan, & McCurdy, 2006; Thomson & De Bortoli, 2008).

Although the term "literacy" refers to the ability to read and write printed text representing spoken language (Australian Bureau of Statistics, 2008; Baker, Piotrkowski, & Brooks-Gunn, 1999), more recent research has demonstrated the importance of key developmental and environmental

factors that, when present, predict future literacy success in preliterate children. Now referred to as emergent literacy, these factors have been brought together into a formalised framework (see Clay, 1972; Sulzby & Teale, 1991; Whitehurst & Lonigan, 1998), which includes:

- *language abilities*: including receptive and expressive vocabulary size, understanding written text and being capable of talking about the text;
- *letter identification/knowledge*: knowing the names and corresponding sounds of letters;
- *phonological awareness/sensitivity*: the ability to identify and manipulate sounds in words;
- *conventions of print*: understanding the basic concepts of writing and reading text, including the left-to-right and top-to-bottom direction of print on each page with print progressing from front to back across pages;
- *literacy environments*: having favourite books, going to the library, having a number of books in the home, and engaging in other home literacy activities, including shared book reading.

While most children develop spoken language skills to communicate in their first or native language naturally, children require more active instruction and modelling to acquire literacy skills, particularly skills to understand the written word. Therefore, literacy is thought to be experience dependent (Whitehurst & Lonigan, 1998).

Current research shows that parental and family influences and interactions can profoundly enhance the quality and quantity of children's exposure to and experiences with literacy and can lead to improved literacy outcomes (Evan, Shaw, & Bell, 2000). When parents or significant others are actively involved in literacy activities, children have larger vocabularies (Hart & Risley, 1995), faster vocabulary growth over time (Huttenlocher, Haight, Bryk, Seltzer, & Lyons, 1991) and enhanced emergent literacy skills (Bracken &

Fischel, 2008). Similarly, the quality of a child's surrounding environment, in particular the home environment, is also found to be an important determinant of literacy development (Hood, Conlon, & Andrews, 2008; Melhuish et al., 2008; Weigel, Martin, & Bennett, 2006). Home environmental factors such as access to literacy-related materials (e.g., books, alphabet materials, crayons and paper), use of the local library, parental modelling of reading behaviours and language rich environments (DEST, 2005) are all important influences on children's literacy success. In addition, parental activities such as regular shared reading with developmentally appropriate books, use of specific reading styles such as dialogic reading, singing nursery rhymes and other songs, and playing interactive games like Eyespy have all been shown to be important (Butzlaff, 2000; Fielding-Barnsley & Purdie, 2002; Huebner, 2000).

The results from this research has lead to an increasing number of literacy promotion programs across the world, such as Reach out and Read and BookStart, aimed at enhancing children's emergent literacy skills and improved literacy outcomes for children (Baker et al., 1999; High, LaGasse, Becker, Ahlgren, & Gardner, 2000; Wade & Moore, 1998). Although there have been limited rigorous trials of such literacy promotion programs, reported results have demonstrated some expressive language benefits through clinic-based literacy promotion programs (High et al., 2000; Mendelsohn et al., 2001) or an increase in home-based literacy activities (National Centre for Research in Children's Literature, 2001; Weitzman, Roy, Walls, & Tomlin, 2004).

The Let's Read initiative

Let's Read is an initiative that promotes shared reading with young children 0–5 years of age and has been developed by the Centre for Community Child Health (a key research centre of Murdoch Children's Research Institute) in partnership with The Smith Family. Let's Read was designed after an extensive literature review, in consultation with Reach out and Read in the USA and after pilot testing. It specifically takes into account the importance of linking community interest and enthusiasm around reading to children with a well-structured intervention built around factors within the family home that have been found to influence children's literacy development.

The Let's Read initiative includes the following core components:

- written and audio-visual materials which promote language and literacy practices/activities between young children and their parents or caregivers;
- provision of, or access to age-appropriate (free) books;
- training of professionals to convey guidance messages and to model shared reading practices to parents.

Content and design of the initiative were overseen by a steering committee, comprising paediatricians, psychologists, parenting experts, and maternal and child health nurses. In recognition of the differing stimulation required at various developmental stages, a multi-point model was adopted with guidance materials targeting four specific ages and planned around common visits (4-months, 12-months, 18-months and 3½ years of age) to maternal or child and family nurses available in most states and territories in Australia.

At each of the four specified Let's Read visits, parents receive age-appropriate guidance messages, an age-appropriate booklist, a DVD reiterating the guidance messages and a free age-appropriate book from a community professional. Professionals are also encouraged

to model a number of age-appropriate reading aloud strategies for parents so as to provide parents with some practical ideas of how to read with their child and to use the materials as a prompt for discussion.

There are currently two phases of Let's Read underway: 1) the community implementation of the initiative across Australia, and 2) a cluster randomised controlled trial to assess the effectiveness of the initiative.

Community implementation

The implementation of Let's Read into communities commenced in August 2005. The first community to launch Let's Read was Corio in Geelong, Victoria. To date there are approximately 98 communities delivering Let's Read across Australia. A community development approach is taken to promote the importance of literacy through existing services and systems to reach as many families as possible and to sustain the program in the long term.

Community-based professionals are trained and resourced to work on a one-to-one basis with families to promote the importance of reading with young children. Current work in Let's Read has focused on developing a program that is also adaptable to indigenous and multicultural communities.

Cluster randomised controlled trial

The Let's Read trial (funded by the Australian Research Council) was initiated to determine whether a population-level literacy promotion program aimed at very young children can improve their emergent literacy outcomes. The cluster randomised controlled trial, which started in 2006, is being delivered through maternal and child health nurses in five local government areas in Victoria (Darebin, Frankston, Hobson's Bay, Dandenong and Moreland) and will follow a cohort of 600 children from birth to school commencement. Final results are anticipated in 2011.

This will be the first population-based randomised trial to demonstrate how the key messages and corresponding activities of an early literacy promotion program can influence the acquisition and development of emergent literacy. The Let's Read trial will also provide new information about children's literacy and language acquisition and their relationship to the home and family literacy environments, contributing to the further advancement of future literacy promotion programs.

Conclusion

It is anticipated that the results from the Let's Read research projects will add to the growing knowledge base concerning the effectiveness of early literacy promotion programs as a means to address illiteracy. These results should help guide future policy and investment.

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Correspondence to:

Dr Sharon Goldfeld

Centre for Community Child Health

Royal Children's Hospital

Flemington Rd, Parkville, Vic. 3052

phone: 03 9345 6408

fax: 03 9345 5900

email: sharon.goldfeld.@rch.org.au



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Speech and language therapy in Bangladesh

Jannatul Ferdous and Cristy Gaskill



Bangladeshi speech and language therapy students on placement

Located at the foot of the Himalayas, Bangladesh is the most densely populated country on earth with a population of 153 million people (UNDP, 2007) within an area roughly the size of the Australian state of Victoria. Bangladesh is an incredibly lush, green and fertile country with several large rivers running through it. This means the country often suffers flooding, one of the features of Bangladesh most well known to the rest of the world. Part of India, until its independence from Britain in 1947, Bangladesh was then made part of Pakistan (known as East Pakistan) until gaining independence in 1971. This independence was hard-won through a long-term struggle to maintain a strong cultural identity and the Bangla language.

On 21 February 1952 a number of university students lost their lives campaigning to keep Bangla as their official language under pressure for Urdu to be the state language. The campaign was successful and this date continues to be celebrated in Bangladesh and, increasingly, internationally. In 1999 UNESCO

declared the date of the 21 February as “International Mother Language Day”, promoting cultural and linguistic diversity and multilingualism at a time when many languages are under threat from the effects of globalisation (UNESCO, n.d.). In addition to the state language of Bangla, there are numerous dialects of Bangla spoken, as well as a number of tribal languages in some parts of the country. English is used widely in business and education. In terms of religion, the majority of the population are followers of Islam, with smaller numbers following Hinduism, Buddhism, Christianity and other religions.

A high proportion of Bangladesh’s population live rurally in villages and towns, with the majority employed in agriculture. An increasing number of people, however, are moving to cities and finding work in the garment industry – manufacturing clothing for export to Europe, North America and even Australia. Almost half of the population live below the national poverty line, that is, below the level deemed necessary for an adequate standard of living (UNDP, 2007).

KEYWORDS

ASIA
BANGLADESH
DEVELOPMENT
LANGUAGE
SPEECH

Education, health and disability in Bangladesh

Education rates are increasing significantly in Bangladesh with 94% of children enrolled in primary education in 2004. This has not always been the case as demonstrated by the adult literacy rates in 2005 – 41% for women and 54% for men in 2005 (UNDP, 2007). A history of education being for the wealthy, and pressure for all available family members to be contributing to household income have been limiting factors on participation in education.



First batch of speech pathology students with teachers

Three levels of government health care services are provided in Bangladesh. At the primary level, preventive care is provided for all including those in remote areas. Secondary health care includes curative care for upazilla (subdistricts) and at the tertiary level there are fourteen medical colleges which provide services to the people at district level. Some city-based non-governmental organisations (NGOs) provide specialised care in areas such as cardiology, oncology, neurology, diabetes and leprosy care.

Persons with disabilities within Bangladesh however are marginalised, receiving the lowest priority in service provision within the country (JICA, 2002). Studies suggest that only 1–2% of children with a disability who live in a developing country receive an education and only 2% of people with disabilities in developing countries have access to rehabilitation and health services (Inclusion International, n.d.).

History of the speech pathology profession in Bangladesh

It is an exciting time for the speech pathology (locally referred to as speech and language therapy) profession in Bangladesh as it is in the very initial stages of becoming a recognised profession. There is a history of a number of individuals and organisations working with people with communication difficulties in Bangladesh. These people, however, have often needed to rely on short courses from overseas therapists and have expressed concern about gaps in their knowledge. In order to address the need for more comprehensive training and a broader local knowledge base, a degree course in speech and language therapy was started in 2004.

This four-year bachelor degree course followed by a one-year internship is the first formal training program in speech and language therapy in Bangladesh. The course is based at

the Bangladesh Health Professions Institute, the academic arm of the reputed Centre for the Rehabilitation of the Paralysed (for more information see www.crp-bangladesh.org). It is located in the medical faculty of the University of Dhaka and was developed with support from University College London.

The first batch of students began their studies on 3 July 2004 and this date is now celebrated annually as the anniversary of speech and language therapy in Bangladesh. There are currently 51 students over four year levels studying to become speech and language therapists. The first batch of students will complete their internships by the end of 2009. These graduates will be the first ever fully qualified speech and language therapists educated in Bangladesh.

At present the Bangladeshi speech and language therapy students are being trained and supervised by overseas trained therapists, mostly from Australia, UK and Canada. Links with neighbouring India are also being explored. This has been a necessary step until some local speech and language therapists are suitably qualified to take on training roles themselves. There has also been significant involvement of local teaching staff in teaching modules in linguistics, psychology, anatomy and physiology, community-based rehabilitation, and training and management. Supervision of students in some clinical placements has involved not just speech and language therapists but special educators, occupational and physiotherapists and developmental therapists.

Scope of practice

The Bangladeshi speech and language therapy students have been involved in clinical placements in a number of settings in which it is planned they will work in the future. Some of these are quite similar to Australia, such as hospitals and schools (especially schools for children with autism). It is also envisaged that speech and language therapists will work in other disability organisations and will have a strong training role. Differing from most Australian courses, final year students participate in cleft palate surgical camps and complete placements in community-based rehabilitation.

Community-based rehabilitation (CBR) is “a strategy for rehabilitation, equalisation of opportunities, poverty reduction and social inclusion of people with disabilities” (WHO, 2004, p. 2). In the developing country context and in a situation where the majority of services are only accessible in cities and to those able to pay, CBR has been extremely important and is becoming increasingly widespread. Involvement of the profession in CBR is essential both for making sure that those with communication and swallowing difficulties are included in development initiatives, and for ensuring that services are accessible to the majority of the population. For centre-based therapy, follow-up is a significant issue, with a history of many clients being unable to return for subsequent appointments. For this reason also, working through CBR is more practical.

Further public awareness-raising about the role of speech and language therapy and the services available will be very important for the future development of the profession. Although there have been a large number of referrals for services through student placements, these have primarily consisted of speech difficulties in adults and language difficulties in children. There has been limited public knowledge to date of the role of speech and language therapists in the areas of swallowing, voice and fluency. Awareness-raising among other professions will also be essential to generate appropriate referrals.

Recent achievements of the profession

A recent commitment to the development of speech and language therapy services for people with cleft lip and palate has come about through an initiative of Operation Cleft Australia. Operation Cleft is a project of the Rotary Club of Box Hill Central (Victoria) and is supported by Rotary clubs throughout Australia. The program funds reconstructive surgery for cleft lip and palate and follow-up speech therapy across Bangladesh and has recently begun providing clinical and theoretical training in speech therapy for cleft lip and palate. This included the first ever speech therapy camp in Bangladesh, a six-day program in which students recently provided post-operative therapy. Operation Cleft is committed to employing graduates of the speech and language therapy course in Bangladesh to provide ongoing speech therapy services to this population. Australian speech pathologist Naanki Pasricha has been involved in the development of these services and the training of SLT students and community health workers in Bangladesh to ensure sustainability of this program.

Interest in speech and language therapy has also been growing from other Bangladeshi disability organisations. Final-year speech and language therapy students recently participated, together with a British volunteer speech and language therapist, in a two-day clinic on a boat. This involved travelling to two different remote areas and delivering services as a multidisciplinary team of doctors, physiotherapists, occupational therapists, audiologists, and speech and language therapists. This type of service delivery enabled those who may not otherwise have the opportunity, to access assessment, initial advice and referrals.

Links with the profession in the region and internationally have also been made. In 2006 the first batch of students participated in a study tour to Kolkata, India, where Bengali (Bangla) is also spoken and where there is a more established speech and language therapy profession and services for people with communication difficulties. The students reported significant learning about the potential of the profession from their time spent at the Indian Institute of Cerebral Palsy (IICP) and National Institute of Hearing Handicapped (NIHH).

One final-year student recently obtained a scholarship to attend the International Society for Augmentative and Alternative Communication (ISAAC) conference in Montreal. This provided an excellent opportunity for sharing and learning about augmentative and alternative communication and the speech and language therapy profession overseas.

Current challenges and needs of the profession

In addition to the achievements of speech and language therapy so far in Bangladesh, there are a number of challenges the profession is facing. These include the challenges of:

- developing a locally appropriate profession, not simply a replica of the profession as it operates in more highly resourced locations; this includes the development of culturally and linguistically appropriate resources and approaches;
- finding approaches for service provision to a large, mostly rural-based population through further exploring the role of speech and language therapists in training and linking in with CBR and other service providers;
- building a local research base for speech and language therapy practice;
- gaining recognition and a role within existing government and non-governmental services;

- developing a professional association in Bangladesh; it is envisaged that this will be initiated within the coming year; and
- continuing support for training and development from more experienced overseas-trained clinicians; there continue to be opportunities for overseas-trained clinicians to be involved in the training course for varied lengths of time.

Further information

For more information about the Bangladesh course and volunteering, see: <http://www.crp-bangladesh.org> or email Sultana Nasreen at sltdept@yahoo.com

For more information about the work of Operation Cleft, see: <http://www.operationcleft.org.au> or email info@operationcleft.org.au

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Jannatul Ferdous is one of Bangladesh's first ever speech and language therapy students, based at the Bangladesh Health Professions Institute. She has completed her fourth year and will graduate in 2009 after a one-year internship.

Cristy Gaskill completed a Bachelor of Applied Science (Speech Pathology) from La Trobe University in 1997 and a Master of Social Science (International Development) from RMIT University in 2006. She spent two years teaching on the Bangladesh Speech and Language Therapy program in 2005 and 2006. She currently works with CBM, an international NGO working in the area of disability and development.

Correspondence to:

Jannatul Ferdous

*Speech and language therapy student
Bangladesh Health Professions Institute
email: jhuma_slit04@yahoo.com
phone: +880 (0)1711 224 540*

Cristy Gaskill

*International Programs Assistant, CBM Australia
Formerly speech and language therapy trainer,
Bangladesh Health Professions Institute
phone: 0420 405 671
email: cristygaskill@gmail.com*

Literacy difficulties across the rooftops

Caroline Bowen

Amanuensis: *A person whose employment is to write what another dictates, or to copy what another has written.* (Webster's Revised Unabridged Dictionary, 1913)

Aunt Alexandra: *When she settled in with us and life resumed its daily pace, Aunt Alexandra seemed as if she had always lived with us. Her Missionary Society refreshments added to her reputation as a hostess (she did not permit Calpurnia to make the delicacies required to sustain the Society through long reports on Rice Christians); she joined and became Secretary of the Maycomb Amanuensis Club. To all parties present and participating in the life of the county, Aunt Alexandra was one of the last of her kind: she had river-boat, boarding-school manners; let any moral come along and she would uphold it; she was born in the objective case; she was an incurable gossip. When Aunt Alexandra went to school, self-doubt could not be found in any textbook, so she knew not its meaning. She was never bored, and given the slightest chance she would exercise her royal prerogative: she would arrange, advise, caution, and warn.* (Harper Lee, 1960, p. 137)

FROM WHAT WEBWORDS HEARS, YOUR TYPICAL academic amanuensis or scribe is a flexible person prepared to work with a range of individuals with reading, writing, sensory, psychosocial or attentional challenges. Unlike Aunt Alexandra with her penchant for arranging, advising, cautioning, and warning (Lee, 1960), the skilled amanuensis resists any desire to take over. He or she masters the art of writing or typing precisely what is said without correction or interpretation, performing important functions in a variety of settings that are as conducive as possible to the person being helped. One role of the amanuensis working with candidates entitled to special arrangements. The amanuensis is to work at the student's pace in producing a verbatim record of words dictated by that individual during an examination, while simultaneously acting as invigilator. Another is to help when a student is composing assignments where using a recorder or computer will not suffice, where a student's typing is too laborious, or where a student has difficulty concentrating on typing and composing simultaneously.

Guidelines for amanuenses vary between institutions but essentially they should have a basic understanding of the subject in which they are scribing, and an appreciation of the student's preferred mode of working. It is also usual to have at least one briefing, familiarisation and practice session prior to the first examination.

Rooftops

Life being what it is, you can't always get an amanuensis who understands your subject and mode of working, or a **proofreader**¹, or a **dictionary**², or even a reliable spelling whiz when and where you need one. Take for example the plight of one determined graffiti exponent, and a writing project he conducted in the Broadway area a few convenient

strides from the University of Sydney main campus. For most of 2007 and all of 2008 a Federation Romanesque building on the corner of Broadway and City Road was mischievously dubbed "MENS TIOLTE". The new name, high in the rooftops against the skyline, in distinct black aerosol characters was clearly visible from the road. Lower down and harder to discern was the writer's tag, generated three times, in cheery **wildstyle**³.

Wildstyle

Wildstyle is a complex form of graffiti with interlocking, merging letters, arrows, spikes and connecting points. It is difficult for non-graffiti artists to read, and it took Webwords (who does not indulge) several Sunday drive-bys at 60 Km/h



to make out "SVTN", lightly crossed out (why ruin a nice piece of artwork?) and meticulously replaced with "STVEN", and crossed out again. Below the two unsatisfactory attempts, and touching to see, was "STEVEN" in triumphant, 3D characters on a purple ground, painstakingly decorated – probably over a concentrated period of three or more days.

It became obvious that the writing was on the wall for this ephemeral example of creativity, persistence and showmanship when the building was draped in green scaffolding nets, concealing Steven's little joke, and his heavenly display of literacy difficulty. We may never know who Steven was (a former client, perhaps), how he got up there (nerves of steel, no doubt) and remained there in full view of the road for long enough to complete his task, or why he favoured wildstyle. Was it pleasing to him aesthetically, did he take pride in its production, and was part of its appeal its clever capacity to camouflage his continued reliance (presumably as a young adult) upon invented spelling?

Predictors

Invented spelling is the ability to use sound-symbol relations but not necessarily orthographic rules to write words – for example, "rd" for read, "bk" for book and "STVN" for Steven. The **National Early Literacy Panel**⁴, in its widely circulated January 2009 **report**⁵ called Developing early literacy, glows pink with approbation for invented spelling abilities, along with decoding abilities in preschool and kindergarten, as early predictors of later spelling success.

The panel's report has been welcomed and praised as a needed tool for literacy instruction that includes training tips

for parents. The same enthusiasm has not been universally afforded to their conclusion that teaching the **alphabet**⁶ and letter **sounds**⁷ in the preschool years strengthens children's subsequent chances of conquering the task of **learning to read**⁸. This finding has worried some commentators, raising images of tender 3- and 4-year olds grappling with skills-driven instruction like their infants or elementary school aged siblings and friends. But maybe that, plus a good serving of play, fun and common sense in its implementation, is just what little Steven needed.

Translation

Importantly, the panel underscored the need for translational research to bridge the gap between key experimental **findings**⁹ and the non-expert laypersons' understanding of literacy. Predating this recommendation, and launched in 2007, the forces behind the accessible and freely shared *Encyclopedia of Language and Literacy Development* plan to do exactly that. The **Encyclopaedia**¹⁰ forms a component of The Canadian Language and Literacy Research Network website. Its answers to questions about children's language and literacy are based upon relevant and up-to-date research, clearly explained. It includes authoritative articles on the classroom implications of spelling research, fostering literacy development at home with typical and at-risk children, reading comprehension, the social consequences of low language and literacy skills, and more.

Attitudes, advocacy and openness

Adults¹¹ with learning disabilities are often encouraged to develop positive attitudes in their student years, to engage in self-advocacy in the workplace, and to be open with employers. One thing that can help them meet such goals is the knowledge that help is often available. Good starting points for motivated individuals are to check out the Learner Support options offered by **TAFEs**¹² around the country, the BBC's **Skillswise**¹³ resources, and the **Irish Adult Literacy Agency**¹⁴.

Another rooftop view

"That's enough", I murmured to Webwords who had cadged a lift to the Macquarie University library to meet up with me, and was waiting, while I tapped out the last few words, to be chauffeured home. "It just needs a list of related links and I'm done."

Sidetracked in the link hunt by the problem of **Who killed Angela Spelling?**¹⁵ and the fascination of George Orwell's **Why I write**¹⁶, and deep in thought, Webwords' sudden, unfitting (for a library) cry of, "Quick! Look!" made me jump. There parked below our third floor window was a purple Mini Minor. Webwords was beside herself. "I thought

it was a sunroof! But look!" There on the little car's roof, in small but distinct black aerosol characters, clearly visible from the window, it said "ELAFNS". "It's ELEPHANTS!" she enthused, her inner schoolmarm piqued. "It's an elephant joke. How many elephants can you fit in a Mini? He's so smart and funny!" Below the black capitals was a miniature, multicoloured tag. "STEVEN" it shouted in fearless 3D wildstyle on a purple ground. What was it with university campuses and Steven?

The librarian was not amused. "Public humiliation is what that fellow needs," he muttered grimly, "I'd know what I'd do if I found him."

It was Webwords' turn to think, "I think I know what I'd do too."

Reference

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Links

- 1 http://www.indiana.edu/~wts/pamphlets/proofing_grammar.shtml
- 2 <http://dictionary.cambridge.org/>
- 3 <http://www.hiphop-network.com/articles/graffitiarticles/streetmathwildstyle.asp>
- 4 http://www.familit.org/site/c.gtJWJdMQIsE/b.2133427/k.2623/National_Early_Literacy_Panel.htm
- 5 <http://www.nifl.gov/nifl/publications/pdf/NELPReport09.pdf>
- 6 <http://www.poissonrouge.com/abc/index.htm>
- 7 <http://teacher.scholastic.com/clifford1/flash/phonics/index.htm>
- 8 <http://www.ldaustralia.org/coltheart/202620prior2020075b15d.pdf>
- 9 <http://www.asha.org/about/publications/literacy/literacy-journals.htm>
- 10 <http://www.literacyencyclopedia.ca/>
- 11 <http://www.ldonline.org/article/c680>
- 12 <http://www.nci.tafensw.edu.au/courses/general%20education/9999-tafe-statement-learner-support.htm>
- 13 <http://www.bbc.co.uk/skillswise/words/reading/>
- 14 <http://www.literacytools.ie/>
- 15 <http://www.bbc.co.uk/skillswise/words/reading/techniques/scanning/game.shtml>
- 16 http://orwell.ru/library/essays/wiw/english/e_wiw
- 17 http://www2.stjohnsprep.org/teachers/mm_english/lee/mockingbird/chapter13.html

Webwords 34 is at <http://speech-language-therapy.com/webwords34.htm> with live links to featured and additional resources.

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My top 10 resources

Paediatric literacy

Melinda Schambre

HAVING WORKED AS A PAEDIATRIC SPEECH

pathologist for 12 years, I have established a strong interest in working with children with specific learning difficulties. After graduating from La Trobe University in 1996, I spent several years in country Victoria working for the Department of Education. From there I moved back to Melbourne and developed my skills working as a consultant for students with specific language impairment and then for the Learning Difficulties Centre, Royal Children's Hospital. I have operated a private practice for the last 8 years where I specialise in supporting students with specific learning difficulties. My passion for working in the area of literacy led me back to La Trobe to complete a Masters of Research part-time where I am currently completing an exploratory study looking at the development of language and emergent literacy skills in 4-year-old children. I am strongly committed to maintaining a large and varied resource cupboard that allows me to continually entertain, motivate and stimulate my clients to develop their literacy skills to their full potential.

vowel phoneme. For example, the /ei/ page contains lists of words containing the spelling choices *a*, *a-e*, *ai*, *ay*, *ei* and the opportunity to list any other spelling choices. Email: enquiries@where4kids.com.au; phone/fax: 03 9591 0637

3 Sound Check 1 and 2

Maureen Pollard has produced these two great workbooks that reinforce sound–letter correspondence, segmentation and blending skills. It also encourages students to discriminate between different spelling options for the phonemes they hear when they encode a word. Book 1 targets words containing the five short vowel sounds (graphs) as well as consonant digraphs (*ch*, *sh*, *th*, etc.) and words containing consonant blends. Book 2 addresses the different spelling choices for vowel phonemes such as the digraphs *ai/ay*, *ow/oa* and *ee/ea*, etc. Both *Sound Check* books can be purchased from Link Educational Supplies.

4 The Complete Phonics Handbook

by Diane Hope. (2001). Greenwood, WA: RIC Publications. ISBN: 1863116427; 9781863116428.

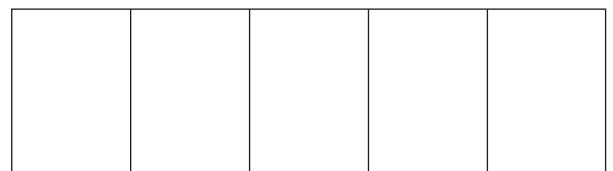
This is a must-have book for the clinician or teacher. When targeting phoneme–grapheme correspondence it helps to have a list handy of words that contain the different spelling choices for each phoneme. The words are colour coded for grade level complexity and contain a wide range of possible spelling choices so that you can help your students develop their word knowledge and phoneme–grapheme correspondences in the one activity.

5 Smart Kids resources

Smart Kids Australia has a wonderful catalogue of literacy and numeracy resources. They are produced locally and are very affordable. They produce a good variety of reading, spelling and language activities for children of a range of ages. I can't recommend their catalogue highly enough. Contact them by phone 02 9415 4080 for a copy of their latest catalogue or visit the website: www.smartkids.com.au

6 Coloured blocks/tokens and a blank card of boxes

Before applying letters to segmentation and blending tasks, I always spend time targeting these skills at an auditory level. I use coloured blocks or coloured tokens to represent sounds and use a piece of cardboard divided into boxes (see below) to help children segment phonemes into each box. This helps them to see a visual representation of the sound they can hear without having to think about how that sound is represented or how to write it.



1 THRASS picture chart

THRASS stands for Teaching Handwriting Reading and Spelling Skills. It is a multisensory program designed to be used as a classroom or individual program. The picture chart is the centerpiece of the program and is a visual representation of the 44 phonemes in English and contains the most common spelling choices for each phoneme. The THRASS chart supports the recommendations of the National Inquiry into Teaching Literacy by promoting an explicit teaching approach involving direct, systematic instruction. THRASS is a resource to support the teaching of phonics (sound–letter correspondence) and phonological awareness. See www.thrass.com.au for more information and to purchase THRASS resources.

2 Soundasaurus

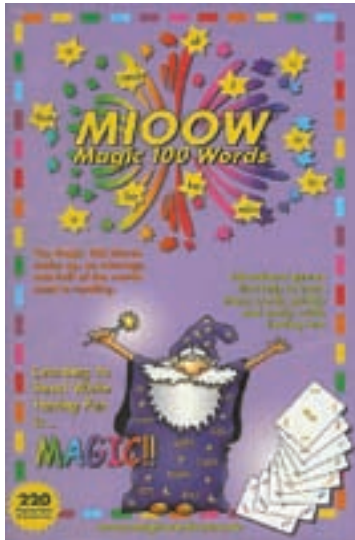
The *Soundasaurus* book by Vivienne Gyopar (Where4Kids) works well with the THRASS chart as it provides a page for each of the 44 phonemes in English where words can be listed that contain every spelling choice for a consonant or

7 Computer activities

There are a number of CD-ROM programs on the market which support an explicit teaching approach to literacy instruction. These include: Wordshark 4, eLr, Phonics Alive, Dingo Bingo, TextHELP, etc. These programs successfully augment a multisensory approach where a number of resources are used to reinforce skills.

8 MIOOW and More MIOOW

"MIOOW" stands for Magic 100 Words and is a pack of cards sorted into different colours containing the 100 most commonly used words. The colours sort the 100 words into levels of difficulty and frequency of use. For example, the 12 Gold Words make up a quarter of all words in general reading and are the easiest words to learn. Two cards are provided for each word which allows games to be



played such as "Go Fish", "Memory", "Snap", etc. One hundred different game ideas are provided. The "More MIOOW" Words contain the second 100 most commonly used words. These aren't expensive to buy and are very handy for speech pathologists, teachers and parents. They can be purchased from ACER or www.magicwords.com.au

9 WordsWork

WordsWork, 4th edition (Davidson & Wicking, 2003) is published by ARD Publishing and is available from ACER. It is a resource book for the clinician and contains theoretical background on how to teach spelling, word lists for a wide range of word families, vowel phonemes, consonant blends, etc. It also contains lists of high frequency words, multisyllabic words, spelling rules and rules for syllabification.

10 Sound Waves workbooks

These workbooks are part of the Sound Waves program (a phono-graphic approach to teaching spelling). There is a workbook for each grade level and each page provides activities for a particular phoneme addressing the different spelling choices for each of the 44 phonemes. For the younger year levels, the workbooks address a smaller number of spelling choices (e.g., *f*, *ff*) and for the older grade levels a greater number of spelling choices (*f*, *ff*, *ph*, *gh*). These workbooks allow revision of the different spelling choices for a phoneme and the opportunity to practise spelling and reading words at text level.

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My top 10 resources

Adult literacy

Karen Smith-Lock



Karen
Smith-Lock

I WORK AS A CLINICIAN IN PRIVATE practice in Perth, WA and as a researcher at Macquarie Centre for Cognitive Science (MACCS) at Macquarie University. Both my research and clinical practice focus on developmental oral and written language impairments in children and adults. My top 10 resources for adult literacy are very similar to those I would use for childhood literacy, as the same information generally needs to be covered, usually with the same techniques. It's really just a twist in presentation and a respectful consideration of what the adult brings to the learning task.

1 Gallistel-Ellis Test of Coding Skills

This is my favourite test! It does not provide age or grade-based norms; it simply tests a person's ability to read and spell single words of various spelling patterns. Especially with adults, the assessment question is not *if* they have a problem (they come to us saying that they do), but *what* is their problem? This test is an excellent tool for identifying exactly what a person understands about the writing system and what he/she doesn't. It is a great basis for planning treatment. It covers: 1) closed syllables, both with single consonants and consonant combinations; 2) vowel-*r* syllables; 3) silent-*e* syllable words and multisyllabic words; 4) words with simple endings, such as *s*, *ed*, *ing*, and *y*; 5) words with soft *c* and *g*, *tch* and *dge*; 6) words with *cle* and common suffixes (*tion*, *ture*) as endings. The test is available from Montage Press; montagepress@ibi-usa.com

2 Megawords Assessment of Decoding and Encoding Skills: A Criterion-Referenced Test

This test complements the Gallistel-Ellis Test of Coding Skills by looking at multisyllabic words in detail – so often a problem in older children and adults. Finally there is something that breaks down the factors involved in reading and writing multisyllabic words! This test identifies specific skills that have been learned and those that have not. Skills tested include: syllable division of two-syllable words; common prefixes and suffixes, schwa sound, vowel variations, consonant variations, unaccented vowels, and assimilated prefixes, all in multisyllabic words. Available from: Educators Publishing Service; www.epsbooks.com

3 Cinderella story and/or cookie theft picture

Both the Cinderella story and the cookie theft picture are very useful for collecting a writing sample, so critical with adult clients. Often, these clients perform adequately on basic tasks, but tell us they are having difficulty. A writing sample can flush out spelling problems and grammatical difficulties (e.g., morphological errors, reduced complexity in syntax, tense shifting, vague pronominal reference), and can also show text organisation, cohesion and narrative structure. In addition, connected text is a very functional task. Many adults with reading and writing difficulties are very worried about their ability to write even casual things like

birthday cards and notes. We need to be able to assess this. For normative data for the Cinderella story, readers are referred to:

- Smith-Lock, K.M., Mortensen, L., & Nickels, L. (In press). Story writing skills of adults with a history language-impairment. *Reading and Writing*.
- Mortensen, L., Smith-Lock, K.M., & Nickels, L. (In press). Text structure and patterns of cohesion in narrative texts written by adults with a history of language impairment. *Reading and Writing*.

Both are available online from Online First, www.springerlink.com/content/0922-4777.

4 Rosner Test of Auditory Analysis

Rosner, J. (1979). Test of auditory analysis (TAAS). In *Helping children overcome learning difficulties: A step-by-step guide for parents and teachers* (pp. 77–80). New York: Academic Therapy; www.academictherapy.com

This test itself might not be particularly useful for diagnosis in adults, as there are 13 items, and the norms only to go year 3, but it uses a great technique: the *say XY, now say it again, but don't say X* technique. I find this extremely useful in helping clients identify the sounds in words, particularly the vowel. I often ask a client, as a first strategy in spelling a word, to identify the vowel (then I ask if it's short or long, then I ask them the ways they know to spell short and long vowels). The task of identifying the vowel is often difficult. Clients are usually successful after I ask them to progressively remove sounds. For example, for *pit*, I would say "Say *pit*." [pit]. "Now say it again, but don't say *p*." [it]. "Now say it again, but don't say *t*." [i]. "There's the vowel, ready to be spelled!"

5 Duplo (Lego) blocks

While these may be considered childish, it all depends on how you present them. These aren't for playing with, they are for representing sounds. I use them to help my clients segment words into their component sounds, and to identify consonants and vowels. I use different colours for vowels and consonants to highlight the vowel/consonant structure of the syllable. This is important for figuring out the vowel sound (i.e., VC means vowel is short [e.g., *at*], CV or VCe means that the vowel is long [e.g., *me*, *ate*]). We move one block for each sound of the word, while saying the word aloud. We can also add and remove blocks, as we manipulate words by adding and removing sounds.

6 COKO Phonic Learning Bricks: lower case, vowel sounds, digraphs

These Phonic Learning Bricks are like Duplo blocks, but with letters on them. They can be used on their own, or in conjunction with the plain coloured Duplo blocks to map letters to sounds. I only use ones that have one block related to one sound (or in the lower case set, the blocks are half the size of the Duplo, so, for example, the *t* and *h* can stack on one Duplo block for *th*). This is important to reinforce the relationship between sounds and letters. Even with adults,

this concept might not be fully understood, and visual aids are often helpful. Available from: cokoaustralia@bigpond.com

7 Megawords: Multisyllabic Words for Reading, Spelling, and Vocabulary

The *Megawords* series offers a systematic, multisensory approach to learning the longer words encountered from fourth grade on. Word lists build sequentially on phonic and structural elements. Lists are alphabetically sorted, separating practical spelling words from less-common words. Words are broken down into syllables which are then combined into whole words that are used in context to increase reading and spelling proficiency. This structured approach makes longer, complex words less intimidating. The workbooks teach students word attack strategies that they can apply to sounding out unfamiliar multisyllabic words.

I like this series because it breaks down multisyllabic words into manageable chunks. It suits adults well because it uses multisyllabic words to teach the basics that apply to single syllable words without tying up time working through single syllable words that the adults might be able to read by sight anyway. I often use the word lists with my own activities, but the worksheets can also be useful. Finally, it has great teachers' guides which clearly show how to work on the syllable, the word, then the sentence level for reading and spelling. Available from: Educators Publishing Service; www.epsbooks.com

8 List of irregular words

Gallistel, E., Fischer, P., & Blackburn, M. (1977). *GFB Sequence of objectives for teaching and testing reading in the concept transfer sequence*. Hamden, CT: Montage Press.

This absolutely fabulous resource is unfortunately out of print, but any word list with common irregular words will do. Just make sure that there are *no* regular words on the list!

I like to teach irregular words separately from regular words, to reinforce that they are different: they don't follow regular patterns, and they have to be learned by rote. Since so many adults have learned whatever they have learned by sight, I avoid irregular words until I am confident that they understand that regular words can be decoded and don't

need to be guessed. The plan is to give the client power – to show them that there are rules and that they can figure out words! When that understanding is clear, I introduce irregular words and explain that some words don't follow the rules, and they just have to be remembered. I work on a few at a time (say five words), reading them if necessary, including them in dictated sentences and asking them to weave them into their daily writing.

9 My stopwatch

Part of reading well is reading quickly and automatically. I often ask clients to time themselves reading lists of individual words. While it isn't for every client, it does provide great practice and a very concrete indication of learning and success. You'd be surprised how motivating it is for many people to try to beat the clock and improve their times. I aim for 1 word per second, with no more than two errors over 60 words.

10 Spontaneous writing

This is one of the most useful intervention tasks I have. I always ask clients to read and spell single words, but I also ask them to write something (anything!) every day. With adults, we choose something relevant to them, like letters to family, notes to teachers, rules to their favourite sports games – whatever they want. After they write, they must proofread what they have written. After all, they are the ones who will be responsible for making sure their writing is correct. I'll give them the tools to proofread with (rules on how the writing system works), but proofreading makes them put the rules in action. It also gives them power – if they know they can edit and correct their own work, they can have confidence in their writing.

Correspondence to:

Karen Smith-Lock, PhD

*Macquarie Centre for Cognitive Science,
Macquarie University, North Ryde,
NSW 2109*

*email: karen.smith-lock@mq.edu.au
karensmith-lock@bigpond.com*



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Literacy skills of children born preterm

University of Queensland Centre for Clinical Research

Alison Holm and Sharon Crosbie

Alison Holm and Sharon Crosbie are research speech pathologists based at the Perinatal Research Centre at the Royal Brisbane and Women's Hospital. Over the last four years their research has focused on the communication outcomes of children who are born preterm (<33 weeks gestational age). The majority of children who are born preterm are considered neurologically normal and free of disability. However, more subtle impairments of attention, executive function, language, visual-perceptual abilities, and fine motor function are reported to influence the ability to function. These "functional deficits" affecting 50–70% of very preterm children are often evident when children start attending school (Allen, 2008; Brunssen & Harry, 2007). One of the areas Alison and Sharon were interested in looking at was the literacy of children born preterm. This issue of the ACQ provides an excellent forum for a quick summary of the findings.

THE AIM OF THE STUDY WAS TO INVESTIGATE THE literacy, phonological awareness and language abilities of preterm children. We assessed 169 preterm and 141 full-term children aged between 5 and 12 years. All children were attending mainstream schools in south-east Queensland; had monolingual English language development; and did not have major physical or sensorineural impairment. Phonological awareness skills, reading (accuracy and comprehension) and real word spelling were assessed. Language and cognitive skills were also assessed.

The results indicate the preterm children achieved poorer scores across all domains assessed in comparison to their full-term classmates. However, the results of the preterm children did not differ significantly from the standardised assessment populations. That is, while there is a subgroup of children experiencing difficulty, on most tasks the proportion of children having difficulty was the same as you would expect in any normally distributed population.

Phonological awareness

The Sutherland phonological awareness test-revised (SPAT-R; Neilson, 2003) was used to assess the phonological awareness abilities of the children in year 1 and 2 (5–7 years of age). Raw scores were obtained and then compared to the standardised average range. Each child was then allocated a SPAT category of 1 (below average range), 2 (average range) or 3 (above average range). While more preterm children (11% of the sample) fell in the below average category than full-term children (6%), the proportion of children in this category is what would be expected in a normally distributed population.

Reading

In order to examine the reading skills of the preterm and full-term children in more detail, the children were grouped into good and poor readers based on their Neale Analysis of Reading Ability (NARA; Neale, 1999) accuracy profile levels.

There was an interesting pattern of results: in comparison with their preterm good reader peers, the preterm poor readers appeared to have global deficits; in contrast, the full-term poor readers had difficulties only on the literacy measures. This pattern indicates that the full-term group included a small group of children with specific reading difficulties, while the poor readers in the preterm group had more widespread cognitive, literacy and language processing problems.

Spelling

The preterm group performed poorly in comparison to both the full-term control group and the standardised assessment means on the measures of real and non-word spelling. In addition, more preterm children were identified with speech difficulties and had a history of receiving speech therapy. Children who have current speech impairment and those with a history of speech impairments but currently error-free speech are both at increased risk of experiencing reading and spelling difficulties (Holm, Farrier & Dodd, 2008). Studies investigating the long-term effects of speech difficulties in the preschool years show that even as adolescents, children with a history of phonological difficulties are likely to have literacy difficulties (Leitão & Fletcher, 2004).

Conclusions

The high number of preterm children who were identified with speech difficulties needs further investigation. Speech difficulty is a significant risk factor for children's literacy development, indicating that preterm children need to be carefully monitored.

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Correspondence to:

Dr Sharon Crosbie and Dr Alison Holm

University of Queensland Centre for Clinical Research

Level 4, Building 71/918

Royal Brisbane and Women's Hospital, Herston, QLD 4029

phone: 07 3346 6013

fax: 07 3346 5594

email: s.crosbie@uq.edu.au; a.holm@uq.edu.au



New Castles and Coltheart reading test available online

Macquarie Centre for Cognitive Science

Anne Castles, Genevieve McArthur and Max Coltheart

TWO KEY PROCESSES THAT CHILDREN

need to acquire when learning to read are sounding-out ability and whole word recognition ability (see e.g., Jackson & Coltheart, 2001). Sounding-out ability involves converting printed letters into their corresponding sounds, and is best assessed by measuring a child's accuracy in reading aloud *non-words* (nonsense words), such as *gop*, since these cannot be read by any other means. Whole word recognition ability involves accessing stored knowledge about familiar written words and is best assessed by measuring accuracy in reading aloud *irregular* words, such as *yacht*, since these cannot be read correctly via sounding-out rules.

Castles and Coltheart (1993) developed a test designed to directly assess how well children can use the sounding-out and the whole word recognition procedures. The test consisted of 30 irregular words and 30 non-words for assessing each of the key reading processes. Thirty *regular* words, like *cat* were also included. These kinds of words can be read accurately by either sounding-out or whole word recognition and so provide a measure of the combined functioning of the two processes.

There were, however, two major limitations of this original version of the Castles and Coltheart test. First, the test did not have a stopping rule. As a result, even a child who could successfully read aloud only a few of the simplest items on the test had to be presented with all 90 items. This was both time-consuming for the tester and potentially stressful for a child who could only read a few items. Second, for the older age groups, the test was subject to ceiling effects, particularly for the regular words and the non-words.

We have now developed a modified version of the test to address these limitations. The new test contains an expanded set of items, with 40 each of regular words, irregular words and non-words, rather than the original 30 items of each type. The new items extend the upper end of the difficulty range of the test, making it less susceptible to ceiling effects than the original version. The test also incorporates a stopping-rule, which makes administration of the test less time-consuming, and removes the stress on children who can only read a few items. The test has been normed on over 1000 Australian children. More details about the development and norming of the test can be found in Castles et al. (2009).

The test is free of charge and is available to teachers, professionals and researchers at our new Macquarie Online Test Interface (MOTIf: <http://www.motif.org.au>). MOTIf is an online platform for the administration and scoring of this



and other cognitive tests. The tests can be administered online to one or more children, and the results stored in an individual and secure test page. Alternatively, hardcopies of the test materials can be downloaded as pdfs from MOTIf in order to administer the tests offline. We hope that this modified test and the new facility for administering it will assist professionals in assessing key components of word recognition ability in children.

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Correspondence to:

Professor Anne Castles

Macquarie Centre for Cognitive Science (MACCS)

Macquarie University, Sydney, NSW 2109

phone: 02 9850 4860

fax: 02 9850 6059

email: acastles@maccs.mq.edu.au

web: <http://www.maccs.mq.edu.au/members/profile.htm?memberID=4>



Understanding and treating developmental literacy impairments using a cognitive neuropsychological approach

Macquarie Centre for Cognitive Science

Lyndsey Nickels, Saskia Kohnen, and Karen Smith-Lock

What is cognitive neuropsychology?

Cognitive neuropsychology is a branch of cognitive psychology. It has two major components:

- 1 To use data from cognitive impairments to further our understanding of normal cognitive processes (e.g., the problems individuals have in reading or spelling can be used to evaluate theories of reading and spelling).
- 2 To use theories of cognitive function to help us understand better the impairments of those with cognitive impairments (e.g., use theories of reading to determine which components of the reading process are impaired and which intact for a particular individual with dyslexia).

The cognitive neuropsychological approach to *assessment* involves systematic, hypothesis-driven assessment of the component processes of a cognitive task (e.g., reading) to establish which of these processes are intact and which impaired, i.e., establishing the “level of impairment” of a particular skill within a cognitive model. The basis of this approach is to use the pattern of success and failure across tasks (e.g., reading of irregular words versus reading of non-words) to draw conclusions as to which processing routines are available and which are impaired.

The cognitive neuropsychological approach to *treatment* rests on the assumption that treatment will be maximally effective only when the direction of treatment is determined by precise knowledge of the individual’s language processing strengths and weaknesses. Hence,

as symptoms (e.g., poor word reading) can arise as a result of various different types of impairment (e.g., problems with rule knowledge, problems with sight word knowledge), analysis limited to surface symptoms will not enable construction of effective treatments. The cognitive neuropsychological approach to treatment also has a strong commitment to methodological rigour in evaluation of the effects of treatment, using single case study experimental designs.

Detailed assessment based on a cognitive theory thus enables treatment to be directed precisely at the problems that have been identified and to capitalise on those processing abilities that remain (relatively) unimpaired. Similarly, the effects of treatment on the impairments can be precisely monitored with retesting. Analysis of what is wrong however unfortunately doesn’t uniquely determine what to do about it, but does narrow down the options (e.g., if an individual with poor reading was found to have good knowledge of letter–sound rules, a phonics program would not be an appropriate treatment approach).

Further reading

Ellis, A.W., and Young, A.W. (1996). *Human cognitive neuropsychology: A textbook with readings*. Hove, East Sussex: Lawrence Erlbaum. (an introductory textbook)

Jackson, N.E. and Coltheart, M. (2001) *Routes to reading success and failure*. Hove: Psychology Press.

AT MACQUARIE CENTRE FOR COGNITIVE SCIENCE

(MACCS), we have an ongoing program of research which focuses on using a cognitive neuropsychological approach to understand and treat of disorders of reading and spelling. Here we summarise three recent areas of research. However, other active research projects include the development and norming of spelling tests for the differential diagnosis of spelling difficulties (Kohnen, Nickels & Castles, 2009).

Orthographic learning for new written words

Past research has shown that the ability to store written words in a mental word store (i.e., orthographic learning) is impaired in developmental reading and spelling problems (dyslexia/dysgraphia; DiBetta & Romani, 2006). Hence, children and adults with spelling and reading problems are slower at learning spellings of new words. We have found that treatment can improve the reading/spelling of trained

irregular words (words where their spelling/pronunciation has to be learned and cannot be derived by rule, e.g., *yacht*). Interestingly, misspelled words which are not trained also show improved reading/spelling (e.g., Brunsdon, Coltheart & Nickels, 2005; Kohnen, Nickels, Coltheart & Brunsdon, 2008). Why does this improvement happen?

One possibility for explaining this improvement is that remediation may have had beneficial effects on orthographic learning, in other words, on the process of actually acquiring orthographic representations. We are investigating this possibility by looking at how orthographic learning might change over the course of an intervention for children with different subtypes of literacy disorders. In order to do this, orthographic learning tasks are administered to the participants before and after training. Typically, orthographic learning tasks consist of stories in which a new word is introduced (e.g., “In the olden days people used to eat a dish called *stomp*. *Stomp* tastes like rice...”). Orthographic

learning is measured by how well these new words can be read and/or spelled after exposure to the story. Results from one of our single case studies shows that while training can improve knowledge of spelling rules and spelling of real words (even untrained ones), skill generalisation may not necessarily extend to orthographic learning for the acquisition of new words. Our findings support previous research that reports orthographic learning deficits in adults with developmental dyslexia/dysgraphia, indicating that orthographic learning might remain impaired into adulthood. Further case studies are currently underway to investigate this issue in greater detail.

Evaluating treatment programs for literacy impairments

The discipline of cognitive neuropsychology has made important contributions to the conceptualisation of therapy for language impairments. The cognitive neuropsychological approach involves detailed assessment based on models of language processing (e.g., dual route theory of reading for a reading assessment) followed by individualised treatment programs tailored to the language impairment identified by the assessment.

While individually tailored remediation programs are a promising avenue for successful intervention of language disorders, they are also resource- and cost-intensive. There are, however, programs (e.g., for the treatment of literacy disorders in children) that are designed in such a way that they most likely lead to improvement in the majority of children with literacy disorders. Some of these programs are widely used. The potential difficulty with such programs is that developmental disorders of reading and spelling are very heterogeneous: children present with very different problems underlying their reading/spelling impairment (often, but not always, leading to different symptoms). For example, most people with reading/spelling difficulties have problems with the rule-based knowledge (“phonics”, investigated by reading/spelling non-words). However, at the same time, most people with reading/spelling difficulties also find it difficult to read and spell words that are not predictable from their writing (i.e., irregular words like *yacht*, *friend*). But, crucially, not all people present with difficulties in both of these areas, some only have difficulties with rule-based knowledge and others only with irregular words. Almost every person is different in the extent to which their rule-based or irregular word knowledge has developed. The cognitive neuropsychological approach would argue that these different impairments require different forms of intervention. Can the “one size fits all” approach of the programs cater to these different needs?

Many of the widely used programs lack formal evaluation, and hence, we cannot be sure how much these programs improve reading and spelling. In particular, it is not clear how and if children with different subtypes of reading and spelling disorders benefit to the same degree (or benefit at all) from such programs. We are currently using cognitive neuropsychological methods in order to independently evaluate different treatment programs for reading/spelling problems. This research should allow clinicians to make more specific predictions as to which children may or may not benefit from receiving a particular program.

Effects of specific language impairment on writing skills

Much of the published research on intervention with people with reading and spelling/writing difficulties focuses on the acquisition of single words. While single word spelling and

reading are essential steps in any intervention, many clients report ongoing difficulties at the level of connected text. Text composition is a very complex undertaking relying on skill in grammar and narrative as well as word retrieval and spelling (in the written modality). In a first series of research studies, we investigated the writing skills of a group of adults with a history of childhood oral language impairment (LI). The story writing of 10 adults with a history of LI was compared to a group of 51 unimpaired individuals. Participants were asked to write and tell the story of Cinderella. Stories were analysed for length, grammatical complexity and accuracy of grammar, punctuation and spelling, generic structure and cohesion.

The results indicated that, as a group, the adults with LI showed no difference from the comparison group in the length of their stories as measured by total number of words. The LI group did, however, show reduced grammatical complexity in their writing, as measured by mean length of t-unit. The LI group made more errors in grammar, spelling and punctuation than the comparison group. In contrast, patterns of text organisation at the level of generic structure and measures of cohesion did not distinguish the performance of the LI group from the comparison group. When the written stories were compared to the oral stories, both groups produced significantly longer oral stories than written, but showed no significant difference in complexity (mean length of t-unit) between the two modalities. The oral and written stories of adults with a history of LI were less grammatically complex and more error filled than those of comparison group. Thus, the writing of the adults with a history of LI reflected their oral language skill. We are continuing to analyse these data, looking at the text cohesion and generic structure of the oral texts to determine if these measures are a relative strength for the LI group in oral stories as they are in the written stories.

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Correspondence to:

Associate Professor Lyndsey Nickels

NHMRC Senior Research Fellow

Macquarie Centre for Cognitive Science (MACCS)

Macquarie University, NSW 2109

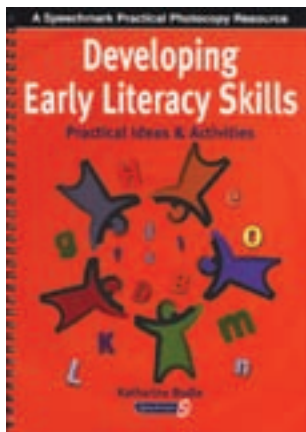
phone: 02 9850 8448

fax: 02 9850 6059

email: lyndsey.nickels@mq.edu.au



Speech pathology resources



Bodle, K. (2007). *Developing early literacy skills: Practical ideas and activities*.

Brackley, UK: Speechmark Publishing. ISBN 978 086388 538 9 (spiral bound); pp. 158; UK£35.99; www.speechmark.net

Marleen Westerveld

This A4-sized book is aimed at parents, early childhood educators and other professionals involved with pre-school and older children with literacy difficulties. It claims to provide a range of activities and photocopyable resources to promote the development of early literacy skills. The book is divided into six sections: basic skills, rhyming, learning the alphabet, phonological awareness, reading, and writing

and handwriting. Readers are advised that “sections 2 to 6 cover the chronological development of skills which an ‘average’ pre-school child will acquire before and during his first year in school” (p. viii), but that activities from different sections may be used concurrently.

Section 1 (16 pages) focuses on basic skills that are, according to the author, needed before work on the skills covered in later sections of the book can commence. This rather short section doesn’t do justice to the topics covered, which include “using spoken language” and “shared reading”. Other topics include sequencing, auditory awareness and auditory and visual memory for which examples of activities to promote these skills are provided.

Section 2 devotes 26 pages to rhyming, including activities, nursery rhymes, rhyming word lists, black and white picture cards and a list of recommended books that have a strong rhyme and rhythm. Section 3 focuses on learning the alphabet. A brief explanation at the start of this section states that although it is important that children eventually learn to link letters to sounds, initially the alphabet should be taught separately as a rote learning process and that letters (not sounds) should be used for alphabet work to avoid confusion.

Section 4 looks at phonological awareness (16 pages) and contains a brief description of the terminology involved, including syllables, onset/rime, and long and short vowels. The teacher guidelines warn the reader not to combine working on phonological awareness and reading/writing skills before the child is ready. This section includes examples of activities in the areas of syllable identification and sound identification as well as some black-and-white picture cards. Section 5 focuses on reading and provides a very brief overview of different methods of reading tuition, including whole word, phonics, whole sentence, and alphabetic methods. The section lists some activities related to basic book concepts, sharing books, and book making. It also includes a reading pack – 26 black-and-white picture cards that contain the 26 letters of the alphabet. The final section looks at writing and handwriting and provides some sheets to practice tracing and patterns and concludes with a list of resources and suppliers.

Unfortunately, this resource lacks a theoretical foundation and does not conform to best practice. It has been well established that intervention for children at risk of literacy difficulties should aim to enhance children’s phonological awareness. Moreover, intervention should be integrated with letter–sound knowledge training and incorporate activities to transfer phonological awareness to decoding and encoding written words (see Gillon & McNeill, this issue, for a detailed discussion). In contrast, there is no evidence to suggest that improving children’s rhyme awareness will be effective in stimulating children’s reading development.

Another weakness of the resource is the black-and-white line drawings which are not very attractive. In summary, in my opinion this book would not provide a valuable contribution to a speech pathologist’s resource collection.

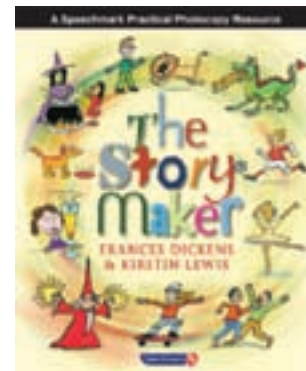
Dickens, F., & Lewis, K. (2007). *The story maker*.

Brackley, UK: Speechmark Publishing. ISBN-13: 978 0 86388 602 7 (spiral bound); pp. 224;

UK£ 34.99;

www.speechmark.net

Julie Marinac



The Story Maker is, as it claims, a practical, photocopyable resource for those working with children aged 4 to 11 years. It provides information on 12 essential scaffolds to aid the development of stories (e.g., story types, characters, settings, time, etc.) in a child-friendly and colourful manner. The overall content and presentation should engage children who are reluctant story-tellers and enable greater understanding and use of language – both written and spoken. It should also be valuable to those who are learning English as a second language, especially those who are simultaneously expected to undertake English-language schooling.

The authors provide a wide range of examples, explanations and tips followed by interactive practice that can be undertaken with support or independently. Each activity includes a diversity of vocabulary (e.g., under *smell* – acrid, pungent and rotten) introduced in familiar and simple constructions with age appropriate illustrations. In addition, the use of repetitive carrier phrases allows the child to focus on newly introduced vocabulary (e.g., *The witch stirred the contents of the cauldron. It smelt putrid. It smelt rotten. It smelt foul. It stank! I wasn’t going to drink that!*, p. 85).

Although I would like to be able to recommend this resource without reservations, I cannot do so due to a surprising number of punctuation, grammatical and formatting errors (e.g., missing punctuation, sentences beginning with *or*, and inconsistencies in word order). In a resource designed to support children in narrative production, and one in which they are encouraged to

write sentences, etc., it seems amiss to have examples that contain such errors. This is of particular concern if children were encouraged to use the book independently (as suggested by the authors) as it introduces the risk of incorrect practices being accepted as correct because that's "what the book says". I would encourage the authors to undertake a revision and to return *The Story Maker* to the market as soon as possible as it has the potential to be a very valuable clinical resource.

Reilly, S. & Love, E. (2008). *FLIPS: Fun language interactions to prepare for school success*. Camberwell, Victoria: Love and Reilly Speech and Language Products; \$36.50; www.loveandreilly.com.au
Nicole Watts Pappas

As the name of this resource cleverly indicates, *FLIPS* is a flip book of 100 language activities and tips that target oral language skills required for school. Each page incorporates a different language stimulation activity.



Activities can be randomly flipped to, or used in order. The A5-size book has a built in stand to allow it to be propped up for easy viewing. The activities vary in focus and include key language areas entitled: "active listening", "vocabulary", "questions", "extended turns to talk", "thinking", "imagination", "talking about language", "developing memory skills" and "what do I know?". For example, one flip page suggests holding a "B" day in which the child listens for and practises saying "b" words, makes a mobile of items starting with the "b" sound and has a snack of food starting with "b". The activity suggests using the sound "buh" rather than the letter name during these activities. Another activity is focused around the concept of "floating" and suggests gathering household items and investigating whether they will float in the bath. The activity page provides ideas for questions that could be used to stimulate the child's thinking and language around this topic – for example "Which do you think would sink first, the soap or the brush?". An occasional page also contains a "Flip Tip" which gives general ideas for language stimulation (for example, tips for questions to ask when reading a story to a child).

The activities are explained in a simple, easy-to-understand fashion, and contain ideas to extend learning. Some of the pages contain a short explanation outlining the importance of the skill targeted to school readiness. A strength of the resource is the large variety of ideas provided and the number of language skills which are included. However, the incorporation of ideas to vary the difficulty level of each activity according to the child's age and language abilities would have been useful. Colour printing and the inclusion of more pictures may also have made this resource more appealing to parents.

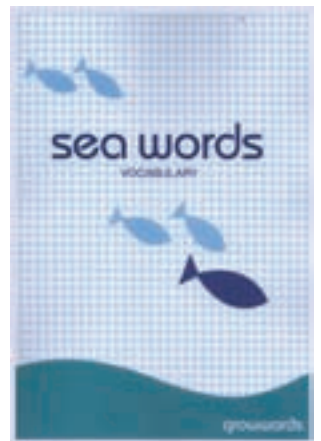
This resource would be useful for parents to use at home to prepare their child for school or to use with their school-aged child who is struggling with language. The fun and hands-on nature of the activities means that parents and children may be more likely to engage in them than in a more formal home program. SLPs may wish to purchase this resource to provide ideas to parents for fun home activities to engage in with their children. The ideas could also be

used by preparatory and year 1 teachers/teacher aides and childcare workers for language stimulation tasks.

Crosbie, S., & Wandschneider, S. (2008). *Sea words: Vocabulary*. Springwood, Qld: Grow Words; pp. 104; A\$60. www.growwords.com.au

Katherine Osborne

This black-and-white reproducible resource book contains pictures and activities for building vocabulary related to the sea and the beach. It is intended for use with children, although no age range is specifically stated. The activities target both receptive and expressive language skills, and range in difficulty from simple bingo games, to classification card games, to making Venn diagrams. The vocabulary complexity also progresses from easy to difficult. For example, there is relatively straightforward classification vocabulary (e.g., zoo, farm, sea) suitable for prep level; more sophisticated classification vocabulary (e.g., vertebrates and invertebrates) suitable for mid primary; and quite complex classification vocabulary that extends to upper primary level (e.g., ectothermic reptiles). With this type of topic-specific vocabulary, the resource would be most helpful for school project work. Teachers, teacher aides and school-based speech pathologists would find this resource very useful.



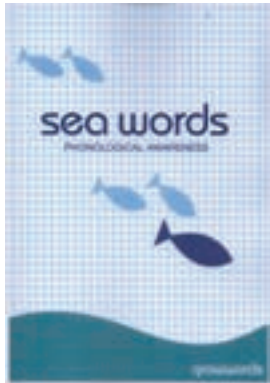
The activities are based on developing two types of relationships – intrinsic (shared features such as colour, category) and associative. Other semantic relationships, such as sequential, spatial are not developed and there is no reference to the theoretical underpinning for developing the two relationships chosen. Nevertheless, semantic linking is comprehensively achieved through the provision of a wide variety of activities for developing vocabulary related to synonyms, classification, parts/whole, similarities and differences.

The resource has four types of record forms for monitoring progress of individuals, groups or whole classes. There are no record-form examples. Should the activity game sheets be used in a school setting by people other than speech pathologists, there is no explicit labelling on each activity as to which relationship is being targeted e.g., receptive ability-habitat classification. Activities are labelled in the contents page only.

The positive features of this resource include the clear, unambiguous black-and-white pictures, extensive semantic linking through a wide variety of activities, activity directions being clearly explained, and all activities being photocopiable. It represents good value for money and is priced well compared with similar vocabulary resources that are currently available. Those working in a school setting could recommend that the school purchase this resource as a source of activities for developing vocabulary related to the sea/beach. Activities are suitable for whole class learning, small group and individual sessions with a teacher aide or parent helper. Record forms ensure progress can be monitored. For a sole therapist, this resource may be too specific in terms of the sea/beach theme, but most of the activities could be easily used for other purposes, such as articulation therapy for /s/ and /ch/, or for developing level 2 language skills (Marion Blank).

Crosbie, S., & Wandschneider, S. (2008). *Sea words: Phonological awareness*. Springwood, Qld: Grow Words; pp. 140; A\$60. www.growwords.com.au

Katherine Osborne



This blackline reproducible resource book contains pictures and activities for developing phonological awareness at syllable, onset-rime and phoneme levels. All activities relate to the sea and the beach. Extensive activities are provided at each of these levels. At syllable level, activities focus on syllable segmentation (up to three syllables), syllable deletion, syllable blending, and syllable identification. For example: Syllable identification: *tentacle/barnacle*: Are any parts the same? Syllable deletion: e.g., *hammerhead*: If I take away *head* in *hammerhead*, what's left?

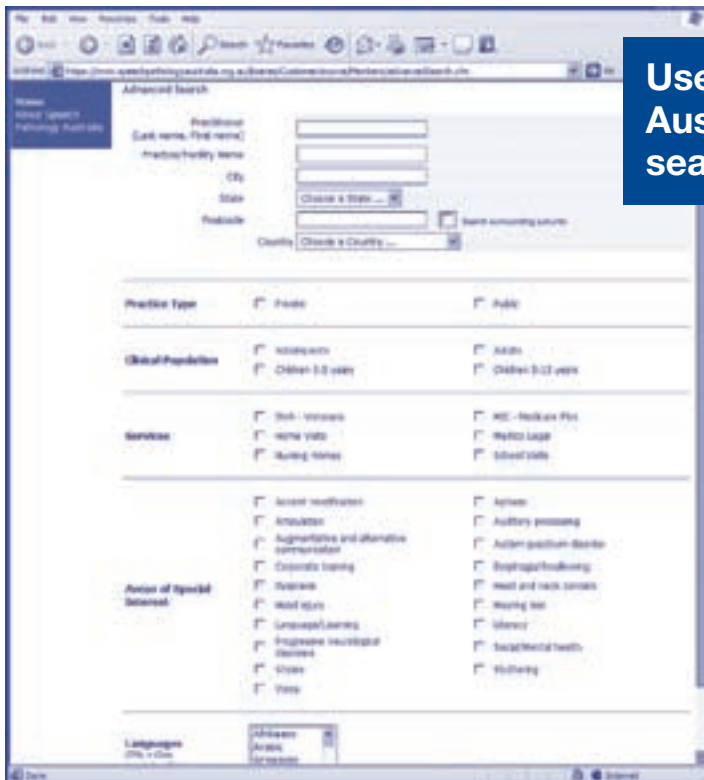
At onset-rime level, activities develop rhyme recognition, rhyme detection (odd one out), rhyme generation, and written rhyme identification focussing on the endings: *ig, un, ip* and *ing*. At phoneme

level, activities develop skills in initial and final phoneme discrimination and picture to letter matching, medial vowel identification and letter matching, and segmentation and phoneme blending up to five phonemes.

The wide variety of activities allow for a variety of response types from the student. These include clapping syllables, word search, writing medial vowel letters, matching pictures, colouring, circling pictures, circling final consonants, writing the number of syllables, picture blending, oral blending.

The resource book has similar positive features as its companion *Sea Words: Vocabulary*. That is: four types of record forms for monitoring progress at individual, group and class level; clear and unambiguous drawings; photocopiable pages; a broad range of activities and games, and competitive pricing. It also shares a negative feature, which is its lack of explicit labelling on worksheets as to the specific skill being targeted. This may be bothersome when selecting activities and when reminding the facilitator of the desired goal. Nevertheless, along with its companion, this spiral bound book would be a valuable resource for teachers and speech pathologists working in schools.

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Around the journals

Reading growth in children with language impairment.

Catts, H. W., Bridges, M. S., Little, T. D., & Tomblin, J. B. (2008). Reading achievement growth in children with language impairments. *Journal of Speech Language and Hearing Research*, 51, 1569–1579.

Erica Dixon

This paper describes a longitudinal study of 225 children with language impairment (LI) and 379 children with typical language skills (TL). These children were identified in kindergarten, based on results of the Test of Language Development-2 Primary edition (TOLD-2P), a narrative story task and two subtests of the Wechsler Pre-School and Primary Scale of Intelligence – Revised (WPPSI-R). All children were re-assessed on measures of reading comprehension and word recognition in 2nd, 4th, 8th and 10th grades. The aim of the study was to establish the pattern of growth in reading achievement of children with LI across the school years. Specifically, they aimed to determine if children with LI would show deviant, delayed but parallel, or perhaps an increasingly delayed pattern of reading achievement compared to their peers with TL.

Results showed high initial acceleration in areas of word recognition and reading comprehension for both groups of children, with slower growth between 4th and 8th/10th grades. Interestingly, no significant differences were observed in the shape of growth trajectories between the two groups. Although children with LI showed lower initial reading abilities and failed to catch up with the TL cohort during the span of the study, differences in reading ability between the groups did not increase across the grades. As a result, children with LI were found to reach much lower levels of reading achievement in middle and high school than children with TL. When investigating the effects of non-verbal cognitive ability on reading achievement, it was found that children with low non-verbal cognitive abilities (from both LI and TL groups) demonstrated lower initial reading achievement than those with normal non-verbal cognitive abilities. However, there were no differences between the two groups of children in the growth of reading achievement across the school grades.

Results from the 10th grade assessments showed that children with LI performed at a grade-equivalent level of approximately 6th grade in reading comprehension and close to 5th grade in word recognition. However, children with TL were at grade level in reading comprehension but were found to be below grade level in word recognition (approximately 7th to 8th grade-level).

Given the strong empirical evidence that oral language is the foundation for reading achievement, what do the results of this study mean for clinicians? First, the presence of LI in kindergarten is an important predictor of persistent reading disorder across the school grades. Second, effective screening and referral procedures need to be in place to identify and support children with LI at the beginning of

kindergarten or even earlier if possible. When assessing children's literacy skills Catts et al. stress there is a need to go beyond the traditional early literacy variables of phonological awareness and letter knowledge and to include other aspects of language development such as vocabulary, grammar and/or narration to determine which children may be at risk for future reading difficulties. Given the persistent difficulties in reading ability in children who are off to a slow start, Catts et al. finish by stressing the importance of early identification and for implementing appropriate intervention to reduce the long-term consequences of reading difficulties.

Predicting later language and early reading outcomes in at-risk children.

Flax, J., Realpe-Bonilla, T., Roesler, C., Choudhury, N., & Benasich, A. (2009). Using early standardised language measures to predict later language and early reading outcomes in children at high risk for language-learning impairments. *Journal of Learning Disabilities*, 42(1), 61–75.

Mary Claessen

This paper describes a longitudinal study of two groups of children: a group of 40 children with a family history (FH+) of language learning impairments (LLI) and a control group of 59 children with no family history of LLI (FH-). The aims of the study were: 1) to compare the language profiles of the two groups from 2 years through 7 years, and 2) to establish which standardised language measures administered at ages 2 and 3 years reliably predict expressive and receptive language abilities, phonological awareness abilities and reading abilities at 5 and 7 years of age.

All children were recruited as infants, and there was no difference in socioeconomic status between the groups. All participants were assessed on a range of receptive and expressive language measures at ages 2, 3, 5 and 7 years; on phonological awareness measures at age 5 and 7 and on reading measures at age 7. A measure of general cognitive ability was also administered at ages 3, 5 and 7.

At ages 2 and 3, there were significant differences between the two groups of children on all language measures with the children in the FH+ group performing below the control group of children with no family history. At age 5, however, only receptive language and rhyming scores revealed significant group differences. At age 7, scores on the Token Test, rhyming and non-word reading differed significantly between the two groups. There was much variability in performance on language measures in the FH+ group, perhaps due to the fact that the group was selected purely on presence of a family history of LLI, prior to the age when language begins to emerge.

At 3 years of age receptive language score significantly predicted 24% of variance of language score and 55% of variance on the Token Test at age 5. A similar pattern of prediction was found for 7-year-old language (11% of receptive language variance) and reading abilities (25% of reading comprehension variance; 21% of non-word reading

variance and 25% of real word reading variance). The family history variable did not account for any variance above and beyond these measures.

In conclusion this study suggest that due to the wide variability in language skill at age 2, language assessment at age 3 is more accurate in predicting later language and reading achievement. It also highlights the importance of monitoring the progress of children who present at the clinic with poor language skills in their early years, particularly those at risk for language learning impairment

Investigating the relationship between behaviour problems and reading difficulties.

Morgan, P., Farkas, G., Tuftis, P., & Sperling, R. (2008). Are reading and behaviour problems risk factors for each other? *Journal of Learning Disabilities, 41*(5), 417–436.

Mary Claessen

This paper explores the relationship between behaviour problems and reading difficulties. Reading difficulties and behaviour problems frequently co-occur and there are a number of causal models which attempt to explain the relationship. These models try to explain whether there is a common underlying problem which results in both behaviour and reading difficulties, or whether difficulties in one cause the other (i.e., difficulties in behaviour resulting in less attention paid to important reading instruction, or reading difficulties resulting in frustration, and thus behaviour difficulties), or finally whether perhaps both reading and behaviour difficulties cause each other. One recent model suggests that deficits in executive functioning might lead to reading difficulties. Executive functions are self-regulatory processes and include skills such as selective attention, planning, inhibition, and organisation.

This study explored whether children's reading problems predicted later behaviour problems and also whether early behaviour problems predicted later reading difficulties. The study used a set of longitudinal data from a sample of 11,515 children. These children were assessed in kindergarten, first grade and third grade. For the current study, results from the following tests were analysed: "The Reading Test" which comprises a range of tasks to assess basic reading skills such as phonological awareness tasks, receptive vocabulary and text comprehension, as well as a "Teacher Social Rating Scale" which measures a child's behaviour.

After controlling for poor attention and socioeconomic demographics, poor reading ability in first grade was found to be a statistically and clinically significant predictor of problem behaviour in third grade. Conversely, when investigating whether behaviour difficulties in kindergarten predicted reading difficulties in third grade, it was found that only one behaviour difficulty (poor task engagement) increased the likelihood of a child being a poor reader in third grade. In contrast poor self-control, poor interpersonal skills and internalising problems did not predict poor reading. Task engagement may be considered to be proximally related to poor executive functioning as the child is unable to self-regulate goal-directed behaviour. And thus this study supports a restricted executive function model where poor self-regulation of behaviour constrains the child's ability to learn within the demands of a classroom.

Results of this study suggest the need for intervention which targets both reading and behaviour problems simultaneously.

Memory functioning in children with reading disabilities and/or ADHD.

Kibby, M., & Cohen, M. (2008). Memory functioning in children with reading disabilities and/or attention deficit/hyperactivity disorder: A clinical investigation of their working memory and long-term memory functioning. *Child Neuropsychology, 14*, 525–546.

Michelle Quail

Past research has confirmed a link between specific learning disability in reading (RD) and attention deficit/hyperactivity disorder (ADHD). This study aimed to investigate the specific area of memory breakdown in these populations.

The authors hypothesised that children with RD would have poor verbal short-term memory, unimpaired visual short-term memory and no deficit in long-term memory (visual and verbal). Using Baddeley's model of working memory (1986, 2000) they anticipated that these results would reflect a specific deficit in the phonological loop component of working memory. It was also thought that children with RD would show greater difficulties on short-term memory tasks when required to code for phonology as opposed to semantics. Children with ADHD were predicted to have age-appropriate phonological processing and long-term memory skills. However, the central executive (allowing skills such as problem-solving, mental flexibility, inhibition, motor control, self-regulation) was thought to be an area of weakness.

This study involved the assessment of 113 children aged between 6 and 15 years. The groups consisted of children with RD, ADHD, comorbid RD and ADHD, and typically developing children. Subtests of the Children's Memory Scale were used to assess the different memory components across the domains of verbal short- and long-term memory, visual short- and long-term memory, and attention/working memory. Children with RD were found to perform poorly on verbal memory tasks when coding by phonology (e.g., recalling numbers) but not when coding by semantics (e.g., recalling stories). This supports the hypothesis that children with RD have a specific deficit in the phonological loop component of working memory. Children with ADHD performed well on the majority of verbal short-term memory tasks and showed a mild deficit in visual short-term memory which was more apparent in children who were not on medication. Once general attention was accounted for, these children showed no deficit on tasks investigating central executive function. This contradicts the original hypothesis that this was a specific area of deficit in children with ADHD. The children with comorbid RD and ADHD showed deficits reflecting a combination of the results from the RD and ADHD groups with no additional difficulties.

The clinical implications for children with RD include the need to relate verbal material to what is already known and to provide semantic context in order to reduce the need for phonetic coding. The use of repetition and supplementing verbal instruction with visual aids will support both clinical populations. For children with ADHD this will reduce the pressure on the central executive. Teaching of specific strategies to support working memory is also recommended.

Rapid serial naming is a predictor of spelling ability.

Savage, R., Pillay, V., & Melidona, S. (2008). Rapid serial naming is a unique predictor of spelling in children. *Journal of Learning Disabilities, 41*(3), 235–250.

Michelle Quail

This study investigated rapid automatic naming (RAN) as a predictor of spelling abilities. Past research has mainly

focused on the link between RAN and reading, with the RAN-spelling relationship receiving much less attention and being confounded by the use of non-word reading skills as an additional research variable (as opposed to non-word spelling).

The authors believe that RAN reflects a capacity to accurately store a word's orthographic information. In English, there is a higher percentage of inconsistency when writing down different forms of the same sound (i.e., the vowel sound in: new vs. shoe) than when pronouncing different forms of the same spelling (leaf vs. deaf), leaving many to conclude that spelling is in fact a more difficult task than reading.

The experiment involved the use of regression analysis to investigate the extent in which different factors contribute to reading and spelling skills. Factors included: age, non-verbal abilities, phonological processing (non-word reading and spelling tasks), and the four RAN tasks (digit naming, letter naming, colour naming and object naming). The design of the experiment is unique in that it looks at the effect of the RAN tasks over and above phonological processing skills.

A sample of 65 children (7–13 years) with reading and spelling difficulties were tested for this study. The research set out to answer the following questions: 1) is RAN a predictor of spelling abilities (when controlling for all other factors listed above), 2) is this relationship specific to alphanumeric RAN tasks (digit and letter naming), and 3) is RAN also a predictor of reading ability?

Results showed strong correlations between performance on non-word reading and spelling tasks and performance on real word reading and spelling tasks. It was also found that spelling and reading ability was strongly correlated with alphanumeric RAN tasks, but not those involving the naming of objects or colours.

Phonological processing skills (non-word reading and spelling) predicted a large amount of variance in both reading and spelling scores. After this was taken into account, the alphanumeric RAN tasks (digit and letter naming) still accounted for significant proportions of the variance in spelling scores, and the letter naming task was a modest predictor of reading ability.

Non-word reading and spelling tasks can be used to test one's ability to read and spell "exception" words. RAN can measure a child's capacity to learn "exception" words by matching word-specific phonological labels to orthographic forms, rather than using general rules. The implications of this research include the need to consider rapid automatic naming as an assessment tool in your literacy test battery, and more importantly, to consider digit and letter naming as likely predictors of reading and spelling skills. In addition, investigating a child's explicit decoding abilities through non-word tasks is also essential, given the strong association between phonological processing and literacy shown in this study.

Exploring the links between problem behaviour and reading difficulties.

McIntosh, K., Horner, R.H., Chard, D.J., Dickey, C.R., & Braun, D.H. (2008). Reading skills and function of problem behavior in typical school settings. *Journal of Special Education, 42*(3), 131–147.

Andrea Murray

The study described in this article aimed to explore the links between problem behaviour and reading difficulties in

primary-school aged children. Drawing information from current research, the authors provide three hypotheses to explain the relationship between academic difficulties and behaviour problems. The first is that attention problems may cause problem behaviours as well as have a negative impact on learning. The second hypothesis is that problems behaviours often reduce access to educational instruction and disrupt learning. The third hypothesis concerns behavioural function and purports that a student's low academic skills may lead to problem behaviour for the purpose of escaping academic tasks. The study examined the third hypothesis with research questions focusing on the function of problem behaviours.

Fifty-one students in grades 4–6 participated in the study. All of the students had had two or more office discipline referrals (e.g., for showing disrespect, harassment, vandalism, lying, or fighting) during the school year. A functional behavior assessment (FBA) was conducted using the FBA Interview-Teacher (FIT) tool. A curriculum-based measure of reading was used to assess reading competency. The results revealed distinct groups of students. Those with problem behaviour with the function of maintaining peer attention had above average reading fluency scores and those students with problem behaviour with the function of escaping academic tasks had mean fluency scores well below the average range. The study had limitations in that the sample size was small and the results may not extend to populations that are significantly different from the study participants. The results of the study, however, have important clinical implications and support the evaluation of reading fluency and the use of the FBA as an effective and recommended assessment for use with students with chronic behaviour problems. It also highlights that intervention for problem behaviours needs to have different components based on the identified function of the problem behaviour.

The neurobiology of reading and dyslexia.

Shaywitz, S.E., & Shaywitz, B.A. (2008). Paying attention to reading: The neurobiology of reading and dyslexia. *Development and Psychopathology, 20*(4), 1329–1349.

Andrea Murray

As reflected in the title, this article examines current theories and practices relating to reading and reading difficulties. It outlines the processes that take place during reading, explores the mechanisms necessary for the acquisition of reading skills, and examines the different definitions and theories of dyslexia. The paper also discusses the neurobiology of reading and dyslexia and explores the neurobiological commonalities that exist between attention difficulties and reading difficulties.

The use of functional magnetic resonance imaging (fMRI) has provided consistent and replicable data on the location of the neural systems for reading. It has also enabled comparisons to be made between the neural systems of dyslexic readers and unimpaired readers with converging evidence now supporting what has been termed a "neural signature" for dyslexia. These findings have been consistent across cultures and demonstrate a disruption of the posterior neural systems serving reading. It has been widely established that in dyslexic readers there are disrupted posterior reading systems in the parietotemporal and occipitotemporal areas but that compensatory systems

develop in the anterior areas. Of clinical significance is that data obtained from fMRI has demonstrated the efficacy of specific, systematic, explicit phonologically based interventions. The provision of these interventions at an early age has been found not only to improve reading, but also to facilitate the development of those neural systems that underlie reading.

The importance of a reader becoming fluent in addition to being able to decode words is also highlighted in the

article. Various theoretical models are described with the authors emphasising the importance of attention in enabling reading to become both automatic and fluent. Reference is made to the neurobiological evidence which is now available to support the links between ADHD and dyslexia. Preliminary studies have clinical implications and suggest that pharmacological interventions which are used to treat disorders of attention (ADD and ADHD) may be a useful adjunct in the treatment of dyslexia.

Outside the square

Into allied health

Sue Pager

Then...

I entered the world of speech pathology in Perth in 1984, training at what was then known as the Western Australian Institute of Technology or WAIT, under the exciting leadership of Ann Zubrick. Our small and supportive group graduated at a time when the job market was very competitive and people travelled to many far places to secure work.

Thus began many years of a country tour for me, from Busselton to Port Hedland and then Bunbury. They were challenging times with sole positions being the norm and little or no support available. I think we survived because we had so little understanding of how much we didn't understand!

My speech pathology career firmly steered a course into paediatrics and stayed there for many years – I enthusiastically took on emerging issues such as paediatric feeding, autism, and new approaches to stuttering therapy. I often wonder where all those gorgeous babies and cute toddlers are now and whether they fondly remember that lady who used to play with them.

The family needed a change and moved to Queensland in 2002 where they did things differently. Unable to pick up the sort of work I had been used to and at the same time suffering from a mid-career crisis of “what am I doing and why?!” I sought out a variety of temporary project positions. This opened the door to a whole new world of health promotion and I dabbled in nutrition, tuckshops, physical activity, skin cancer prevention and falls prevention while I completed a Masters in Public Health through the University of New South Wales. This also gave me a taste for research.

And now...

Significant industrial reform and workforce incentives in Queensland Health in 2007 lured me back into allied health to take up a unique position at the time. The allied health educator position in Logan Beaudesert Health Service District, and now two restructures later in Metro South District (around 600 allied health staff), offers me the opportunity to use all my many and varied skills. Speech pathologists and other allied health professionals have very versatile and portable skills to take with them into other sectors and fields.

My role as allied health educator has three major focus areas: planning and coordination of training and development, providing professional support, and building research capacity. More specifically, these roles involve the following activities:

- Planning learning for this diverse group of allied health professionals has involved setting up systems to assess need, manage training calendars and registrations and evaluate training activities as well as tailoring existing courses and developing new content for key learning areas such as evidencebased practice and supervision. Advocating for allied health's share of resources within the nursing, corporate and medical training arenas has also been a large part of the role.
- Professional support initiatives have included designing and implementing a supervision framework to support all professions, a leadership development program for senior clinicians and facilitating the integration of newly created clinical educator positions into the district.
- Research capacity has been targeted through a number of strategies including developing partnerships with universities, seeking funding for research positions and other infrastructure, training initiatives and a research project looking at a multidisciplinary team-based approach to conducting research.

Many other positions are now being established to support the allied health workforce. This means I get to work in a team of very dynamic and experienced professionals from diverse backgrounds including clinicians, educators, researchers and organisational psychologists. Research and professional support and development are very important in building the future for allied health, and it is exciting to be at the cutting-edge of major reforms. The future looks very bright for allied health here in Queensland and it's very satisfying to play a part in it.

Correspondence to:

Sue Pager

Allied Health Educator

Metro South Health Service

email: susan_pager@health.qld.gov.au

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Issue	Copy deadline (peer review)	Copy deadline (non-peer review)	Theme*
March 2010	3 August 2009	15 October 2009	Motor Speech Disorders
July 2010	8 December 2009	4 March 2010	Working with Families
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* articles on other topics are also welcome

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storgys and we ~~draw~~^{drew} pictures too.
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