SPECIAL EDUCATION PERSPECTIVES

VOLUME 22, NUMBER 1, 2013

A Journal of the Australian Association of Special Education Inc.

Contents

EDITORIAL

This issue of Special Education Perspectives has papers that address a broad range of issues.

The Practically Speaking section of the journal describes use of a tool for selecting iPad apps. Vita Williams and Katrina Ward from The Hills School, Sarah Turnbull from Parramatta West Public School and Jennifer Stephenson from MUSEC focus particularly on apps to develop visual schedules for students with high support needs. A very useful outcome of their work has been the production of an App Selection Rubric that teachers can use to select an app that is appropriate for their particular context.

In the first of the refereed papers, Christine Stylianakis from ASPECT and Cathy Little from The University of Sydney report on a case study of the implementation of a reading program for a student with autism. This case study of a 10 year old boy provided evidence that following the systematic multilevel reading intervention, literacy skills improved and were maintained. Importantly, student interest in reading increased and benefits were also noted in related aspects of expressive language.

In the second refereed paper Peter Westwood, author of the 'Commonsense methods' books, provides an update on his 2008 review of approaches to the teaching of spelling. As well as providing context for the review with reference to the curriculum and assessment in Australian and the UK, he discusses research within several major approaches and identifies trends in recent research studies.

The third paper, by Karen Badge from Macquarie University, reports on a study of Australian websites that provide information about Relationship Development Intervention (RDI), an intervention for students with Autism Spectrum Disorder (ASD). Following a careful review of websites, several were found that provided information about RDI. A particular focus of the review was the extent to which these sites accurately reflected empirical research. Interestingly, but perhaps not surprisingly, only some of the sites satisfied this criteria.

The final paper shifts the focus from special education in Australia to the Japanese context. In the paper by Yoriko Kikkawa and Fiona Bryer from Griffith University, the authors describe the use of lesson study – a teacher-led approach to professional learning – in the special education unit of a Japanese primary school. Four stories are used to explore learning activities that address the development of interpersonal skills for students with ASD.

Our popular Positively Influencing section hasn't been included in this issue but will return for 22(2). I'm sure, however, that you'll find ideas of practical value for you in the papers that we have included.

David Paterson, Editor
Merran Pearson, Editorial Assistant
Special Education Perspectives

Special Education Perspectives, Volume 22, Number 1, pp.3-6, 2013

Practically Speaking

A RUBRIC TO SUPPORT SELECTION OF SCHEDULING APPS FOR STUDENTS WITH HIGH SUPPORT NEEDS

Vita Williams & Katrina Ward, The Hills School
Sarah Turnbull, Parramatta West Public School
Jennifer Stephenson, Macquarie University Special Education Centre

As schools introduce iPads as teaching and learning tools, they are confronted with an overwhelming number of apps. Apple has announced there are now 900,000 apps in the App store. Finding apps is not a problem: it is selecting an app that will meet the needs of each individual learner that is difficult. If an app is to be suitable for an individual learner, it must be relevant to the learner's educational program. It must also contain features that build on the learner's strengths and provide support for areas of need.

There are rubrics available to teachers for evaluating apps in general terms: for example, the popular rubric created by Harry Walker (available in many places, including http://www.iear.org/iear/tag/rubric) and Andrew Churches' adaptation of Bloom's taxonomy for digital tools, (available at http://edorigami.wikispaces.com/Bloom%27s+Digital+Taxonomy). There are also rubrics available for specific areas such as apps for AAC: see one in development at http://dl.dropboxusercontent.com/u/53698591/PrAACtical%20AAC%20%281%29/RELAAACs%20AAC%20Lang%20App%20Rubric%20DRAFT.pdf , and a feature matching chart at http://www.childrenshospital.org/clinicalservices/Site2016/mainpageS2016P19.html .

The Hills School has been working with iPads since 2011 and received funding in 2012 under the NSW DEC "Special Schools as Centres of Excellence" initiative to extend this work. Part of this project was a formal research project to explore the use of an app for creating visual schedules for students with high support needs. The use of paper-based visual schedules and timetables is well established as a way to increase independence by guiding students through a sequence of activities over a whole day or within a teaching session.

In order to select an app and to create a practical tool to help others choose an appropriate visual schedule app from those available, the team looked at a range of apps and developed the following table as a way to summarise the features of each app and to make a judgment about whether or not they would meet the needs of individual students. The possible features of the app are summarized in the left hand column, the needs of the learner in the middle column, and then an overall rating on the match between the features of the app and student need is made in the right hand column.

We considered a range of features. The nature of the graphic display and whether or not graphics can be imported from other places is important because some students will perform better with photographs of specific objects or activities, while others may need to use a symbol set they

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are already familiar with. For some students text may be sufficient, and for others text and pictures may support the development of literacy skills. The ability to import graphics means schedules can be created for any activity, using the most suitable kind of graphic. If the app is to be used on multiple devices for multiple students, copyright issues regarding commercial symbol sets may also be an issue. The availability of voice output may be helpful to support students with poor comprehension of graphics and/or text, and the voice output needs to be intelligible to the student. The capacity to use a familiar voice, such as that of the teacher, may be helpful for some students.

For some students, use may be made more difficult if the whole sequence is not visible at the same time, and thus the app requires the student to scroll down or across a list or swipe from one picture or level to the next. It is helpful for some users if the device shows (through highlighting, positioning, or other means) which activity is current and which activities have been completed. Buttons or icons that the student needs to activate to use the app should be of a size the student can see and easily touch.

For some students, the size of the icons in an app will be a consideration. We found that for some apps, as activities were added to a sequence, the size of the icons reduced. For some, the icon that the student had to activate to show an activity was complete was smaller than the icon that had to be activated to highlight the current activity. For some students it will be important to identify the actions required: touching, swiping, dragging, and pinching or expanding may be required or helpful.

In addition, the range of setting options available that might be set by the teacher to individualise the display should be considered. It may be possible to control the size and placement of graphics, the style of text (if used), the background colour, and other features. The ease of creating and editing a schedule should be considered. If saved schedules can be edited (for example, by re-ordering or by having graphics changed) this will be helpful for the teacher managing several schedules. Finally, it may be helpful if there is a web page or YouTube video that provides support for teachers learning to use a schedule app.

Scheduling App Selection Rubric

FEATURES	**COMMENT** **What does the learner need?**	**RATE HOW WELL APP MEETS NEED** **0=not at all,** **5=completely**
Nature of graphics? Photo, drawing, text etc.		
Text label with pictures?		
Text only option?		
Pre-stored images? How many?		
Vocab for multiple contexts? Familiar routines and activities at home and school Self care Community activities Other		
Can import own images?		
Includes voice output?		
Voice output choices? (e.g. male/female voice)		

FEATURES	**COMMENT** **What does the learner need?**	**RATE HOW WELL APP MEETS NEED** **0=not at all,** **5=completely**
Can record own voice output?		
Can voice output be turned off within app?		
Speaks one word or sentence per graphic?		
Static or dynamic display? (Dynamic display is a display with more than one level)		
Speaks one word per symbol when selected? OR speaks whole sentence?		
Access options (touch only or switch etc.)		
Displays sequence horizontally or vertically?		
Is there a range of "View" options?		
Is there a range of sizes of graphics for display?		
Do symbols get smaller as the number of symbols displayed increases?		
Is size of button area suitable?		
Is there feedback when a button is pressed? (word spoken, flashing)		
Can you change order within a sequence without redoing whole sequence?		
Are ALL symbols in a sequence visible at the one time, or do you have to scroll to see all symbols?		
What is the maximum number of activities that you can see at any one time (i.e. without scrolling)?		
Is there an entry page(s) to assist in locating the relevant schedule?		
Can you change background colour of graphics to assist organization?		
Can you change symbol size? (i.e. through controls, not through increasing the number of symbols in a sequence)		
What motor skills are required? Touch Swipe Pinch (enlarge/decrease) Double tap Drag and drop		

FEATURES	COMMENT What does the learner need?	RATE HOW WELL APP MEETS NEED 0=not at all, 5=completely
What can you change? Size of symbol Size of grid Font for text Colour Borders		
List of all graphics and/or schedules available in app?		
Can photos taken with iPad camera be included?		
Is there a timer?		
Is there an indication that an activity has been done?		
Is the "current" activity indicated somehow?		
Does it allow for completion out of sequence?		
Does it store time taken?		
What supports are available for the app?		

The app we chose for the students we were working with was the "First Then" app, available for the iPad or the iPhone from Good Karma applications for $10.48 (http://www.goodkarmaapplications.com/first-then-visual-schedule.html). An important consideration was that the app proved vey easy to set up and use. This app allowed us to use both photographs of specific activities and graphics from Visual Aids for Learning that are copyright free (http://www.visualaidsforlearning.com/). We also entered the name of the activity to support early literacy. We added voice output for each activity, and each teacher recorded her own voice. We used the display in portrait list mode which enabled four activities to be listed vertically, with all visible at any one time. Display of more than four activities in this mode would require scrolling down. The activity to be completed has the picture for that activity brightened. When the student touches a row in the display, the voice output for that row is activated. There is a smaller round tick icon to the left of each picture. When an activity is completed, the student touches the tick icon and the picture of the completed activity is greyed out with a white tick superimposed. Some of our students occasionally had difficulty activating the tick for completion, as it is smaller than the picture icon. In this app it is possible to undo the completed tick by touching the row again, but our students learned quickly just to move down the list and not reactivate the icon for completed activities. It is also possible to touch the tick to show completion in any order. Our students learned to follow the sequence from top to bottom, but this option may be helpful for more competent users. The current version also allows schedules to be shared to other devices and to be emailed as a pdf. "First Then" is also available for Android devices.

Refereed Conference Papers

IMPLEMENTING A MULTILEVEL LITERACY PROGRAM FOR A CHILD WITH AUTISM

Christine Stylianakis, ASPECT
Cathy Little, University of Sydney

ABSTRACT
The aim of this case study was to examine the effectiveness of a systematic multileveled reading program targeting all sub skills of the reading continuum for a child with Autism Spectrum Disorder and a Moderate Intellectual Delay. Individualised adaptations and visual supports were used both at the assessment and intervention level. Significant improvements were noted in phoneme-grapheme correspondence and sight word recognition following 16 intervention sessions. Results also indicated development in phonological awareness skills and phonics and evidence of the ability to generalise skills was shown. Skills were maintained following intervention and there was an increase in the participant's ability to access the classroom literacy curriculum. Implications of these results and directions for future research are discussed.

INTRODUCTION
Autism is a developmental disability that significantly affects verbal as well as non verbal communication and social interaction (The Autism Society of America, 1993, cited in Colasent and Griffith, 1998, p. 414). The single most prognostic indicator for young children with autism, however, is language ability (Koegel, 2000, p. 385).

The term literacy encompasses the ability to engage in meaningful communication with others using the skills of reading, writing, listening and speaking (Pierce & Porter, 1996, p.142). It has, therefore, been established that language and literacy skills are "mutually enhanced by each other" (Sénéchal, LeFevre, Smith-Chant & Colton, 2001, p. 444) and further, that the promotion of reading skills indeed assists some students with ASD to advance their oral language skills (Colasent & Griffith, 1998; Koppenhaver & Erickson, 2003; Wolfberg, 1999, cited in Lanter & Watson, 2008, p. 34). To a student with autism and complex communication barriers, exposure to the printed word is like water to the desert (Broderick & Kasa- Hendrickson, 2001, cited in Kluth, 2003, p. 151) and its significance to students with complex communication needs has, therefore, been highlighted in the literature for well over a decade (Koppenhaver, 2000; Koppenhaver & Yoder, 1993; Zascavage & Keefe, 2004; Mirenda, 2003).

Despite the call, on the part of researchers, to address the literacy skills of students with limited verbal abilities, such students

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have, however, often been excluded from accessing literacy curricula due to beliefs that they would be incapable of learning how to read (Lanter & Watson, 2008, p. 35; Kluth, 2003, p. 135; Kluth & Chandler-Olcott, 2008, p. 27). An insistence on adhering to reading readiness prerequisites has shown the potential to create further barriers to literacy (Zascavage & Keefe, 2004, p. 229) in that students with autism may exhibit an uneven profile in developing the varied sequential skills along the reading progression. They typically have difficulties in the area of phonics and phonological awareness (Kluth & Chandler-Olcott, 2008, p. 107) with whole word reading as a relative strength (Nation, Clark, Wright & Williams, 2006).

Literature overwhelmingly supports the notion that students who are seriously at risk of reading failure need explicit and systematic phonics instruction to become literate (Foorman & Torgesen, 2001, p. 208; Torgesen, 2002, pp. 15-17). While evidence does exist that students with moderate intellectual disabilities can acquire phonics (Al Otaiba & Hosp, 2004; Barudin & Hourcade, 1990), other researchers caution educators to bear in mind that various approaches to phonological awareness and phonics may work well for some whilst having little or no effect on others (Kluth and Chandler-Olcott, 2008, p.108).

It is, however, maintained that the process of learning to read promotes phonological skills and that the relationship between the two is reciprocal, with each having a positive effect on each other (Morais, Carey, Alegria & Bertelson, 1979, cited in Cossu, 1999, p. 223; Gillon, 2004, Goswami and Bryant, 1990, cited in Larsson, Sandberg & Smith, 2009, p. 370).

The purpose of this case study was to examine the effectiveness of a systematic multileveled reading program simultaneously targeting all sub skills of the reading continuum whilst taking into account the individual profile of the participant.

PARTICIPANT

The study was approved by the Research Approval Committee of Autism Australia (Aspect) as well as the Ethics Committee of the University of Sydney. The participant, Bob (pseudonym), was 10 years and 4 months at the start of this study and attends a school for children with autism. He has a diagnosis of Autism and has a Moderate intellectual delay based on the CARS. Bob generally uses individual words or a three word sentence strip with visual prompting to request his needs and wants. On the Preschool Language Scale (PLS-3), his overall receptive and expressive language skills were found to be severely delayed in a recent Speech Pathology Assessment. He has a range of sensory issues which include the need for large amounts of vestibular stimulation and proprioception throughout his school day.

Bob had previously been placed in high support needs classes where he had not received any formal and explicit literacy instruction up until the months preceding the study.

RESEARCH DESIGN AND SETTING

Because students with ASD are heterogeneous in their presentation of behaviours and unique preferences and learning styles requiring individualised instructional support (Dunlap & Fox, 2002,), this study took the form of an in-depth single case study within its natural context.

This study was composed of:

a) pretesting so as to establish a baseline

b) an intervention program which took place three times per week for 30 minutes over 6 weeks resulting in a total of 16 intervention sessions.

c) post testing immediately following intervention.

d) re testing after 7 weeks so as to establish a maintenance quotient.

Intervention and testing was conducted at the participant's school for children with autism.

MATERIALS AND PROCEDURE

Prior to intervention, the participant was pre-tested independently by a teacher at his school using the Phoneme-Grapheme Correspondence Test, the Pre Primer Assessment List of Dolch Words and the Phonemic Awareness Assessment which was adapted to include pictures.

Following assessment, a six week program including the following components was devised:

Phoneme/Grapheme correspondence: Graphemes which Bob was not able to identify during the pre-test were targeted and individually taught to a level of instant recognition before moving on to the next one. These were taught by exposing him to the jingle of the particular phoneme using a commercial phonics program as well as a variety of tactile experiences such as forming the letter out of play dough and on a salt tray. A number of people including parents have reported that tactile approaches to be useful (Eastham, 1992, cited in Kluth and Chandler-Olcott, 2008, p. 111) for teaching grapheme-phoneme connections to students with autism.

Sight words: The participant was requested to match a sight word with its partner which had a visual depiction of the particular word beside it. For example, the word "up" was depicted by an arrow facing up. Approximately two new sight words were presented at each of the 16 sessions.

Phonemic Awareness using CVC words: Bob was required to match a word such as cat with its corresponding picture and initial sound onto a laminated activity board. Words which Bob was more likely to recognise such as a hat, dog and cup were used. During session 9, a laminated A3 sheet with a picture of some basic CVC words with 3 horizontal lines under each was provided for to him to record the initial, medial and final sound of each word with a whiteboard marker. The process of hearing sounds within words was first modelled for Bob.

Phonological Awareness: Initial sounds - In order to teach this sub-skill, cards with pictures of basic nouns such as bus, car and cat and a choice of two sounds were provided which required Bob to circle the correct sound. The words starts with... were consistently used throughout this activity in order to reinforce his understanding of what was required.

Syllabification: Clapping was used to show how many parts or syllables a word contains. Intervention began with compound words and progressed to multisyllabic words with pictures provided for each word. Bob appeared to learn this skill easily and was able to generalise it to new words where pictures were provided. Unfortunately, the duration of intervention was not long enough for the scaffold of providing pictures to be removed.

Reading texts: Once four relevant sight words were known, a level 1 reader was used to reinforce Bob's recognition of words within context. Word-word correspondence was first modelled and Bob was required to point at each word as he read. Comprehension questions which followed were normally scaffolded by the provision of the first part of the answer, for example, The baby is… All books read in class were sent home for revision.

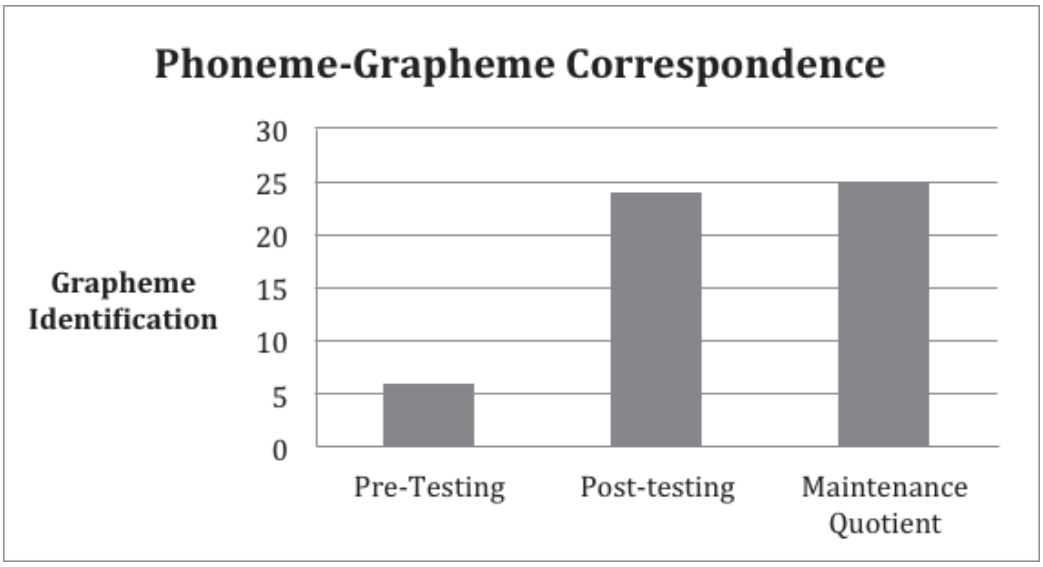
Throughout intervention, several sensory breaks were required such as having Bob get out of his chair to fetch various materials as well as intervals for fine motor proprioceptive tasks.

LIMITATIONS TO THE STUDY

The nature of the study which included only one participant limited the presentation of data and does not provide for the generalisability to other students with autism. Further research to assess the effectiveness of a multileveled, highly adapted literacy program including greater numbers of participants in methodologically sound studies is therefore required.

As there was no control group, it is

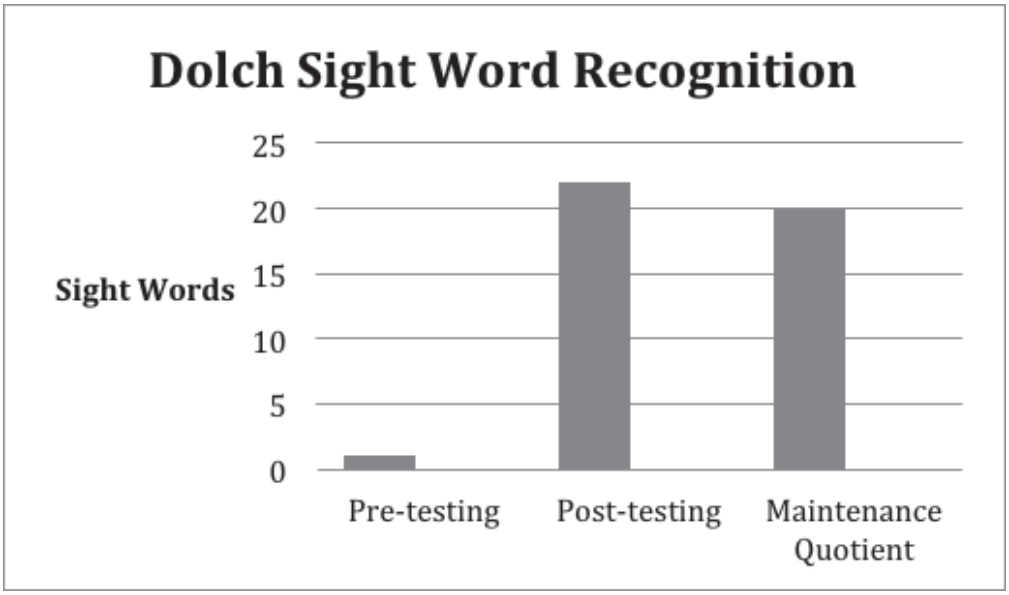
Table 1. Phoneme-Grapheme Correspondence



impossible to accurately apportion any increases in reading skills to either the intervention or the maturational process. A sharp increase in his skills was, however, noted over the period of intervention by his parents and teachers which differed from his previous learning rate.

Despite these limitations, this study does provide detailed information and data on the effectiveness of a short reading intervention

Table 2. Sight Words



program for one student with autism.

PRESENTATION OF FINDINGS AND DISCUSSION

Phoneme-Grapheme Correspondence

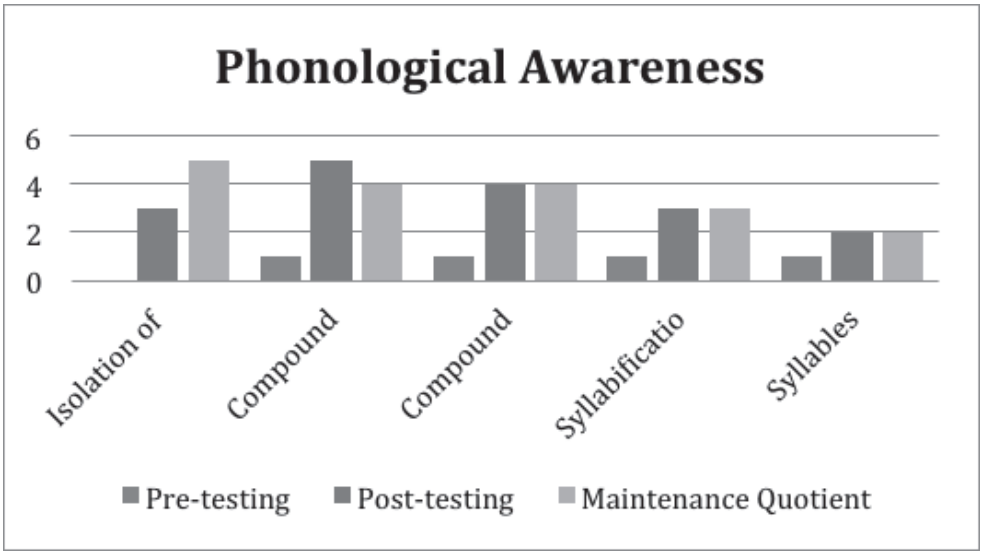
Bob's ability to identify graphemes increased significantly from his ability to recognise 8 sounds at pretest to 24 at post test. Graphophonemic connections are a necessary precursor to decoding (Whitehurst & Lonigan, 2003, cited in Lanter & Watson, 2008). Bob's ability to develop these at a rate of roughly 1 per session may be largely due to the visual learning style used to teach these in that several studies have shown that students with ASD possess strengths in pattern recognition and visual imagery (Infantino & Hempenstall, 2006, p. 136). Temple Grandin, a woman with autism, has, herself, suggested using associative letter- sound pictures such as a picture of a cat for the c sound (1992, cited in Lanter and Watson, 2008, p. 34).

Sight Words

Post-testing on the pre-primer list of Dolch Sight Words showed a significant increase in Bob's ability to retain the visual configuration of words having progressed from instant recognition of 1 word to 22 words following intervention. Seven weeks later, Bob was able to identify all the graphemes by sound excepting for h which he insisted on referring to as hop. This result is consistent with research which has shown that attention to sight words is reported to yield positive results (Kluth & Chandler-Olcott, 2008, p. 113).

Error analyses, from both the post-test and maintenance quotient, indicated that Bob was making use of the initial sound of the word as a visual strategy for recognition. It appears that the process of being exposed to grapho-phonemic connections simultaneously with sight word recognition may have assisted him to move beyond the Pre- alphabetic Phase where sight words are recognised without alphabetic knowledge to a Partial Alphabetic Phase where students begin to form partial alphabetic connections between some of the letters in words (Ehri, 1995).

Table 3. Phonological Awareness



Phonological awareness

As indicated on Table 3, post-testing shows that Bob had made some progress in his ability to recognise the initial sounds of words. His skills in this area appeared to have developed further during the maintenance period which could be attributed to further exposure within the classroom. Bob also showed a marked improvement in his ability to segment compound words and slightly less progress in the segmentation of syllables on the post test and these results remained stable as seen on the Maintenance quotient. His scores on the segmentation of syllables subtest were compromised by his inability to produce all the syllables of multisyllabic words so as to produce them. According to Larsson & Sandberg (2009, p. 372), it is reasonable to hypothesize that individuals with severe language impairments may differ in the specificity of their phonological representations due to their own speech production difficulties.

A skill initially tested but not focused on during intervention due to time limitations was Bob's ability to blend compound words and syllables. These were however, re-tested so as to ascertain whether he was able to generalise skills taught in compound word and syllable segmentation to those of blending. During post-testing, he showed the ability to generalise his developing awareness of compound word segmentation by showing significant progress in this area. Improvement in his ability to blend syllables, however, was slight and correlated with his result on syllable segmentation which was hampered by articulation difficulties.

Previous evidence suggests that students with autism can have difficulties isolating sounds in verbal speech and associating those sounds with symbols (Kluth & Chandler-Olcott, 2008, p. 106). While Bob's progress in Phonological Awareness was not commensurate with the development of his sight word vocabulary, he nevertheless demonstrated the emergence of some skill in this area. This may be because phonological awareness is best developed in the midst of print-based experiences (Moustafa, 2006, cited in Kluth and Chandler-Olcott, 2008, p. 110) providing Bob with the opportunity to generalise his skills across tasks such as in spelling activities requiring him to hear individual sounds as well as visualise these through the simultaneous development of graphophonemic connections.

Phonics

Results from post-testing and the maintenance quotient show that Bob was able to match and read 8 out of the 10 and 9 out of 10 CVC words targeted during intervention respectively. He was also able to correctly spell 5 of these on both the post-test and the maintenance quotient.

While Bob's gains in phonics acquisition are modest, he showed the ability to maintain his skills and has taken an interest in trying to spell out a number of words within the classroom. This supports the notion that, despite auditory processing difficulties, children with various developmental disabilities can benefit from phonics-based intervention (Joseph & Seery, 2004; NIDRR, 2001 cited in Infantino & Hempenstall, 2006, p. 137).

Text reading

At the completion of intervention, Bob had read a number of Level 1 readers. An informal assessment showed that he was able to read the final book during intervention at an instructional level and was able to recognise sight words covered during intervention at this level.

Intangible results

Following intervention, Bob showed an increase in his ability to access the classroom literacy curriculum by taking a more active part in phonological awareness exercises and in recognising words in shared books.

Of great significance, however, has been a notable increase in verbalisations, particularly in his ability to frequently apply the functional use of the word help, taught as a sight word, where he would previously moan loudly and scream in order to have his needs met. This highlights the reciprocal relationship between language and literacy and strongly supports the notion that language and literacy are simultaneously learned (Koppenhaver et al., 1995, cited in Mirenda, 2003, p. 275).

CONCLUSION

After participation in this study comprising of 16 sessions, Bob has maintained a knowledge of 25 phonographemic connections, an emerging bank of sight words as well as phonological awareness. He is reading connected text at a Level 1 Reading Recovery Level and has been introduced to the phoneme by phoneme synthesis of CVC words.

Results show that the simultaneous targeting of a number of reading sub skills created a reciprocal process whereby newly acquired skills such as sight words and letters, which relied more on visual processing, created a vehicle with which to begin exploring the relatively abstract auditory based skills of phonological awareness and phonics.

It is interesting to note that at the outset, Bob would not have been considered as conventionally "ready" to begin instruction in reading from a traditional viewpoint, taking into account his basic use of language, sensory issues and lack of phonological awareness skills. His "readiness", however, was in his motivation to learn, his interest in books and intrinsic motivation, all of which played a significant role in his progress. The use of individualised supports and adaptations, in turn, corresponded to Bob's level of readiness by ensuring that the program was accessible to him rather than expecting him to arrive at the program's level as in the traditional "readiness" concept (Clay, 1993, cited in Zascavage & Keefe, 2004, p.229).

Bob is by no means a proficient reader following intervention but has certainly propelled his interest and given him a headway start which has already impacted on his expressive language. For a student with autism this is significant as print provides the visual means with which to organise one's internal language for thought and can contribute to the development of both academic and communication skills (Broun, 2004, p.40). Bob's emerging reading skills, despite a demonstration of conventional readiness skills, beg the question of how many people with autism might be able to learn to read and write, but are never given the necessary instructional and other supports to do so (Kliewer & Biklen, 2001, cited in Mirenda, 2003, p. 274).

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Special Education Perspectives, Volume 22, Number 1, pp.15-28, 2013

Refereed Papers

LEARNING TO SPELL: AN UPDATE

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ABSTRACT
Special Education Perspectives has published two previous papers reviewing the topic of spelling instruction (Westwood, 1994; Westwood, 2008). This article provides an update with research and other information released since 2008 on the general topic of teaching students to spell.

INTRODUCTION
The purpose if this paper is to provide teachers with an up-to-date overview of recent research, policies and practices for helping students learn to spell. While drawing mainly on Australian sources, relevant information from the international literature is also included.

CONTEXT: THE IMPORTANCE OF CORRECT SPELLING
While society in general has consistently valued accurate spelling as an essential communication skill, the importance placed by our schools on the teaching of spelling has varied over the years. Traditionally—and until the mid 1970s—primary schools in Australia devoted specific lesson time and attention to the direct teaching and testing of spelling within the weekly program. But in the 1970s authorities here and overseas began to question the effectiveness of this approach. The literacy 'experts' of the time suggested that spelling should never be taught as a separate topic, arguing that children learn to spell most easily and naturally as they engage in the act of writing. The net result was that teachers in early primary classes eventually devoted less that 4% of literacy time to spelling (Cooke, Slee & Young, 2008).

Now that this 'learn to spell as you write' approach has been discredited as an effective or complete method (Dehaene, 2009), we must ask if the pendulum has swung back in favour of teaching spelling skills explicitly. Reed (2012, p.1) has framed the same question in contemporary terms in a recent online publication. Reed asks:

> Has spelling become an antiquated concept in this world of instantaneous online referencing, automatic document spellchecking, and the public's disheartening patience with a poorly spelled word? In every teacher's crowded instruction schedule, does spelling have a place—or has it become an anachronism, its instructional power fading with the intense focus and scrutiny on other literacy skills considered to be more critical?

Reed then goes on to justify in detail why teaching students to spell is indeed still vitally important, and suggests why research-based approaches are most effective. In addition, it is now believed that the explicit teaching of spelling skills and strategies should begin early in a child's school career, rather than later. This view is fully supported in the current literature on spelling (e.g., Alderman & Green, 2011; Puranik & Alotaiba, 2012; Sayeski, 2011). According to Puranik, Lonigan

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and Kim (2011, p.465): 'Spelling is a developmentally complex skill beginning in preschool, and includes letter writing and blending skills, print knowledge, and letter-name and letter-sound knowledge'.

AUSTRALIAN CURRICULUM

The new Australian Curriculum acknowledges that teaching students to spell is important. The guidelines require that: "Spelling strategies, punctuation conventions, handwriting and word-processing skills should be taught across all years of schooling" (National Curriculum Board, 2009, p.7). Under the guidelines provided for the new curriculum, spelling has not been separated out as a topic to be taught in isolation but as an integral part of the broader study of our language.

Spelling is seen now as an important focus in both primary and secondary schools. Official documents now specify in detail the spelling knowledge and skills expected of students at each year level (ACARA, 2011a; 2011b; 2012a). For example, at Year 8 it is stated that students should be able to understand the different ways complex words are constructed, and can draw on morphemic knowledge, and knowledge of unusual letter combinations, when spelling these words. And at Year 10, students should understand how to use knowledge of the spelling system to spell unusual and technical words accurately, including those based on uncommon Greek and Latin roots. It can certainly be observed that the curriculum now gives due attention to developing students' knowledge and skills in this domain. The pendulum has indeed swung in a positive direction.

Whether this trend will ultimately translate to improved classroom practice remains unknown, because most of our early childhood and primary teachers have never been trained in how best to teach spelling. There remains some doubt that teachers in Australia and elsewhere possess sufficient depth of content knowledge concerning spelling principles, morphology, etymology, and strategies for word study (Fielding-Barnsley, 2010; Goldfus, 2012; Marszalek, 2012; Meehan & Hammond, 2006; Washburn, Joshi & Cantrell, 2011).

There has certainly been a rapid response from publishers to the new emphasis in the Australian Curriculum—all of them eager to show how their instructional materials can be linked directly to curriculum requirements (e.g. SRA-McGraw Hill, 2012; Macmillan, 2012). Perhaps this is not a bad thing, if the programs and materials are based on sound principles of learning, and if they teach students how to learn words without relying on rote memorization. It is likely that teachers whose own content knowledge is weak will have to make use of well structured programs, if they are to respond actively to the expectations in the new curriculum.

The new emphasis on extending spelling instruction into the secondary school years (where accuracy of spelling is to be stressed) seems to be included as a result of feedback that the Australian Curriculum and Assessment Authority (ACARA) received on the first draft document addressing achievement standards (ACARA, 2011a, 2012b).

NATIONAL ASSESSMENT PROGRAM FOR LITERACY AND NUMERACY (NAPLAN)

Currently, spelling has also been given due attention within NAPLAN, wherein it appears as one of the two strands addressed under 'Language Conventions'. Spelling is tested and reported separately from performance in writing and grammar. ACARA has specified 'minimum standards' in spelling for school years 3, 5, 7 and 9 (ACARA, 2011b).

In the period between 2008 (when NAPLAN testing began) and 2012, there has been a very slight increase in the number of Australian students reaching or exceeding the set minimum standards in Year 3 (up by 1.5% in 2012), Year 5 (up by 0.9%), and Year 7 (up by only 0.5%), but no

improvement at all in Year 9 (ACARA, 2012c; ACARA, 2012d). It is interesting to note much the same phenomenon of a slowing of improvement with age in the US, with spelling growth reaching a plateau at Grade 7 (Foorman & Petscher, 2010). These authors stress the need for teachers in secondary schools to include spelling instruction in their weekly programs. It will be interesting in coming years in Australia to see if the stronger emphasis recommended for teaching spelling across the age range results in even fewer students failing the minimum standards.

Unfortunately, students' spelling ability is assessed in NAPLAN only via proofreading and correcting of identified errors, not by items that require the encoding of words from memory or dictation. This is seen as a disadvantage by some experts who believe that NAPLAN tests provide an incomplete picture of a student's actual spelling knowledge (e.g., Wigglesworth, Simpson & Loakes, 2011; Willet & Gardiner, 2009). In the study by Willet and Gardiner (2009) students tended to spell more of the NAPLAN words correctly when these words were dictated rather than identified and corrected in print. Willet and Gardiner (2009, p.15) conclude that a "dictation task is a better test of orthographic knowledge" [and] "allows students to focus all their cognitive resources on the activity of spelling a single word at a time".

As an aside, it is disheartening to note that already unofficial spelling lists are appearing online, claiming to present the words that most commonly appear in NAPLAN testing, enabling parents and teachers to coach students (using rote memorization) ahead of the tests—thus defeating the whole purpose of surveying students' genuine literacy skills. As the writers of the new departmental guidelines in South Australia have remarked: "Children and students do not become proficient spellers by the single strategy of memorizing the spelling of individual words, and teachers cannot teach students how to spell every word they will need to spell" (DECS: SA, 2011, p.5). As an additional aside, it is revealing to observe how these new guidelines from South Australia, while still presenting very much a 'developmental' perspective on spelling acquisition, now support a more structured approach to teaching than was evident in the previous guideline issued in the 1990s (DECS: SA, 1997). Yes, the pendulum does swing, albeit extremely slowly.

NATIONAL TESTING IN BRITAIN

In Britain, all students at end of Key Stage 2 (ages 7-11) undertake statutory grammar, punctuation and spelling tests in connection with the National Curriculum. The words assessed are selected to take account of children's developing ability to spell a wide range of words, including common, polysyllabic words, words that conform to regular patterns and words with irregular patterns. The expectation is that students who have reached this stage should be able to spell words correctly by using their knowledge of word families, root words, and derivations (including prefixes, suffixes and inflections). The test format at Levels 3-5 in Key Stage 2 involves the test administrator reading aloud 20 words to be inserted by the students into appropriate gaps in target sentences. At Level 6 there are 15 such words, chosen to demonstrate additional spelling strategies required for lower-frequency, less familiar words (DFE [UK], 2012a; 2012b; Standards and Testing Agency [UK], 2012). This format may well be superior to the system currently used in NAPLAN, because it requires a student to spell dictated words and embed them in the meaningful sentences provided on the test sheet.

RECENT RESEARCH

In Australia, Kohnen and her colleagues at Macquarie University are currently the most active researchers in the spelling domain. They have, for example, explored a number of ways of intervening to improve the abilities of individuals with severe spelling difficulties; and they have investigated how

best to teach for generalization (Kohnen, Nickels, Brunsdon & Coltheart, 2008; Kohnen, Nickels, & Coltheart, 2010; Kohnen & Nickels, 2010). Their attention has also been directed to assessment and evaluation of spelling performance, in order to give remedial intervention strategies greater precision (Kohnen, Nickels & Castles, 2009).

Internationally, research on teaching spelling continues to examine specific approaches of three main types: (i) whole-word approach, (ii) phonemic (or phonetic) spelling instruction, and (iii) morphological word study. The whole-word approach is predominantly visual, and requires students to learn a word by memorizing its sequence of letters. Motor (kinaesthetic) memory is also involved to some extent because the student writes the word, often several times. In the phonemic approach, learners are taught to attend to the sounds contained within a word, and then to apply phonic knowledge to encode the spelling. The morphemic approach (meaning-based) helps students understand how words are constructed, and how and why some words share common groups of letters and obey certain rules. Most recently, the morphemic approach has been expanded to include etymological aspects of word study (Henry, 2010; Hutcheon, Campbell & Stewart, 2012). There are valid reasons to utilize all these approaches in order to address different aspects of English spelling (Reed, 2012). And in practice, skilled spelling usually utilizes and integrates all areas of knowledge.

These three main approaches were described in my 1994 paper. At the time I also added a fourth—the strategic approach—placing emphasis on teaching students to decide how best to learn and remember a particular target word, or how to self-correct an error. For example, the student must decide whether a word is 'regular' (i.e., has strong connections between sounds and letters) or 'irregular' (i.e., has poor correspondence between sounds and letters). Irregular words tend to require a visual approach, plus repeated writing, to aid memorization, while regular words can be written correctly 'as they sound'. Reed (2012) acknowledges the importance of a strategic approach when she states:

> Investing instructional time in spelling can be profitable if the English language is not treated as a haphazard writing system that can only be learned through rote memorization. Students need to be taught how to learn and remember the spellings of words (Reed, 2012, p.24).

It is appropriate to use the framework provided by whole-word, phonemic, morphemic, and strategic approaches as a lens through which to focus on recent research findings.

Whole-word approach

Learning to spell through the whole-word approach applies mainly to words that defy simple translation from sounds to letters. It is acknowledged that English language contains a fairly large number of words that have unpredictable spelling patterns. Some of these words have been 'imported' from other languages, while others are not encoded as they sound for purely idiosyncratic historical reasons (Crystal, 2012; Dehaene, 2009; Deutscher, 2005). However, it is relevant to point out that certain parts of irregular words usually retain at least some sound-to-letter correspondences; and Reis-Frankfort (2013) suggests that spellers should pay attention to the parts of irregular words that can be encoded exactly as they sound, and then concentrate on learning and remembering the 'tricky' parts.

The most frequently discussed whole-word method is the traditional 'Look-Say-Cover-Write-Check' or one of the several variations (e.g., Cover-Write-Check: CWC; Cover-Copy-Compare: CCC; Spelling with Imagery: SWIM). All these approaches are designed to strengthen students' ability to store and recall mental orthographic images

(Wasowicz, 2010). The approaches have been found to be effective not only with average learners but also with students with learning difficulties (Cieslar, McLaughlin & Derby, 2008; Moser et al., 2012; Webber, 2009).

Visual imagery as a learning strategy for spelling was first described almost a century ago by Arthur Gates (Gates, 1922) but was later popularized by Margaret Peters in her 1967 book Spelling: Caught or taught? It continues to be the subject of research. For example, a small-scale study by Erion et al. (2009) investigated whether the number of times children rewrote a corrected error after using Cover-Copy-Compare (CCC) had any influence on learning and retention. Surprisingly, perhaps, the number of repetitions did not appear to have a significant effect. Mann, Bushell and Morris (2010) conducted a small-scale experiment with primary school students in which they combined CCC with SO (sounding out) of each letter as the child writes the word. The results suggested that the CCC+SO approach led to good improvement.

Roberts (2012) suggests that teachers should stimulate students' imagery more strongly during the visualization stage. He created a modified approach called SWIM (Spelling With Imagery) in which the teacher or tutor actively promotes visualization of the target word by asking the student to mentally manipulate (play with) the word image in various ways before writing or copying it.

A study by Jaspers et al. (2012), using children in Grade 1, compared the effectiveness of a simple Cover-Copy-Compare training with a parallel method that combined Cover-Copy-Compare with the experimenter reading aloud a brief definition of the word and a sentence containing the target word. Results showed that both interventions increased participants' spelling ability at a greater rate than a control condition; but there was no obvious advantage in trying to teach the definition of the word and embedding it in a meaningful context.

It can be concluded from the studies reviewed here that the whole-word (visual) approach in its various forms is of help to all spellers.

Phonemic approach

In contrast to the whole-word approach, the phonemic approach stresses the value of having spellers attend closely to the sounds within spoken words, and then using knowledge of letter-to-sound relationships to encode the spelling. Teaching this approach provides students with a system that can transfer readily to everyday writing needs when attempting to spell an unfamiliar word (Amtmann, Abbott & Berninger, 2008).

The importance of phonological awareness, letter knowledge, and phonic encoding skills in the development of spelling is clearly supported by research in the medium of English language, and also in several other languages (e.g., Cordewener, Bosman & Verhoeven, 2012; Georgiou, Torppa, Manolitsis, Lyytinen & Parrila, 2012; Niolaki & Masterson, 2012; Sanchez, Magan & Ecalle, 2012).

The usual argument against a phonemic approach is that there are simply too many irregular words in the English language (Deutscher, 2005), and that applying phonics to spelling doesn't work. The rebuttal to this argument is that at least 80 per cent of English words can be encoded as they sound if attention is given not only to single letters but also to groups of letters that represent larger pronounceable units within the word. Linguists refer to these as 'sub-lexical sound-spelling correspondences'. These groups may be syllables or may simply be commonly occurring letter sequences; for example, sh-, br-. pre-, acc-, - ain, -ual, -oach, -ough,-ight, -dge, -tion, -ame, -ea-, -aw-, -ist, -ach, scr-, thr-, and very many others. These units in print are often referred to as

'phonograms'. Dehaene (2009) refers to them as 'higher-order regularities' that help with rapid word recognition and spelling.

Traditionally, the classroom study of 'word families' (e.g., beat, feat, heat, meat, neat, seat) as a supplement to reading and writing helped young children acquire a good knowledge of these important phonograms. However, in the decades after 1970, the systematic study of word families fell completely out of favour in most Australian classrooms. As a result several generations of children were not provided with this important learning opportunity.

The words used for teaching and practising phonemic analysis need to be appropriate for the students' age and ability. Studies with kindergarten and Grade 1 children have indicated that word analysis must take account of their developmental level. Very young children should not be expected to segment and blend words that are too complex and outside their listening vocabulary (Werfel & Schuele, 2012).

Murray and Steinen (2011) acknowledge the importance of identifying larger sound units than single phonemes within words, and have devised a system they call 'Word/Map/Ping'. It teaches children to break spoken words into their component sound units before looking at the spelling pattern in print. The children then map the sound units to the relevant letters and groups of letters. Murray and Steinen state that the approach "…can be a useful technique for directing spelling study across a wide range of grade levels in general classrooms, in instruction with readers with learning disabilities, and in remedial work with small groups or in tutorials […] it is well suited for special education students who thrive on direct teaching and close guidance" (p.299).

Research evidence continues to accumulate in full support of using a phonemic approach. For example, Johnston, McGeown and Watson (2012) report that teaching synthetic phonics (in which students are taught to blend sounds) has a positive effect on young children's spelling ability. Similarly, Weiser and Mathes (2011) report clear evidence that systematic instruction in decoding has positive impact on both phonemic awareness and spelling. They argue that such instruction is essential for beginners, and for older learners with literacy difficulties. The importance of providing young children with phonological awareness training is now recognized as essential for paving the way to later reading and spelling proficiency (Callaghan & Madelaine, 2012; de Graaff et al., 2009; Duff, Hayiou-Thomas & Hulme, 2012; Robbins & Kenny, 2007; Robinson, 2010).

An intervention using 'sounding out' with somewhat older students in primary and secondary school is Fonetik spelling (Jackson, 2012). This approach utilizes phonic decoding to enable very weak spellers to produce a reasonable phonic alternative for a tricky word before checking and correcting it with a Franklin Spell-checker. The approach can be seen demonstrated clearly in a video online at http://ezispel.co.nz/index.htm

Morphemic approach

A morpheme is defined as the smallest unit of language that conveys information about meaning or function. The unit of meaning can be a single word (such as 'like'), or it can be a small part of a word that cannot stand alone (such as '-ly' as in likely). The main types of morphemes are root words, prefixes and suffixes. The written or printed version of a morpheme is referred to as a morphograph. The more than 6,000 morphemes found in the English language can be combined in various rule-governed ways to form many thousands of words. The morphemic approach to spelling teaches learners about root words, bases and affixes, and how to combine them to form words of more than one syllable (Casalis, Deacon & Pacton, 2011; Rippel, 2012). The approach can be particularly helpful for students who

are beyond the beginner stage by helping them think rationally about words and how they are constructed (Newlands, 2011; Nunes & Bryant, 2009; Young, 2008).

There is currently almost unanimous agreement among the experts that teaching information about word structure and units of meaning can help increase spelling ability (e.g., Devonshire & Fluck, 2010; Dew, 2012; Diaz, 2010; Goodwin, Lipsky & Ahn, 2012). This view is certainly supported in the new Australian Curriculum. But, as stated earlier, the greatest obstacle to teaching morphemic and etymological principles to children in school is teachers' own lack of knowledge in this domain (Fielding-Barnsley, 2010; Mahar & Richdale, 2008; Meehan & Hammond, 2006). Most primary school teachers in Australia lack any real depth of linguistic and metalinguistic knowledge—because this type of information is rarely included in teacher education courses, even for trainee teachers majoring in English. Most teachers (like the rest of the public), probably tend to rely on word-specific knowledge when spelling and when teaching spelling, rather than drawing on a deep understanding of the spelling system (Mitchell, Kemp, & Bryant, 2011). This almost certainly accounts for why researchers have found that 'word study' tends to receive far too little attention in most classrooms (e.g., Apel, Wilson-Fowler, Brimo, & Perrin, 2012); and why Carlisle (2010) calls for more research into the teaching of morphemic principles and its effect on literacy development.

Teachers' own lack of confidence in teaching morphological principles (and with teaching spelling in general), often causes them to rely on the use of commercially published spelling programs. Unfortunately, these programs rarely embody any teaching of morphemic principles, and give too little attention to compound words, homonyms, contractions, and words that are easily confused (Mullock, 2012).

In terms of recent research on the morphemic approach, Diaz (2010) found that teaching key aspects of morphology to ESL learners (age 15-17) was effective in improving vocabulary, reading and spelling. In another study, Vitale, Medland and Kaniuka (2010) used the program called Spelling through Morphographs (SRA/McGraw Hill, no date). This program is highly structured, requires direct teaching, and applies morphemic principles. It is usually used with older students, but results in this study showed that the above-average Grade 2 students in the program significantly outperformed Grade 2 and Grade 3 controls on a criterion-referenced spelling test (effect sizes of 2.95 and 2.04 respectively).

In a study of five- to eleven-year old students (Devonshire & Fluck, 2010) it was found that the children who made meaning-based connections (i.e., used morphemic information when determining how to spell a word) had higher scores than those who only used sounding out or memory retrieval strategies. This suggests that emergent morphological knowledge exists in the primary school years. However, a study of five- to nine-year old children in the UK found no evidence that they were spontaneously using morphology to aid their spelling (Larkin & Snowling, 2008). So, the age at which such instruction should begin in schools remains a matter of debate. Berninger et al. (2010) suggest that the first three or four grades in primary school may be the optimum time for introducing this at a very basic level, and extending it into later years.

Strategic approach

Over the past decade there has been much more emphasis placed on teaching students effective ways of thinking about and studying the spelling of words, and for storing and remembering them (e.g., Faber, 2010; Sharp, Sinatra & Reynolds, 2008; Sayeski, 2011; Stirling, 2011). A strategic approach helps an individual call upon any of the approaches described above at appropriate times. Faber (2010) suggests that teaching students how to approach a

word with a plan in mind for analyzing and internalizing its features is very effective, particularly with older students and adults with literacy difficulties. Similarly, Webber (2009) and Berninger et al. (2013) indicate that strategy training can help poor spellers improve their performance.

Naturally, children develop their own strategies for spelling, even without adult guidance. However, some of these strategies are not reliable, and can develop into bad habits that cause spelling development to reach a plateau. For many years these naturally emerging strategies were thought to follow a neat developmental sequence related closely to 'ages and stages'; however, the work of Rittle-Johnson and Siegler (1999) first threw doubt on this by discovering that children of a given age use a wide variety of effective and less effective strategies. Recent studies have tended to confirm this picture (e.g., Bahr et al. 2012). According to Sharp et al. (2008) the varied strategies observable in Grade 1 children include: retrieval of whole word, partial retrieval, guessing, sounding out, analogy, copying, applying a rule, and 'chunking' (using common letter patterns to help spell unfamiliar words). To this list we can add, for pre-schoolers, the use of letter names (Pollo, Treiman & Kessler, 2008).

A study of eight- to nine-year old children by Farrington-Flint, Stash and Stiller (2008) also found that that the children spelt words strategically, and were adaptive in their strategy selection, changing from less efficient strategies to using more efficient direct retrieval methods over time. Those less skilled in spelling showed a greater reliance on less efficient strategies.

Teaching spelling strategies requires the application of the basic principles of explicit instruction, namely: clear demonstration and modelling by the teacher, guided practice by students, feedback from the teacher, extensive independent practice, and regular review. It takes much longer than many teachers anticipate for strategy training to be fully effective (Bahr et al., 2012; Pressley & Woloshyn, 1999). Practice, encouragement, and frequent reminders are keys to eventual success.

RECENT TRENDS

One trend that has emerged over the past decade is a tendency—in research studies, if not yet in classroom practice—to integrate vocabulary teaching more closely with spelling (e.g., Ebbers & Denton, 2008; Flanigan, Templeton & Hayes, 2012; Kame'enui & Baumann, 2012; Ricketts et al., 2011; Rosenthal & Ehri, 2011). This trend has clear implications for teachers in both primary and secondary schools. For example, specialist subject teachers in secondary school constantly introduce new words associated with the topics they teach; and they should ensure that students not only know the meaning of these terms but can also spell them correctly when they write. This focus sits well with the new emphasis in the Australian Curriculum on extending the teaching of spelling into the secondary school years.

Another trend is the increased influence of technology. In the previous article (Westwood, 2008) I discussed the positive influence of spell-checkers on the spelling performance of struggling writers. Since that time there has been a noticeable growth in the use of technology as a medium for actually teaching spelling. For example, in a study involving the application of spelling training software (Kast et al., 2011), children with dyslexia improved their spelling skills to the same extent as children without dyslexia; and they were able to memorize phoneme-to-grapheme correspondences. In addition, the structured and multisensory (auditory, visual, hands-on) aspects of the approach were of benefit to children with poor attention spans. Similar support for computer-aided spelling instruction with dyslexic students was found by Ecalle et al. (2009). In their study students of secondary school age with learning difficulties received 10 hours of intensive training, resulting in improvements in both

reading and spelling. Eden, Shamir and Fershtman (2011) have reported that the use of laptops had improved the spelling of teenage students with learning disability. And working with Grade 4 students using handheld computers to learn spelling, Wu and Zhang (2010) found that the method produced superior results when compared to paper-and-pencil method.

There are signs that technology can also assist spelling development for students with disabilities. For example, Kagohara et al. (2012) used a word processor with spell-check function, together with video modeling delivered via an iPad[R], with two adolescents with autism. The outcome suggested that the approach was effective in teaching the students how to check the spelling of words.

Finally, it is often feared that text-messaging, where cute abbreviations and invented words predominate, is encouraging careless spelling among primary and secondary students. For this reason, it is interesting to note that a study involving 114 students age 9 and 10 years (divided into experimental and control groups) revealed that the mobile phone group using 'textese' when messaging were not adversely affected in their spelling development (Wood et al., 2011).

CONCLUSIONS

The teaching of spelling has regained something of the respect that it had enjoyed prior to the 1970s. The new Australian Curriculum now encourages teachers to give due attention to teaching all students to spell, and to raising spelling standards. Similar changes are evident in the recent revisions to the National Curriculum in the UK. Research suggests that the earlier such instruction begins the better—because early teaching lays a firm foundation for later competencies.

We have seen an increase over the past decade in the use of technology for the teaching (and self teaching) of spelling. This application of ICT began as long ago as the 1960s, and we can anticipate further growth in this area. Many of these spelling applications are immediately available to anyone who searches online.

Students' spelling has continued to be a focus of great interest for researchers, perhaps partly because the product it yields can be treated both quantitatively and qualitatively. Changes in performance over time (or as the result of intervention) can be objectively measured. Unfortunately, as with most areas of educational research, there is a glaring gap between research findings and their later application in classrooms. One such gap highlighted in this paper is between the evidence that a morphemic approach helps students become better spellers, and teachers' inability to implement such an approach through lack of adequate pedagogical content knowledge. There are clear implications here for both pre- and in-service teacher education programs. It is to be hoped that these programs will better equip our teachers at both primary and secondary school level to be effective, motivated, and versatile teachers of spelling.

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Special Education Perspectives, Volume 22, Number 1, pp. 29-34, 2013

Refereed Papers

RELATIONSHIP DEVELOPMENT INTERVENTION: INFORMATION ON CURRENT AUSTRALIAN WEB SITES

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ABSTRACT
Once parents receive the diagnosis of Autism Spectrum Disorder (ASD) for their child, they are likely to search for a therapy or intervention that is appropriate and affordable. One frequently used source of information is the World Wide Web (www). Australian web sites, likely to be accessed by parents and teachers dealing with children with ASD, and that provided information about Relationship Development Intervention (RDI), a relatively new intervention for ASD, were examined. The 14 web sites located were sites of service providers, government sites or 'others' (web sites providing RDI information or Autism association sites). Sites were assessed against a set of criteria relating to the provision of relevant and recent information, references to research findings, and claims made about the effectiveness of RDI. Some web sites do reflect current research findings, while others made misleading claims.

INTRODUCTION
Autism Spectrum Disorder (ASD) is a condition, affecting a person's social and communication development and skills. There has been an increase in diagnoses of ASD in Australia as there has been in the rest of the world. Although estimates of prevalence vary from less than 0.04% to more than 1% of the population (Roberts & Prior, 2006), the current estimate for Australia is a prevalence of 62.5 per 10,000 for 6 to 12 year old children (MacDermott, Williams, Ridley, Glasson & Wray, 2006). The increase in the number of children receiving a diagnosis of ASD means there will be an increased demand for intervention and support services. Teachers need to be aware of the interventions children with ASD may have received and are receiving and also may be asked by families to provide advice about interventions. They thus need to be aware of the information that families may be accessing about interventions.

Once parents have received a diagnosis, they are likely to look for treatments and therapies. Depending on the family's background, different strategies may be used to gain knowledge and confidence to deal with the situation in the best way possible (Roberts & Prior, 2006; Mackintosh, Myers & Goin-Kochel, 2005; Goin-Kochel et al., 2009). Mackintosh et al., 2005 reported that 86% of families located information about interventions for their child with autism by searching the Internet. Although a broad variety of treatments is available for children with ASD, very few have a strong research base. Many treatments found on the World Wide Web (www) lack research support, and information on the web can be quite misleading (Odom, Boyd, Hall, & Hume,

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2010; Roberts & Prior, 2006).

One intervention currently offered to parents is Relationship Development Intervention (RDI) (Gutstein, 2009; Gutstein, Burgess & Montfort, 2007). It involves primary caregivers as a core part of the intervention to help the child overcome apparent difficulties and meet developmental milestones. The main areas targeted are social relationship skills such as experience-sharing, communication development and regulating behaviour (i.e. flexibility in thinking and behaving) (Gutstein et al., 2007; Roberts & Prior, 2006). Gutstein has based his intervention on the developmental milestones naturally met by typically developing children in areas such as joint attention, reciprocal communication and peer relationships (Gutstein et al., 2007).

Gutstein, who is also director of RDI Connect Inc, claims that the prime deficit in children with ASD is a deficit in what he calls "dynamic intelligence", the ability to deal with complex information processing such as that required for communication, self-regulation and problem solving. He claims that dynamic intelligence in typically developing children emerges through "guided participation" where caregivers guide and support them through everyday activities and experiences. RDI is intended to provide caregivers with the ability to provide a "second chance" for children to develop dynamic intelligence (Gutstein, 2009).

The parents are initially trained in the "theory, principles, and components" (Gutstein et al., 2007, p.399) of the RDI program and whilst having ongoing support from an RDI consultant they implement the principles and scaffold daily activities and create natural learning situations for the child to support their child's learning. Gutstein focuses on using and enhancing natural occurrences and learning situations, since he believes that interventions teaching tasks only in certain situations do not result in long term learning effects (Gutstein & Whitney, 2002).

There is one published research study on RDI (Gutstein et al. 2007) which reported improvements in social skills, improvements in scores in two autism assessment tools, the Autism Diagnostic Observation Schedule (ADOS) and the Autism Diagnostic Interview-Revised (ADI-R), changes in educational placements and parent perceptions of increased flexibility. Although these findings are supportive, Gutstein et al. noted several important limitations and flaws in the study, including the lack of a comparison group, the small sample size (16 children), the lack of inclusion of any children with significant cognitive disabilities, and the limited age range (no children older than 9). A recent review of treatment models for children with autism (Odom, et al., 2010) concluded that there was only weak evidence for the efficacy of RDI. This finding is in accord with those of other reviewers who have classified RDI as lacking strong research foundations (Perry & Condillac, 2004; Roberts & Prior, 2006; Simpson, 2005). There has also been criticism of other aspects of RDI. Zane, Davis and Rosswurm (2008) noted that Gutstein's conceptualisation of the deficits in ASD does not accord with commonly accepted views. They also raised concerns about the cost, providing an estimate of $10,000US per year in 2008.

Parents and teachers who seek information from the Internet are likely to rely on the results they find (Mackintosh et al., 2005), and thus it is important that sites suggesting RDI as an intervention option provide accurate information about the evidence supporting this approach. The aim of this study was to examine Australian Internet sites that provide information about RDI to determine whether or not they accurately reflected the current standing of RDI as an unproven intervention and what information about RDI was provided.

METHOD

A Google search, limited to Australia, was conducted using "relationship development

intervention" as the search term on the 17th March 2010. An additional search was conducted on April 22nd, using the same search term. The first 150 web sites identified were reviewed to select sites for further examination. Web sites were visited between March and May 2010 and were included in this study if they were Australian web sites providing information about RDI. Websites were identified as Australian if the web address ended in .au, or if it there was other information, such as a contact address, that indicated that the site was based in Australia. Web sites were excluded if they were bookstore or book marketing sites, Blogs or if users were required to sign up before being able to see the content of the site. Sites that provided only a listing of very brief description of RDI (for example, listings of RDI service providers on the FAHCSIA website) were not included.

After possible sites to be included were identified, as a reliability check, a second person reviewed every third web site found in the search, using the inclusion and exclusion criteria described above. Interobserver reliability was calculated by using the formula agreements/agreements plus disagreements and was 0.90. Disagreements were resolved by discussion.

For each website included, the organisation responsible for the site was identified,

the quality of information evaluated, and any endorsements noted and evaluated. Additional information about linked sites and claims made about RDI was also extracted.

Organisations responsible for sites with information about RDI were classified as RDI service providers if they were selling RDI to parents; as government sites if the site belonged to a federal or state government department and as other organisations if they were autism associations (groups or associations providing advocacy or support to people with ASD and their families or carers) or if they could not be categorised within the other categories.

The evaluation of the quality of information provided on each site was divided into an evaluation of information relating to empirical research evidence, and evaluation of anecdotal and descriptive evidence. The way in which the site treated the empirical evidence was scored under three ratings. First, web sites were rated as reflecting the research consensus if the site noted there is a poor or limited research base, or that more research is required. Second, web sites were rated as overstating the research findings if they made claims that research has shown that the intervention is effective. And thirdly, web sites were ranked as not mentioning or providing details regarding research at all if no relevant information was provided.

Anecdotal and descriptive evidence was differentiated into positive evidence, where predominately positive reports, anecdotes, testimonials, and descriptions of the program outcomes or claims were presented; neutral evidence, where objective reports or testimonials were provided or claims from other providers were reported, and negative reports where the intervention was advised against on the web site and also sites where no anecdotal or descriptive evidence was demonstrated.

Endorsement was rated as being positive and explicit, where RDI was explicitly recommended as a suitable treatment for ASD, cautious, where there was a recommendation for RDI with reservations; negative, where RDI was advised against; or without endorsement, when no endorsement was made.

Information about the claims made for the effects of RDI was collected.

RESULTS

The search resulted in 12 web sites that met the criteria for this project. One web site was not accessible any longer at the end of May 2010, when it could not be opened. One site provided a one page description of a service provider where we had already included the website. These two sites were thus not analysed. One service provider website

(Interactive Intervention) was apparently subsumed into another service provide (Hills Nepean Intervention Service), but as the pages from both sites are still available, both sites were analysed. There were then 10 sites that were examined.

Kind of web site

Of the web sites examined, six were from RDI service providers (Autism Connections; Autism Intervention; Connect and Relate for Autism; Hills Nepean Intervention Service, Interactive Intervention and Prue Watson), two Government web sites (Commonwealth Department of Health and Department of Ageing, Disability and Home Care in NSW) that provided the Roberts (2004) review of management of children with ASD and the Roberts and Prior (2006) review of early intervention for children with ASD. Two were considered "Other", the Raising Children website sponsored by a consortium including the Commonwealth government and an Autism organisation (Aspect) web site.

Empirical research evidence

The web sites were rated as to how accurately they reflected the current consensus on empirical research evidence. Only four of the ten web sites reflected the research consensus (the two government sites, the Raising Children site and Aspect) whilst three overstated the research findings (Autism Intervention, Connect and Relate, Prue Watson), and three web sites (Hills Nepean, Interactive Intervention, Autism Connection) did not provide any details regarding research.

Anecdotal description

No websites provided negative anecdotal reports. Five presented positive anecdotal/ descriptive evidence or testimonials, and all were service providers (Hills Nepean, Autism Connections, Autism Interventions, Connect and Relate, and Prue Watson). Three web sites were rated positively as they reported the claims made by proponents of RDI and two sites did not include anecdotal descriptions. One of these was a provider web site (Interactive Interventions) that described the outcomes in terms of aims, rather than proven results.

Endorsement

Positive and explicit endorsement was given by all six of the provider web sites examined. The Raising Children website gave a cautious recommendation and the two reviews also suggested caution. The Aspect did not provide an endorsement.

Claims

A range of claims about possible improvements was made by the service-provider sites. For example claims that RDI would result in, "change of diagnosis (not on the spectrum anymore), improved flexibility, massive change in educational necessities, i.e. no requirements any longer for special ed classes, creating pathways to success and quality of life" (Watson, n.d.); "Children who have access to the RDI program improve in their ability to relate to others which makes life less stressful for themselves and their families" (Autism Connections, 2009). The Autism Intervention site claimed that RDI "is effective and appropriate for all ages, stages and levels of functioning". There were claims that the child's social skills would improve (Autism Connections, 2009, Autism Intervention Services, 2010, Connect and Relate, 2010, Hills Nepean Intervention Service, 2010 and Watson, n.d), that communication will develop further (Autism Connections, Autism Intervention Services, Hills Nepean Intervention Service and Interactive Intervention), that the child's flexibility or adaptive behaviour will progress (Autism Connection, Autism Intervention, Interactive Intervention and Watson) and that learning skills would improve (Autism Connections and Watson). Personal and behavioural improvement was claimed by three service providers (Autism Intervention, Connect and Relate and

Watson) and, improvements in emotional skills were promised by two service providers (Connect and Relate and Hills Nepean Intervention Service). Improvement in learning/educational development was claimed by two service providers (Autism Connection and Watson). Family relation improvement was promised by three service providers (Autism Connection, Connect and Relate and Watson). Two service providers (Connect and Relate, Hills Nepean Intervention Service) claimed cognitive improvement would result, whilst everyday and neutral integrative activities were claimed to increase by three web sites (Connect and Relate, Hills Nepean Intervention Service; Interactive Intervention).

DISCUSSION AND CONCLUSIONS

Parents seeking information about RDI are likely to encounter provider websites. There were only four web sites providing the most recent, accurate and evidence based findings, and three of these were very cautious in their recommendations for use, while the other made no recommendations. RDI service providers offered a broad range of anecdotal evidence and made many claims that go beyond the current research findings. It appears that most of the promises presented on service provider web sites target parents' desires for improvement in their children. The Government web sites provided the most information about empirical research findings and were also the most cautious in regard to endorsement.

The claims made for RDI are likely to be appealing to parents, and the initial research evidence demonstrating improvements such as change of diagnosis, educational setting and improvements in scores in autism assessment tools may be viewed as promising. The family-centred nature of the intervention and the high levels of support from RDI service providers are also likely to be attractive, even though they do come at considerable financial cost (Zane et al., 2008). The intervention is well operationalised, so that it is likely that providers can replicate the intervention after they have received some training (Odom et al., 2009). It also has good face validity in that it addresses the social and communication deficits in ASD (Westby, 2006). There is no "one size fits all" treatment for children on the spectrum and gains can be made and improvement can be seen (Roberts & Prior. 2006). RDI is not likely to do any harm, and may even contribute to the child's progress in combination with other proven treatments. The claims made and presented to parents on web sites, however, are likely to lead parents to having unrealistic expectations, and even Gutstein acknowledges the need for more research (Gutstein, 2009).

For parents and teachers who are dealing with children diagnosed with ASD on a daily basis, it is crucial to have accurate information about the effectiveness and efficacy of interventions. The more carers (parents, teachers and others) are informed correctly about current and evidence based approaches, the more likely it is that the treatment the child receives will be appropriate. It is also more likely that people involved can act in the same way and provide continuity and consistency for the child. If teachers are aware of therapies that have not proven to be successful, or are not evidence based, and a good rapport exists between parents and teachers, the parents may be more likely to take into consideration advice from parents or other professionals. For these reasons it is important not only that service providers present accurate information about interventions such as RDI, but that parents and teachers access alternative sites that provide less biased and more accurate research-based information on likely outcomes of interventions.

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Special Education Perspectives, Volume 22, Number 1, pp.35-47, 2013

Refereed Papers

WORKING TOGETHER: INSIGHTS FROM A SPECIAL EDUCATION UNIT IN JAPAN

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ABSTRACT
The rapid international expansion of literature on Japanese lesson study in regular education does not apply to special education. Education in English-speaking countries values interpersonal relationships of children with Autism Spectrum Disorders (ASDs) but needs more research. The professional experience of Japanese special educators provides a natural laboratory to observe interpersonal relationships practice in everyday classroom activities. Short stories from a special education unit in a Japanese elementary school provide snapshots of three teachers' collaborative lesson study with colleagues and their approach to teaching groups of children including those with a dual diagnosis of ASD and intellectual disability.

INTRODUCTION

Australian special educators may be interested in stories about how Japanese special educators work collaboratively to teach interpersonal skills to children with Autism Spectrum Disorders (ASD) in small classes. The prosocial alignment in one special needs education unit encourages these special educators to engage in interpersonal teaching with a whole class. The school emphasises peer relationships, supported by its prefecture's focus on social-emotional skills as part of its whole-person educational philosophy. Within the unit, teachers scaffold interpersonal capabilities among children across the elementary years, supported by collaboration among teachers in the unit and school.

Several stories of actual practice illustrate these teachers' use of a long-term process of lesson study in continuously seeking ways to achieve an ideal lesson and their concurrent efforts to improve the children's interpersonal skills during teaching-and-learning activities. These stories show how a supportive school and classroom community facilitates the interpersonal skills of children with ASDs. These Japanese special educators acted on their expectation that children with ASDs can acquire an awareness of others and work together in group settings. Throughout this paper, some Japanese expressions that can not be translated directly are explained further in brackets.

School-wide lesson study approach

Japanese lesson study, or jyugyō-kenkyū, is a long established practice of teacher-led

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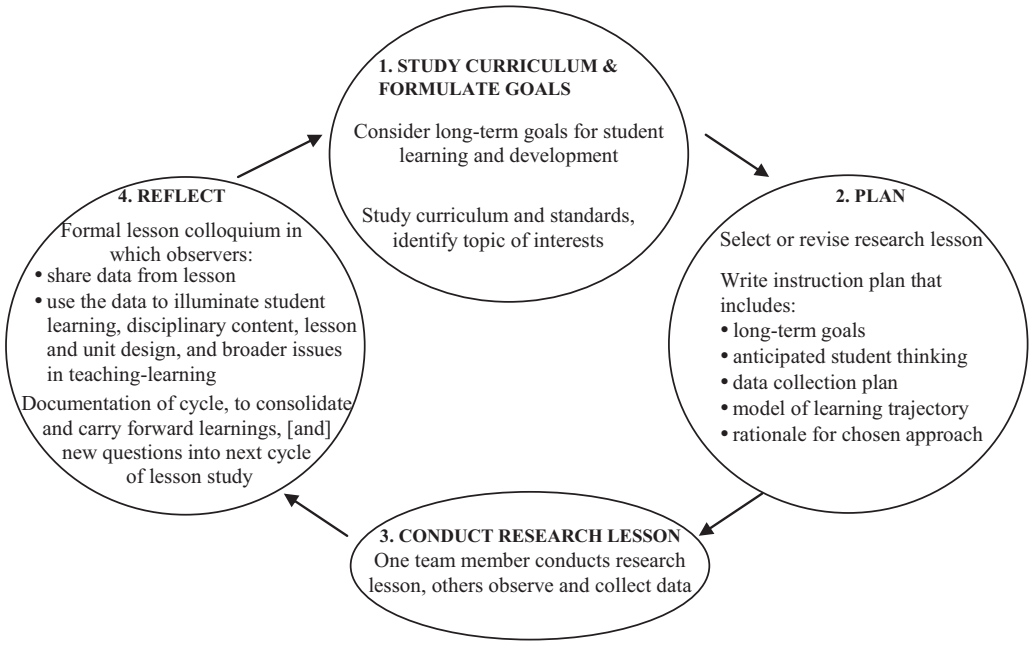
professional development in Japan. The cyclic process of lesson study as a kind of teacher action research (see Figure 1), described by American researchers, Lewis, Perry, and Friedkin (2009), is somewhat similar to the lesson planning process of planning, implementing, reflecting on, and modifying a lesson commonly employed in English-speaking countries. However, Japanese lesson study is distinctive in several aspects.

In this process the school community identifies one aspect of learning as a whole-school long-term goal that is usually relevant to national emphases of education (e.g., problem-solving skills). Each teacher joins one lesson study group focusing on one area of curricula related to their specialist subject (e.g., mathematics, literacy), and each group defines a specific subject goal to address the school goal and meets several times to draft a plan for an ideal lesson. The group progressively improves the lesson plan to make ideal learning happen in classrooms: They observe a lesson implemented by a team member, hold post-observation discussion about the lesson, and consider how to improve it before the teacher teaches this lesson again, with modifications, to the class; sometimes, another teacher in the team teaches the lesson to a different class. Some Japanese schools are attached to universities and all of these schools as well as some others are nominated as research schools to hold open conferences on intensive lesson study practice. At these whole-school lesson study conferences, held every year, teachers at these research schools stay after school to prepare for open lessons that are delivered in the presence of public visitors.

Much of the work on this practice is published in Japanese and is not accessible

Figure 1. An American view of the Japanese lesson study cycle (from Lewis, Perry & Friedkin, 2009, p.143).



to an international audience. However, Japanese lesson study has been used in regular education in English-speaking countries such as Australia (e.g., Kriewaldt, 2012; White, 2007) and the USA (e.g., Lewis, 2009) and in non-English speaking countries such as China (e.g., Lee, 2006; Yang & Ricks, 2012) and Indonesia (e.g., Saito, Harun, Kuboki, & Tachibana, 2006). While lesson study forms a natural part of special education inside Japan through preservice teacher education and inservice professional development, little is known about how lesson study helps special educators teach children with ASDs in their classrooms.

Interpersonal approach for teaching children with ASDs

Difficulties in learning interpersonal skills are well recognised in children with ASDs (Bowler, 2007). Several English-language programs such as Floortime (Greenspan & Wieder, 2006), Early Start Denver Model (Rogers & Dawson, 2010), and Pivotal Response Training (Koegel & Koegel, 2006) offer promising interpersonal practice for teachers in English-speaking countries (Simpson, Myles, & Ganz, 2008). However, skill-based practice is better established in global education, because its principles of applied behaviour analysis have been accepted as evidence-based practice for teaching children with ASDs (e.g., Odom, Boyd, Hall, & Hume, 2010) and for training of special educators (Barnhill, Polloway, & Sumutka, 2011). Hence, special educators in English-speaking countries may train children with ASDs in specific social skills rather than directly facilitate group interactions among these children.

Interpersonal focus in curriculum

Interpersonal skills are highlighted in changes to national curriculum and policy for children with disabilities both in Australia and Japan. Australian curriculum now allows for instruction focused on personal and social capability: "Recognising and regulating emotions, developing empathy for others and understanding relationships, establishing and building positive relationships, making responsible decisions, working effectively in teams, handling challenging situations constructively and developing leadership skills" (Australian Curriculum Assessment and Reporting Authority: ACARA, 2013, p. 82). Similarly a new Japanese curriculum for special education includes children's independence as a new key learning area (Japanese Ministry of Education, Culture, Sports, Science and Technology: MEXT, 2009a), enabling children with special needs to achieve "zest for life." In the regular curriculum (MEXT, 2009b), this zest for life refers to a traditional focus on whole-person education (e.g., Holloway, 1988; Lewis, 1995) and a balance of three elements in individual children (i.e., academic abilities, richness in humanity, and health and physical strengths).

Dual diagnosis of ASD with ID

In Japan, ASD is recently added to the categories eligible for special education service (MEXT, 2006), and, as in Australia, children with ASDs are often placed in special schools or classrooms designed for those with ID. Dual diagnosis of autism co-occurring with ID is the most studied subtype of this heterogeneous disability (Matson & Nebel-Schwalm, 2007). Hence, special educators have often responded to the unique social and communicative needs of these children within the provision for life skills learning for children with IDs.

Life-skill learning unit and lesson study

Japanese special education for children with ID is focused on learning from everyday experience rather than from instruction in separate subjects (e.g., mathematics, science). Flexible curriculum requires special educators to create and innovate in planning a lesson around the children's learning needs (Japanese National Institute

of Special Needs Education, 2006), which, in turn, often shapes the focus on lesson study for a group of special educators. The Japanese Course of Study for children with ID recommends four learning forms: (a) Life-skill learning unit, seikatsu-tangen-gakushū; (b) instruction in routine daily life skills across a day; (c) play; and (d) prevocational learning (NISE, 2006).

Although all four forms are implemented with a whole class, the life-skill learning unit employs well-defined group activities focused specifically on peer interaction and relationships. Because this unit is based on the idea that positive experience of doing activities with peers enhances social-emotional capabilities in the children, Japanese special educators spend a lot of time creating a better lesson with a group activity in which children can practise interpersonal skills with peers (T. Ôta, 2006). Also, in this unit, these activities are constructed around children's everyday lives and individual learning needs and interests, so that children can experience working independently and making their own decisions.

Create a good lesson—"lesson skills"—is a primary professional role of teachers in the Japanese special education sector especially for children with ID (Ôta, 2005; M. Ôta, 2006). A good lesson is defined as one that provides an activity that responds to children's "actual condition", which includes everything about the children; their age or developmental stage, type of disabilities, past experience, current abilities and learning interests, cognitive perspectives or logical thoughts, peer relationship, and so on. This condition can change every day. In a good lesson, teachers strive to provide the children with an adequate amount and level of tasks, so that the children successfully complete the lesson activity with some challenges. The role of Japanese special educators in the unit is to be learning facilitators, who encourage every child to feel satisfaction and achievement. Therefore, formulation of an holistic understanding of the children and interpretation of children's responses to their learning experience are core aims for teachers with good lesson skills.

Close observation is then used to establish learning goals, to create a lesson by either using available materials or making their own materials needed for children to complete the tasks independently, and to "embody" (i.e., make concrete and real) the ideal lesson through explicit and reflective articulation of interaction and responses (M. Ôta, 2006) within a teaching team approach (Kimura, 2006). In relation to lesson skills, it is important that each teacher mentally visualises every single "scene" of their own lesson, its sequence of activities, and children's interaction and responses to their learning experience (M. Ôta, 2006). Prior to implementation of this lesson, therefore, they are expected to provide a written plan explaining how they actually teach, how the children view the learning activity, and how the children respond to the learning activity or comprehend the learning content. Unlike in Australian special education, Japanese special educators repeat the same but revised lesson across weeks in a life-skill learning unit until the class and the children reach the expected learning experiences.

METHOD

Themes involving how this school, its teachers, and children work together emerged from data analysis. Ten weeks of field research in a Japanese special needs education unit (i.e., yougo gakkyu; SNEU, hereafter) within an elementary school involved series of semi-structured interviews about teaching practice, end-of-week reflection interviews about lessons and the learning of children with ASDs in lessons and other social situations, observations of classroom lessons and teacher meetings, and the researcher's personal daily reflections. Ethical consents were obtained from the school and then from the participating teachers and parents of the children enrolled in SNEU.

School context

This research school is attached to a national university. The SNEU located within the school shares routine interactive activities but not academic sessions with regular education classes. The school is similar to many public schools in Japan in that it has a large playground for all children. There is a school rule that everyone plays together in the playground when the weather is good. All children come to the playground during breaks and during other regular whole school activities (e.g., morning activities). Many teachers also come to the playground, not only to supervise but also to play together with the children.

The school and all of its teachers put much time and effort into their traditional lesson study process of improving a lesson and of holding an annual open conference. The school invites teachers from other schools, other educational professionals and academics, and other members of the community to observe their lessons and hold post-lesson group. This year was the second year of their 3-year lesson study period, and the conference was held in the 6th week of the fieldwork. Therefore, preparation for the conference, implementation of lessons and group discussions at the conference, and post-conference debriefing among the special educators in the unit could be observed.

Classes

Three classrooms in the unit are arranged into three chronologically based age groups of children (Year 1-2: SNEU1, Year 3-4: SNEU2, Year 5-6: SNEU3). Each classroom has a small number of children (i.e., c = 6 in SNEU1, c = 5 in SNEU2, c = 4 in SNEU3). The primary category of disability is ID, and each classroom has two children with a formal diagnosis of ASDs/ID.

Participants

Three classroom teachers with alphabetically constructed pseudonymous (SNEU1: Ms Ando, SNEU2: Mr Banba, SNEU3: Ms Chiba), a head of SNEU, and a part-time support teacher comprise the staff. These teachers are qualified special educators who had previous experiences in teaching regular education classrooms, preservice training in lesson study and who were also qualified in teaching specialised secondary curriculum areas. These teachers implemented lessons in the life-skill learning unit for their own class and instructed the children about daily life skills (e.g., from changing clothes and toileting to building peer relationships). They aimed to deliver the ideal lesson designed in their unit plan on the conference day.

STORIES FROM A JAPANESE SCHOOL AND ITS SNEU CLASSROOMS

Stories from this site reveal the Japanese special educators' lesson planning process and their group expectations for working together in the class, unit, and school. All of these stories represent some key insights into the focus on interpersonal relationships in this school and its SNEU classrooms (e.g., peer acceptance, awareness of others). The stories also show how the lesson study process was embedded in this school's system and culture and demonstrate that creating a "good lesson" is the primary focus of these Japanese special educators. An example of social situations involving well-defined learning themes also demonstrates how the activity helps the children become aware that they are working together.

In each story, one Japanese term is used to illustrate an aspect of practice, and an English keyword describes the approximate meaning. For example, the way in which the Japanese teachers viewed their children as a whole was evident in their talk about their practice and their use of the term, bamen, or whole scene. These Japanese teachers tried

to capture what is happening in the class and to describe the whole scene in words. When they tried to interpret children's responses in their learning experience, their focus was not only particular behaviours but also the scene in which child responses happened. The Japanese teachers also imagined the scene of their future lesson and tried to detail the children's interaction and their responses to learning materials that embody the ideal lesson. The process of spelling out these details during lesson study meetings had an important role in their approach to improving a lesson and creating social situations in which the children work together with their peers.

Story 1. Hero Cartoon: Everyone Is My Friend

All of the Japanese participating teachers repeatedly referred to the children "sharing the same image" as a part of lesson creation: The children can understand or imagine the same goal, flow of activities through the lesson, and overall outcomes of the ideal lesson. They insisted that it was the first step for the children to engage in the lesson as a class. Ms Ando used free play for her life-skill learning unit. She wanted to make a group work activity in which the children could feel self-satisfaction and enjoy being with friends. She tried to make a story in which the children were able to share the same image of the activity.

For the children to share the same image, Ms Ando used a popular hero cartoon for young children, called "Let's go, Anpanman", and she developed her play-based lesson with this cartoon theme. She named the activity "Baikinman Land", which used a favourite character of one child with ASD. There were six children in the class, and each child and Ms Ando chose their personal hero character and pretended to be that hero during the activity. She divided the children and herself into three peer groups according to the characters' role in the cartoon. The role play encouraged children to interact with each other. After the class performed the same role play several times, Ms Ando added a group activity: An enemy in the cartoon (i.e., Sandman) visited the playroom during their lesson, and the class tried to defeat Sandman collaboratively. Ms Ando asked the part-time support teacher to pretend to be Sandman. The first time that Sandman visited to their lesson, the children were scared and cried. Because the children's reaction was more intense than what Ms Ando expected, she asked the support teacher to leave the room.

After the lesson, Ms Ando and the support teacher discussed what happened in the lesson and how they would improve the lesson to encourage the children to have a "fun" experience of making a group effort. Ms Ando had established an ideal lesson story in which the children were able to complete some group work to defeat Sandman at the end of the story, but she was not sure how she could make it happen. She brought her struggle to a lesson study meeting held later in the same week in the SNEU staff room with other SNEU classroom teachers, the head, and a university professor as their supervisor. The meeting was held after the professor and head of unit observed each teacher's lesson from their respective life-skill learning unit.

During the meeting, Ms Ando talked about what happened in the lesson, what she wanted to achieve, and what she needed to improve more with respect to her image for her ideal lesson. Each person at the meeting shared their opinions and past experiences in relation to improving this lesson. When Ms Ando told the team that she was thinking about how to end the lesson story, Mr Banba, the SNEU2 teacher, suggested a story in which Sandman actually wanted to play with the children and the children were going to become friends with Sandman. Everyone liked the story, and Ms Ando commented that she had wondered whether her original story of defeating Sandman at the end was not ideal. Their discussion, after this moment, moved to the topic of how Ms

Ando would make the new story happen, and they talked about learning materials to help create the scene.

Ms Ando prepared for the ideal episode (i.e., the children become friends with Sandman) to happen during the lesson study conference. First, she discussed with the children what they wanted to do when Sandman came in. Some children said that they were scared and wanted to hide from Sandman, while others suggested having a water device to defeat him because water was his weakness in the original hero cartoon. Second, Ms Ando created resource materials (e.g., a huge curtain to hide behind), and the children practised the lesson story four times more before the conference and progressively developed the story through class discussions. Ms Ando wanted the children to be brave to fight with Sandman and complete group work together. Some younger children still cried or hid behind the curtain until they became brave enough. Ms Ando expected that these children would become able to be brave because their friends were there and would try hard to fight with Sandman. Ms Ando also planned with the support teacher how Sandman would act in the lesson.

At the lesson study conference, while there were a lot of visitors in the playroom, the children enjoyed their "Baikinman Land" activities. The lesson flow was the same until the very end. When they defeated Sandman through group work as they had practised, Sandman did not run away from the playroom as expected. Instead, he cried, and Ms Ando prompted the children to see what was happening in their Baikinman Land. Ms Ando said, "Look! Something strange. Oh dear, Sandman seems to be crying, doesn't he?" The children said, "True! Why is he crying?" Ms Ando replied, "We are not sure. Well, let's ask him why he is crying!"

The children asked Sandman and found that he wanted to play with them because everyone looked so happy. Ms Ando asked the children, "What should we do? He wants to be a friend with us. What do you think?" Some of the children said, "No, I don't want to [be his friend]!" Ms Ando asked everyone one by one again if they could forgive Sandman and become his friend. One girl said, "I can!" Ms Ando picked up the comment and said, "Wow, can you be his friend? You are wonderful!" After this interaction, everyone started saying that they could be his friend. Sandman thanked everyone, promised not to be mean to the children anymore, and left the Baikinman Land.

At the end of the story, the class gathered and debriefed what had happened. While making a toast with a cup of green tea, Aiko, a girl with ASD, said, "It was our making-up anniversary!" (i.e., anniversary for being a friend of Sandman). Ms Ando praised what she said and verbalised how wonderful everyone was because they forgave Sandman and became his friend. Later on the day, the first author asked Ms Ando about the meaning of Aiko's comment. Her interpretation of Aiko's choice of the phrase, making-up anniversary, was that the children thought that being a friend was a wonderful thing. Ma Ando said that the term "anniversary" could become a keyword for her class (i.e., the class making a lot of anniversaries whenever they had wonderful experiences).

The role of Ms Ando in the lesson was to create the lesson story and to prompt the children to realise what was happening in front of them and to think what they should do to respond to the scene. In the episode, being a friend of Sandman became a process of sharing experience among children. Through interaction with other children, they shared explicit knowledge that forgiving and becoming a friend of an enemy was a wonderful thing to do.

The notion that "everyone is your friend" was consistently observed during the daily living scenes at the school and also appeared in teacher talk. For example, the teachers and children called other children "friends", either tomodachi or nakama. These terms

indicated an emotional bond in the class and in the school community. Moreover, Ms Ando used the process of group reflection with the class at the end of every lesson, which encouraged the children to plan and create the lesson world together. Therefore, the children felt that they made the lesson story by themselves and became very proud of their Baikinman Land.

Story 2. Group Responsibilities: Children Plan, Implement, and Evaluate Their Activities

At the beginning of the school year, the children in each class held a classroom meeting and created the duties for their own role in the school. Peer groups were often used in various school situations, and these small peer groups were responsible as a team that performed various duties. The peer group, called han, was used in this school as it has been traditionally used in Japanese education (Lewis, 1995). Across the field research, the first author often saw typically developing children in regular education classrooms come to SNEU classrooms either for their group duty or for playing together. In various school activities, all children and teachers of the school engaged in activities together (e.g., tag games). The children usually planned and delivered these activities, and then, evaluated their efforts.

Some peer groups from regular education classrooms, for example, came to the SNEU1 to help younger children to complete their morning preparation (i.e., changing clothes, unpacking their bags), and they also accompanied the SNEU children to morning activities on the playground. Other peer groups visited all classrooms (i.e., regular education and SNEU classrooms) and sang a song together every morning. The children decided which songs they sang every month, taught the songs, and prepared a poster of song lyrics for all classes. In these group situations, peer praise or positive feedback was often used to foster peer acceptance (i.e., "befriending"). The peer group in charge for the activity announced what everyone did well and often named the "friend" who was most excellent at the end of the activity. Ms Chiba specifically asked a peer group to name each child in her class when they gave positive feedback to the SNEU children at the end of an activity, because it made them happy.

In this story, children from regular education classrooms determined class duty and planned group activities to interact with other children as a whole class, implemented their activity, and gave positive feedback on the event and praised their friends. All children treated everyone in the school as their friends. Peer praise appeared to be used to encourage positive peer acceptance.

Story 3. Child's Behaviour: Class Becomes Community

These special educators often emphasised the interpersonal meaning in children's action. For example, Mr Banba interpreted the children's imitation of the repetitive behaviours of Daichi, a boy with ASD, as other children accepting Daichi as an important member of SNEU2. When Daichi was absent for the day, one classmate tried to switch on and off the air-conditioning, and another classmate made a strange noise when eating lunch. Mr Banba believed that, based on his close relationship and everyday experiences with the class, they behaved like Daichi because they missed Daichi.

These Japanese teachers sometimes took the role of "bad model" to encourage the children to think and solve problems without teachers' direct instructions and trusted that the children would respond to what they expected. For example, Ms Chiba used one child's inappropriate behaviour as a group learning opportunity. At the end of the first playtime of the day, Ms Chiba came back to the classroom from the playground.

She did not direct the children to come back to the classroom but waited for them to come back independently when the school bell rang. All children except for one boy with Down syndrome, Osamu, came back and prepared for a lesson from a life-skill learning unit.[1] She said to the classmates, "Osamu has not come back here yet. I cannot wait anymore. Do you mind if we start making cakes without Osamu?" She called each child's name and confirmed each child's response to her question. When one boy with ASD, Ēji, was asked if he did not mind if they started their activity without Osamu, Ēji stood up and left the classroom. Ms Chiba and the first author followed him and saw him calling Osamu's name loudly and pulling his hand to come to the classroom. Osamu responded to Ēji's prompt and came back to the classroom with him.

Ms Chiba scolded Osamu about his inappropriate behaviour that interrupted what other children wanted to do. Osamu cried and said sorry to the class. Ms Chiba encouraged him to apologise to the class with a more specific sentence (i.e., that he was sorry because he did not come back to classroom and his behaviour caused other children to wait). Osamu prepared for the activity, and the other children watched as he finished his preparation. While waiting for him to get ready, Ms Chiba asked Ēji why he went to call Osamu. He responded to her by reading the classroom goal: "Trying my best, for myself, for my friends." Ms Chiba was surprised (touched and nearly cried) and confirmed that he did it for the class. Ēji nodded, and Ms Chiba gave him a "big praise" in front of the class.

After this episode, Osamu repeated the same behaviour again 3 weeks later. Ms Chiba said only, "Oh, Osamu is not here", and Ēji and another boy went out to call Osamu. This time, Ēji did not pull Osamu's hand and, instead, verbally encouraged Osamu to come back. After Osamu cried about being scolded, other children tried to help him to prepare for the next lesson (e.g., washing hands, wearing his apron) without any prompting. Ms Chiba also reported this episode when she was asked about her reflection on the week and also, at the end of the field research period, when she was asked about outcomes of her practice. Her interpretation of the episode was that Ēji became thoughtful about his friends, that peers become more supportive, and that the class had become a community.

Story 4. Duck Tale: School Solves a Problem Together

An administrator announced to the whole school that "I understand that every class is doing your morning activity. However, I would like you to stop what you are doing now and to listen to me carefully." When Ms Chiba heard the loudspeaker, she stopped her lesson and prompted her class to focus on the message. The announcer continued to speak very slowly and gently to all children in the school. "This morning, we had such a sad story. I would like everyone to listen to me carefully and think hard about what I am going to tell you and solve the problem together."

The administrator explained that one of the Year 4 classes encountered an issue. Their pet duck had a new born baby, and the class had asked everyone to place a suggestion for the baby's name in the voting box located at the school entrance. In the morning, they found one paper saying something unpleasant. The administrator said that the children of Year 4C were very sad when they found it and that he was very worried about the "kokoro" (i.e., heart) of the "friends" of this class and also worried about that of the person who put the note into the voting box. The administrator also said that they were not going to find who did such a heartless thing but that he would

1. Some studies show poor persistence and a stubborn temperament in children with Down syndrome, e.g. Fidler (2006).

Table 1. Four Japanese Stories: Keywords, Story Topic, and Description of Practice

Japanese word used in stories	Keyword	Story topic	Description of practice
Story 1. Lesson study in teaching approach			
Tomodachi or Nakama	"Friends"	Hero cartoon	Ms Ando created a lesson world by using hero cartoon with her lesson study group members. In the lesson, enemy became "our friend." The idea that everyone is my friend also reflects in the way that teachers call peers "friends" when talking to the children about classes or peers.
Story 2. Lesson study in children's learning			
Han	"Peer group"	Group responsibilities	The school owned a huge playground for everyone to play together, and children worked as a team. Children said what friends did well, and teachers said what they did well in front of everyone. The process of giving positive feedback to each other facilitated peer acceptance.
Story 3. Classroom community			
Bamen	"Scenes"	Daichi's absence	When Daichi was absent, all children copied what Daichi usually did (i.e., behaviours or talk). Mr Banba considered it as group acceptance. Combination with teachers' talk about children's behaviours during their meetings, they seem to view a child's behaviours as a personal characteristic.
		Osamu's behaviour	Teachers tried to see whole scenes and use one child's behaviour as learning opportunity. Osamu's problem was everyone's issue, not only his issue. Children were also expected to think about what they can do for "friends."
Story 4. School community			
Kokoro	"Heart"	Duck tale	A whole-school interpersonal approach led children to solve the problem of one class (i.e., "sad" event) together. Children considered friends' sad feelings and cheered up the friends.

like the children to think how the Year 4C friends felt and how they were going to help these friends.

The head of SNEU explained the purpose of the announcement to Ms Chiba who was new to this school. That is, the children were being encouraged to think about how their friends felt and about what they would be able to do for their friends. The head also suggested that her class, as the oldest class, visit all other SNEU classes to discuss what they could do for their friends, and then visit the Year 4C classroom to cheer up them as representatives of SNEU. Ms Chiba talked to the children and asked them to think about how the Year 4C friends felt and what they should do as SNEU3. The two oldest children in SNEU3, both with ASDs, left their classroom and talked to other SNEU children, with Ms Chiba's verbal prompting, while the other SNEU teachers also prompted their own classes. The solution adopted after this group discussion was "cheering up our Year 4C friends." Then, these two children of SNEU3 went to the Year 4 class to give comfort. Later on the same day, the Year 4C children used a school announcement to say thank you to all "friends" in the school for visiting, and feeling the same sadness as us, and cheering us up (ouen).

Awareness of others has been recognised as a difficulty for children with ASDs. Progressive improvements in this awareness were linked to the SNEU's developmental emphasis on group participation, cooperation, and contribution in each class. The older children with ASDs demonstrated

more improved consideration of their peers than the younger children with ASDs.

INSIGHTS FROM THESE STORIES

Table 1 summarises the four stories from this Japanese school and its SNEU classrooms. Through working together, interpersonal values were addressed in a SNEU class, among classes, and within the school. Children with ASDs acquired peer acceptance and established interpersonal relationships with peers, and the school and individual classes became a supportive community in which the children with ASDs were able to learn interpersonal skills through real-life experiences. Children with ASDs, through teachers' scaffolding of these abilities throughout 6 years of elementary school, gradually built positive experiences with peers and demonstrated social-emotional learning outcomes in this school.

These stories in this specific school may provide some insights into interpersonal learning activities for children with ASDs. As teaching is culturally situated practice (e.g., Dall'Alba, 2009), this site-specific practice may vary in other parts of Japan and also may not be directly applicable to Australian contexts. However, these stories show one way to facilitate peer interactions that enhance interpersonal relationships and skills in children with ASDs and that encourage everyone work together on inclusive community.

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