Irish Learning Support Association

I.L.S.A.

LEARN

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Readers are invited to submit papers to be considered for inclusion in the 2010 issue of LEARN. Papers should reach the Editorial Committee, LEARN, ILSA, c/o Drumcondra Education Centre, Drumcondra, Dublin 9, by January 31, 2010. Papers should be relevant to some aspect of Learning Support and should not exceed 3,000 words. For information on electronic submissions please contact the administrator on our website at *www.ilsa.ie*

The Association is concerned with the education of children with learning difficulties. Its aims include promoting co-operation between those concerned with Learning Support and enhancing the quality of service given by Learning Support Teachers through the provision of resources, lectures and seminars.

Besides the journal LEARN, a newsletter is published for members.

Application forms for membership of ILSA can be downloaded from our website at *www.ilsa.ie*

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CONTENTS

Editorial

As we face into the school year 2009-2010 the perspective of educators has greatly changed since this time last year. We had been in a phase of on-going developmental change in the nature and organisation of educational services, including support services, which had been long overdue. We were expecting the imminent delivery of in-service programmes relating to IEP development and the full rollout of the structures and supports required for the implementation of the Education for Persons with Special Educational Needs Act (2004). The excellent NCSE Implementation Programme for the EPSEN Act (2004) was with the Minister for Education and Science and prospects for systems to be put in place looked good. It is a greatly altered scenario that we now confront.

The implementation of the EPSEN Act (2004) has been suspended, with no clear information provided on what that implies in terms of timelines, obligations, entitlements or outcomes. The detrimental effects arising from this suspension for the children and young people involved and for their families and their future life prospects and experiences are ominous. Immediate clarity must be given on this issue and their rights to education vindicated without further delay. They have waited long enough and do not have time to spare. Their needs are such that the quality of their lives now and their prospects into the future are materially affected by every impediment and hold up.

Despite a downward trend in other developed countries our class sizes have, incredibly, been increased. It is claimed that research indicates that class size does not adversely affect student outcomes but since the mid-nineties, studies in this area have focused on the reduction of classes from 25 students to 15 students, which is far from the our current situation (Hattie, 2009). Cortazzi and Jin (2001) identified the characteristics of classes with student numbers greater than 30 as using standard teaching scripts; chalk/whiteboard lessons; intolerance of variation in student behaviour; rigid in discipline; using copying and high amounts of rote learning with the expectation that all students progress through lessons at the same pace. In classes of 20-30, grouping becomes possible and more opportunity is afforded for accommodating varying ability levels, behaviour differences and differentiation of curriculum, topics and lesson pace (Swanson, O'Connor & Cooney, 1990; Smith, Baker, Hattie & Bond, 2008; Yekovich, Thompson & Walker, 1991; Shanteau, 1992). The effects of class size are essentially to be seen in the change in working conditions for students and teachers and the diminishing of opportunities for a range of educational strategies and practices to be put in place. These are the very strategies and practices required for the implementation of the Revised Primary School (1999) and the EPSEN Act 2008.

The challenges facing Irish schools, students, staff, parents and management have rarely been starker as we move back towards the structures and supports of bygone years rather than forward towards those befitting the 21st century. We still have our core strengths in that the cohort of young people going into the teaching profession in Ireland continues to be of the highest calibre, coming from the top quartile of school-leavers. The intellectual ability of teachers is a recognised factor for effective teaching (Hedges & Laine, 1996; Ferguson & Ladd, 1996). The quality of teacher/student relationships is another powerful factor which also maintains high standards and promotes student success. In evaluating studies involving over fourteen thousand teachers Cornelius-White (2007) found that where the teacher was 'person-centred' in their relationship with students, there was more engagement, more respect of self and others, fewer resistant behaviours, greater student initiated and regulated activities, and higher achievement outcomes (p. 123).

Teachers are powerful influences on learning but they do not work in a vacuum. Teachers are professional and have great strengths to bring to bear on the challenges that lie ahead, but they too are affected as persons by the unwelcome changes that have been imposed.

This coming year will begin to expose the damage caused by the recent cutbacks in education but it will continue to unfold over successive years.

Reading across the articles in this issue of learn, one cannot but recognise the substantial need for professional development in the area of inclusion and the complexity of understanding required of teachers in responding to diverse student needs in their classrooms, as they attempt to deliver an appropriate education to all. There is without doubt a significant requirement of leadership in schools to enhance within-school teacher supports, to understand the benefits of inclusive practices for all and most significantly, to be courageous in supporting creative structures and endeavours that promote learning for all children.

Máirín Barry
Editor of *Learn*
The Journal of the Irish Learning Support Association
June 2009

Using ICT for supplementary reading instruction

Marty Holland

In Irish primary schools, the majority of children who attend for extra learning support receive support in reading and literacy (Shiel et al 1998). ICT has a significant role to play in supporting the supplementary reading instruction which these children receive (Kuhn and Stahl 2006; Standen and Brown 2004; NICHD 2000).

Many of the well-documented strengths of ICT such as the fact that it is non-judgmental, non-threatening and has endless patience (NCTE 2008; Rosegrant 1986) are particularly relevant for struggling readers. They need learning opportunities which are non-pressurising and which provide opportunities for repetition and consolidation of skills (DES 2000). The fact that ICT is non-threatening can help to alleviate some of the nervousness and caution often displayed by struggling readers. Children do not see the computer as personally judging them in the same way as they might feel that they are being judged by a teacher, parent or peer. Children who are nervous and anxious about reading, in many cases, are more motivated to undertake activities on the computer than they are to undertake similar activities with a person. The computer seems to have the power to create a unique zone of learning, or E-zone, in which the struggling reader can focus on the task at hand (Holland 2009). Children engaged in reading activities on screen may not even realise that they are reading. As a result, the emotional pressure associated with the reading activity is removed. Within the E-zone, the child is in a strong position to be able to benefit from the on-screen reading activity. The majority of struggling and at-risk readers love activities on the computer. They do not feel under pressure and are more relaxed in this environment. When children are relaxed and enjoying learning they are more likely to be successful in that learning (Holland 2009).

Many of the skills of reading such as phonological awareness, phonics and sight vocabulary building require much repetition on the part of the learner in order that learning is consolidated. ICT can help in this regard by patiently providing motivating opportunities for over-learning. Children engaged in computer-based activities have frequently displayed the ability to concentrate more and to spend more time on task than they would normally do on more conventional and traditional activities (NICHD 2000). This is very important for children who have fallen behind in reading as they are often slow to complete tasks

(DfES 2001). The more time they can spend on task the better chance they have of mastering the skills of reading.

ICT can provide visual and auditory stimulus in a multisensory environment. The need for this multisensory approach to the teaching of reading is widely recognized (UNESCO 2006; NCCA 2004).

One of the great strengths of the technology, in reading instruction, is its motivational effect (Spear-Swerling 2004; NICHD 2000; Cox 1997; Papert 1980). If the struggling reader is not motivated to learn, the process will be very difficult and progress very slow. Indeed, there may be no progress at all (McKenna and Stahl 2003; Lyon 1998). A further advantage of using ICT is that it can allow children to work independently while being purposefully engaged. This can free-up the support teacher to work one-to-one with other children who need individual attention. This one-to-one and small group instruction is important for struggling readers (Hunt and Marshall 2006; DES 2000; Vellutino et al 1996). A note of caution here is that it is important that the child is engaged in an ICT activity which is matched to his level of performance and specific needs (Underwood et al 1995). Children who struggle with reading do so due to a variety of factors (Allington 2002). It is important to, as accurately as possible, assess what the difficulties are for the child (Snow et al 2005; DES 2004; DES 2000) and to identify which phase or stage of reading development the child is at (Ehri and McCormick 2004). Then, when used in conjunction with traditional teaching methods, ICT can make a positive contribution to reading achievement (Soe et al 2000; Hall et al 2000). When considering the role of ICT for supplementary reading instruction the focus should be on reading instruction. The instruction should be guided by the needs of the child and it should be based on sound pedagogical principles. The use of ICT should fit with the overall programme of reading instruction. The technology is a tool to support and enhance this instruction. The strengths of ICT can be harnessed to support the struggling reader.

There are two main approaches to the teaching of reading (1) a skills-based approach, and (2) a whole-language approach. Recent influential reports strongly advocate a skills-based approach to reading instruction (Rose 2006; Rowe 2005; NICHD 2000). These skills include phonemic and phonological awareness, phonics, sight vocabulary, fluency and comprehension (NICHD 2000). It is widely accepted that children with difficulties in reading, including dyslexia, require explicit and focused instruction in the skills of reading (Heward 2006; Hallahan and Kauffman 2003; NCCA 2002; Torgesen 2002; DES 2000). The most effective teaching of reading includes explicit instruction in phonological awareness and phonics, and teaching of comprehension strategies (Grossen 2006). Such instruction will also address the key area of fluency and automaticity with sight vocabulary. ICT can play an important role in a focused skills-based approach to reading instruction for struggling readers.

Using content-rich software for a skills-based approach to reading instruction.

Content-rich software, including content-rich websites, can play an important role in developing the skills of reading. On-screen activities designed to develop phonemic and phonological awareness can result in significant gains in discriminating and sequencing sounds (Barker and Torgesen 1995) and in the ability to read words (Ehri and Nunes 2002). Computer software, that utilises synthetic speech to promote phonemic and phonological awareness, decoding and identification of targeted sight words, has been found to be particularly effective for younger readers (Olsen and Wise 2006). ICT has significant potential to support pupils in word recognition and fluency in ways which can complement traditional print-based methods (Kuhn and Stahl 2006). Research in the USA indicates that a software programme designed to develop reading skills was most effective when used in conjunction with traditional instruction (Jones et al 2004).

Research recently conducted in Ireland indicates that Lexia and Wordshark are the two pieces of software which support teachers in primary schools currently find most useful in supporting a focused skills-based approach to reading instruction. Lexia is particularly highly regarded and was described by teachers as *'very good'*, *'excellent'* and *'a revelation'* (Holland 2009). It targets the skills of reading including phonemic and phonological awareness, phonics and sight vocabulary. Phonemic and phonological awareness are considered to be important prerequisites in learning to read (Snow et al 2005; Goswami and Bryant 1990) and phonics instruction is considered an essential component of effective reading instruction (NICHD 2000). A synthetic phonics approach is utilized by the software. Systematic synthetic phonics instruction is recommended, for young readers and those at risk of reading failure, in order to prevent and remediate reading difficulties (Rowe 2005). Teachers like the software because it can be used to assess and diagnose areas of difficulty, to assign focused and structured activities at an appropriate level to remediate difficulties. According to support teachers it *'gives an accurate assessment'* and 'customises *itself to each individual child's level of mastery of skills*' (Holland 2009). Teachers find Lexia to be particularly useful for teaching *'difficult areas'* such as the long vowel and the Magic E. When children have finished working on these areas in Lexia, it is claimed that *'they really know it'*. Overall, the software is considered to be motivational (Holland 2009). This was also found to be the case in research conducted in County Mayo (Tiernan 2004; Geraghty 2004). Lexia provides valuable repetition and reinforcement which struggling readers need. This repetition and reinforcement is provided in a way that a teacher might find difficult to achieve without the support of the software.

Teachers claim that the software is particularly suited to children with dyslexia (Holland 2009). These children typically have difficulties with working memory (Felton and Miller 2001) and therefore require much repetition as well as

opportunities for over-learning (Reid 2003; Nicholson and Fawcett 1999). However, Lexia does not work for all children. Some children find it difficult to make progress at certain levels of Lexia. As one support teacher observed, they '*reach a plateau which they find very difficult to get over*' (Holland 2009). This may be due to cognitive difficulties. Weak cognitive ability can particularly affect older pupils' progress in reading (Adams 1990). Therefore, use of Lexia and, indeed, any piece of software has to be carefully monitored and evaluated by the teacher to ensure that an individual does not get frustrated or demotivated when difficulties progressing are encountered. It is a reminder that there is no single solution to reading difficulties (Allington 2002). There are so many possible reasons for children experiencing reading difficulties that solutions are rarely one-dimensional (Cunningham and Cunningham 2002; Strickland 2002).

Teachers tend to use Lexia in conjunction with more traditional non-ICT programmes such as PAT, Toe by Toe and Sound Linkage (Holland 2009). This is encouraging as reading interventions involving ICT tend to be more successful when they are used in conjunction with traditional instruction (Jones et al 2004; Soe et al 2000). Some teachers use it systematically and regularly while others tend to *'dip in'* to Lexia to help to remediate particular problems which have been identified (Holland 2009).

Wordshark primarily covers the area of phonics and sight vocabulary. It is designed to develop word attack skills through on-screen activities with graduated lists of words in word families. Development of such skills are recommended for children with reading difficulties (Ehri and McCormick 2004; Juel and Minden-Cupp 2004). With Wordshark, it is possible to customise lists for children. Teachers have used it in conjunction with PAT and, in one instance, a target list of words from PAT was customised and used in Wordshark. Other teachers have used Wordshark to input words from the class reader for the child to practice word attack and word identification skills. The main difference between Wordshark and Lexia identified by support teachers is that while it is easier to customise wordlists for the individual child in Wordshark the programme is not as focused as Lexia (Holland 2009).

A relatively new piece of content-rich software for language and literacy called Lexion, which was developed by speech and language experts in Sweden, is receiving very positive reviews (Holland 2009). Inevitably, other new software packages will come on the market in the years to come. Based on the experiences of support teachers, in order to be useful and effective in meeting the skills-based needs of at-risk and struggling readers, content-rich software should provide many opportunities for repetition and reinforcement in a motivating and rewarding on-screen environment. The software must strike a balance between education and entertainment, the balance being strongly in favour of education while providing a sufficient level of interest and challenge for the child to maintain motivation levels. The software also needs to cover the skills of reading in a structured, carefully graduated and systematic way. Ideally, it

should have built-in assessment and diagnostic capabilities leading to the assignment of educational targets for the child, which are appropriate to the child's needs at the particular point in time. The software should be able to monitor how the child is performing and accordingly adjust tasks set for the child. Support teachers generally feel that the software needs to be designed so that children master one level of difficulty before progressing to the next level (Holland 2009). However, there should be a facility within the software for the teacher to select certain skills and activities for specific repetition, reinforcement and consolidation as needed by the individual child. This would include the facility to assign a different mastery level to a child who is experiencing repeated difficulty at a particular level. Equally, there should be a facility within the software to allow the teacher to add customised lists of sight vocabulary for practice by the individual child e.g. words from the child's own experience and words from the Dolch list of the most frequently occurring words.

Teachers are increasingly using the Internet as a source of content-rich skills-based activities (Holland 2009). There is a lot of interest shown in websites that allow for the printing out of worksheets and particularly worksheets with high frequency words such as those contained in the Dolch list. Some of these websites allow the production of word shapes, which could be useful in helping children to recognize the shapes of words. Children need to develop a store of words which they can recognize automatically (Tan and Nicholson 1997). Being able to quickly identify words may aid comprehension (Snow et al 2005). However, in any literacy programme worksheets should be used judiciously.

Teachers like using websites for on-screen skills-based activities because they can often match the activities to the traditional programmes and also because they are free. They can choose the most appropriate activities to meet the needs of the individual. However, the need to carefully monitor children's learning as they engage with these on-screen activities has been highlighted by support teachers (Holland 2009). The problem, with Internet-based on-screen activities, is that many of them do not have a system for monitoring children's responses. It is possible that children could be happily engaged with on-screen activities but not actually learning the intended skills. There has always been the need for effective teachers to carefully monitor children's level of understanding and engagement with learning tasks (Westwood 2007). This is no different for ICT. The type of activities which teachers are accessing on the Internet to develop literacy skills tend to be matched to the needs of the younger emergent reader (Holland 2009). The websites which support teachers find most useful include:
Starfall.com, Woodlands-junior.kent.sch.uk, Childsplay.com, Schoolhouse.com (Vocabulary worksheet builder), Progressivephonics.com, Worksheetfactory.com, PhingertipFonics, BBC Online Learning (Words and Pictures).
There is an ever increasing number of websites where resources can be accessed, created and customised by teachers (Barry 2009), available at: http://www.ict.mic.ul.ie/tp/teacher_tools.html

Using content-free software for a skills-based approach to reading instruction

An interesting development is the extent to which support teachers are using content-free software for decoding activities and sight vocabulary building (Holland 2009). Content-free software, which the teachers use to develop word-attack skills, include Microsoft Word, Clicker, Excel, PowerPoint and Photo Story. At the most basic level, a word processor is used to produce colour-coded flashcards of words from the Fuzzbuzz reading scheme or worksheets of PAT word families. Using the word processor enables the teacher to produce attractive and professional looking results using a child-friendly font such as Comic Sans. At a more technically advanced level, many of the teachers favour the use of PowerPoint to present customised lists of sight words for individual children, lists of high frequency words or word families for group work sessions. PowerPoint is felt to be useful for this because it is easy to move words around and to add pictures and sound. In some cases the sound added is the voice of the teacher or the voice of the child saying the words on the screen. PowerPoint transitions are used to help children with visualisation of the words. ICT is particularly good for supporting the visual learner (UNESCO 2006). Teachers who use PowerPoint claim that it is motivational for individuals, and, when used with a data projector, motivational for groups. As one teacher commented *'It is more fun because it is visually appealing, colourful and animated'* (Holland 2009). The 'fun' aspect, which this creative use of technology brings to the learning environment, is important. We learn best when we are enjoying learning. The teachers' imagination and creativity in utilising the power of this content-free software to support the acquisition of sight vocabulary is impressive. They have identified that a visual representation of selected words on-screen is motivational, stimulating and for some children holds their *'attention for longer' (*Holland 2009). This may be particularly significant for struggling readers who have difficulties attending to tasks and completing tasks. Some children are reported to respond much more positively to words on-screen than they would do to more traditional representations of words on flashcards (Holland 2009). Teachers usually utilise the technology to help them reach targets identified for the children, in some cases using more than one application of the technology along with more traditional approaches. At the centre of these ICT approaches are the goals and targets set for the child. The power of the technology is then harnessed to try to achieve these goals and targets. In one instance both PowerPoint and Excel were used to present targeted words and to develop a child's rapid word naming skills. The facility within PowerPoint to have the words fade in and fade out on-screen was utilised to make a game out of the child having to say the words quickly. In conjunction with this, Excel was used to produce the same words for a daily probe. The facility in Excel to present lists of words randomly, in columns, and to allow new words to be easily added, was utilized (Holland 2009).

Teachers who create their own individualised child-centred activities using content-free software, by virtue of the process entailed, have to focus on the

needs of the child in question. They have to assess what the individual's needs are, identify how technology can help, set targets for the child and create activities designed to help the child to reach those targets. Using commercial software, there is the danger of matching the child to the software rather than the software activities to the needs of the child (Holland 2009). It is important that reading interventions are matched to the needs of individuals (McNamara et al 2005; Day 1995) and to their level of understanding (Blamires 1999).

Microsoft's Photo Story is also used to support the development of children's alphabetic skills and sight vocabulary. The finished product in Photo Story looks very professional and acts as a strong incentive for children. However, the real power of the approach seems to lie in the multisensory process of creating the Photo Story. In two examples, children made letters or words out of plasticine or playdough, took a photograph, used a microphone to record the letter or word and created a Photo Story display (all with the help of the teacher). For some children the approach is proving to be *'invaluable'* (Holland 2009). There is much repetition and reinforcement of the skills of reading involved in the process. Children are highly motivated by the process and take great pride in the finished product. There is much repetition, of important reading skills, involved in the process and in reviewing the finished multimedia product (Holland 2009). By reviewing the finished product, the child is also able to self-assess the result of his or her efforts.

All My Words and Acceleread/Accelewrite are also used to develop sight vocabulary and *'letter patterns'* (Holland 2009). They both harness the power of the computer's speech synthesis capabilities for word recognition support and reinforcement. All My Words allows for the insertion of customised lists of words, whereas Acceleread/Accelewrite uses a graduated set of sentences. An advantage of each approach is that children can monitor and assess their own progress. They can check their own accuracy either aurally or visually. They can also measure their progress through a graduated set of word cards. Children using Acceleread /Accelewrite expressed satisfaction with their progress using the approach and with the self-correcting opportunity provided by speech synthesis. Teachers who use these approaches report positive outcomes for struggling readers (Holland 2009). Similarly positive outcomes were reported from other research conducted in Ireland on the Acceleread/Accelewrite approach (Ó'Gormáin 1997; Tierney 2005).

A whole-language approach to reading instruction

The basis of the whole-language approach to the teaching of reading is that children learn to read best by being exposed to experiences of reading and writing. The whole-language approach is essentially a holistic or top-down approach. The debate as to which approach, skills-based systematic instruction in discrete skills or whole-language, is most efficacious, seems set to continue. However, they should not be mutually exclusive of each other. Children learn

to read best by having a broad range of real reading experiences. Reading is a developmental process in which skills may be learned by meaningful engagement with text (Braunger and Lewis 2006). Children need explicit instruction in reading skills but they also need to apply those skills during actual reading (Kuhn and Stahl 2006; Duke and Pearson 2002). Good teachers invariably use a range of approaches and methodologies in their teaching (Rowe 2005). In reality, the reading process requires both a top-down and a bottom-up approach. From the top-down we look for meaning and from the bottom-up we need to decode new words which we encounter. If synthetic phonics instruction is used in the initial stages of learning to read, together with a whole-language approach, the overall effect may be as much as four times greater than just having a synthetic phonics approach alone (Camilli et al 2003).

Using content-rich software for a whole-language approach to reading instruction

Electronic stories or 'talking books' appear to have a strong role to play in supporting struggling readers. The speech-support which they provide can help with young learners' phonological awareness (Moseley et al 1999). In terms of a child's phonological gains, electronic stories can support reading in a similar way to one-to-one teaching (Wood 2005). Having the story read by the computer is similar to traditional joint storybook reading with an adult and allows the child to focus on the story context and relationships between speech and sound (Wood 2005). The unique scaffolding of reading that electronic stories provide appears to have positive influences on children's concepts of print and on their comprehension (Bus et al 2006). Research on electronic stories showed that children who used them made significant gains in literacy attainment (Chera and Wood, 2003; Van Daal and Reitsma 2000). Research in the Netherlands found that children at the initial stages of developing story comprehension profited from using electronic books when real books were also read to them by adults (de Jong and Bus 2004). There is reason to believe that the practicing of reading on-screen, supported by synthetic computer speech, and the reviewing of targeted vocabulary can have significant positive effects for children who have reading difficulties (Olson and Wise 2006). Furthermore, the use of text-to-speech (TTS) or digitized speech may help some pupils' comprehension because it overcomes difficulties with decoding and fluency and thus frees them to concentrate on the meaning of the text (Dalton and Strangman 2006).

In Irish primary schools, two commonly used electronic stories are Wellington Square and the Oxford Reading Tree. Support teachers who use them find that they provide an opportunity on-screen for a type of *'paired reading'* in which the children are supported in their learning. The electronic story acts as an E-partner to the child in this form of paired or shared reading experience. In traditional paired or shared reading an adult or peer is normally partnered with the child but in E-partnered reading the electronic story provides the modelling,

scaffolding and support required (Holland 2009). Teachers feel that the scaffolding and support, which E-partnered reading provides, is a key factor in motivating children to read electronic stories.

Teachers use electronic stories in an integrated way. They are used in conjunction with traditional hard copies of the books and are supported by supplementary and ancillary activities, which accompany the electronic stories themselves, or by activities created using other software or websites. These activities include cloze procedures, basic comprehension questions, vocabulary building and activities based on the words from the books (Holland 2009). This mix of developing phonological and phonic skills in conjunction with real texts in a balanced and structured way is beneficial for developing reading ability (Hatcher et al 2006). One teacher, in a disadvantaged school, uses Oxford Reading Tree electronic stories with an interactive whiteboard with groups of young children in her learning support room. Initially, she uses the electronic stories *'as an oral lesson'* to develop comprehension through prediction exercises. She is also providing an opportunity to develop the important reading related skills of speaking and listening. She points out that, in the process, children are being exposed *'to sight words before they actually read the book'* (Holland 2009). The prior knowledge of the language in the books, which this activity provides, should have a positive impact on the children's ability to comprehend the actual book when they read it (Cunningham and Stanovich 1997). Later, after individual children have read the hardcopy book, they read the electronic version again on-screen and *'do activities which are based on the book'*. Other teachers let children read the electronic stories first before the hardcopy. It is claimed that this encourages and prepares the reluctant reader to read the hardcopy of the book (Holland 2009).

Having the opportunity to experience independent reading at a success level, with the support of an electronic story, may help to overcome some of the traits of learned helplessness often associated with children who have learning difficulties. One of the best ways of developing fluency in reading is for children to have repeated opportunities to experience success at reading (Samuels 2002; Kuhn and Stahl 2004). Using the electronic stories and reinforcing this by reading the hard copy aloud may provide valuable opportunities for children to experience this success. A side benefit of electronic stories is that, because children are often able to work independently with them, it frees teachers to listen to other children reading (Holland 2009).

One teacher, who uses Clicker electronic stories, augments the work by enabling children to use an on-screen writing frame to write their own books based on the electronic stories. Another uses the writing frame, Clicker, to enable children to write books based on the class reader, Sunny Street (Holland 2009). This integrated approach to reading of real texts and writing, which supports the development of decoding and encoding skills, is valuable for beginning readers (Strickland 2002). The writing will also help the child to understand the

relationship between the spoken and the printed word (Braunger and Lewis 2006). Reading and writing can be mutually supportive. Emphasising the connection between reading and writing and having writing activities based on material read can benefit comprehension (Duke and Pearson 2002).

Electronic stories are used with a range of pupils including those with general learning disabilities and those with dyslexia. However, teachers who work entirely with children who have dyslexia are less inclined to utilise electronic stories in their work. In these cases, electronic stories are not considered to meet the priority learning needs of pupils with dyslexia. They require explicit instruction in the skills of reading. However, as the skills of reading are mastered by children with dyslexia, electronic stories become more relevant to their needs (Holland 2009).

Using content-free software for a whole-language approach to reading instruction

The **Accelerated Reader/Reading Renaissance** program is a guided reading intervention. Accelerated Reader, is effectively a database in which comprehension questions on the individual books in a reading scheme are stored. Pupils are assigned an appropriate book, within a carefully graded scheme or library of books; books which interests them and which they can read at a success level. When a pupil has finished a particular book he/she accesses the computer database and answers a set of multiple choice questions about the book he has just read. These questions are designed to ascertain whether the pupil has read and comprehended the book. A record is kept, in the database, of the books which the pupil has read and of the questions successfully answered. This record may be printed out for the teacher or pupil and is intended to help the pupil to establish goals for his/her reading. The central aim of the approach is to generate interest in reading and to motivate the pupils to read more. It is based on the premise that the more we read the better we become at reading. Books may be purchased with the Accelerated Reader database or a school may use an existing library of graded readers.

The use of Accelerated Reader has resulted in positive effects on reading achievement for pupils with learning disabilities (Scott 1999; Nunnery et al 2006). Research conducted on Accelerated Reader in a designated disadvantaged school in Co Clare found that the programme developed pupils' reading skills and fostered positive attitudes towards reading. Overall, it was considered to be extremely motivating for the pupils (Roughan 2006). A majority of the children in the research made significant gains in reading comprehension as measured by the Neale Analysis of Reading Ability. This is consistent with wide scale research by Topping and Paul (1999), using Accelerated Reading data, in the USA, which indicates that this type of in-school reading has a strong positive effect on student reading ability.

The Digital Language Experience Approach using Content-free software

In the Language Experience Approach, with the help of the teacher, children create their own personal stories based on their own experiences and interests. These personalized stories then become their reading material. Using content-free software, such as a word processor or a multimedia authoring package e.g. Clicker or PowerPoint, to produce Language Experience Approach (LEA) material, greatly enhances both the process and product. When digital images, artwork, animations, voice and even digital video are included the process is referred to as the Digital Language Experience Approach (DLEA). It allows pupils with reading difficulties to create interactive multimedia books which suit their level of understanding and their interests (Blamires 1999) and offers young children unique opportunities to develop their literacy skills (Labbo et al 2002). These DLEA books can help in the development of sight vocabulary (Valmont 2003). Young children love revisiting and re-reading digital stories which they have created, and thus their understanding of story structure and vocabulary is reinforced (Turbill and Murray 2006).

Irish support teachers most frequently use PowerPoint, Clicker and Photo Story to create these personalised electronic stories or DLEA books. In Clicker, words are automatically read back. However, in PowerPoint it is relatively easy to include a recording of the child reading the text and thus create a very effective 'talking' personalised story. Personalised electronic stories created in Photo Story can only be read on-screen because the software does not include a facility to print out the stories. However, as one teacher pointed out, this is compensated for by the *'quality of the finished product'* (Holland 2009).

A number of different *modi operandi* are employed in the process of creating DLEA books. Some teachers type for the children, others transcribe what the children tell them and let the children do the typing or, in one case, the teacher pre-teaches the keywords which the child needs for the story, and the child types and has the scaffold of a *'word wall'* of the pre-taught words. In all cases, due to the nature of the software, it is a collaborative venture between child and teacher, with varying levels of technical intervention from the teacher depending on the complexity of the task and the ability of the child. In some cases children take digital photographs in school or at home to insert in the personalised electronic story. Teachers use this approach because they find it *'motivating'* for many children. Children who *'wouldn't normally want to read'* or who are not attracted to traditional books are often engaged by these books that they have had a role in producing (Holland 2009).

Depending on how the personalised electronic stories are created the process of their creation may lend itself to much valuable repeated reading of the text. This is particularly true in multimedia productions in which the child creates an audio recording of the story and therefore has to rehearse reading the text. Production of personalised electronic stories has a positive effect not only on motivation but also on children's self-esteem and sense of pride, especially when the child gets

a chance to share the electronic version with classmates or to take a hard copy of the personalised book home. Children enjoy using these personalised books for repeated reading at home and in class (Holland 2009). These personalized books become the children's familiar books. Reading of familiar books helps children's automaticity (Ehri and McCormick 2004). When 'talking' digital stories are created they become the child's personalised E-partnered reading material (Holland 2009). Hard copies of the books can be used for other related literacy activities. Support teachers use them for a variety of hands-on activities such as picture matching, word matching, sequencing of words and sequencing of sentences (Holland 2009).

The language experience approach is often advocated for children with cognitive disabilities (Katims 2000). However, in the opinion of teachers who work exclusively with children who have dyslexia, the language experience approach or the DLEA is not a priority (Holland 2009). Children with dyslexia benefit most from intensive skills-based instruction, especially in the early stages (Torgesen 2002).

Summary

In summary, ICT has a significant role to play in supporting a skills-based approach or a whole language approach to supplementary reading instruction. The use of ICT should be based on the identified needs of the individual pupil and on sound principles of reading instruction. It is best used in conjunction with more traditional approaches and methodologies and as part of an overall programme. The advantages of ICT use are particularly suited to the needs of struggling readers. It can result in increases in time spent on task and concentration, it can provide multisensory opportunities for consolidation of the skills of reading and, not least, it can provide a very motivating learning environment for struggling readers.

Note: This article will also appear in a book on ICT in Primary Education, edited by Robbie O'Leary et al, to be published later this year by Dublin West Education Centre.

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What is left out of the debate on Education?

Rosemary Sage

Abstract

This article establishes that the communicative ability of students is missing in the debate on Educational standards. It provides a rationale for teaching children formal communication in school as modern life provides them with limited opportunity. Formal communication involves narrative thinking and structure, as in explanations and instructions that demand assembly and organization of events. This literate discourse bridges informal chat and formal written text. A Communication Opportunity Group Scheme (COGS) is a successful teaching model for small or large group implementation.

The Context

Does it shock you to know that Britain has 5.2 million functional illiterates? These are people who cannot read signs in a station or stories in the Sun newspaper (Government Statistics, 2008). There would be many more if the ability to extract and summarise the meaning of what is read was viewed as the base-line marker.

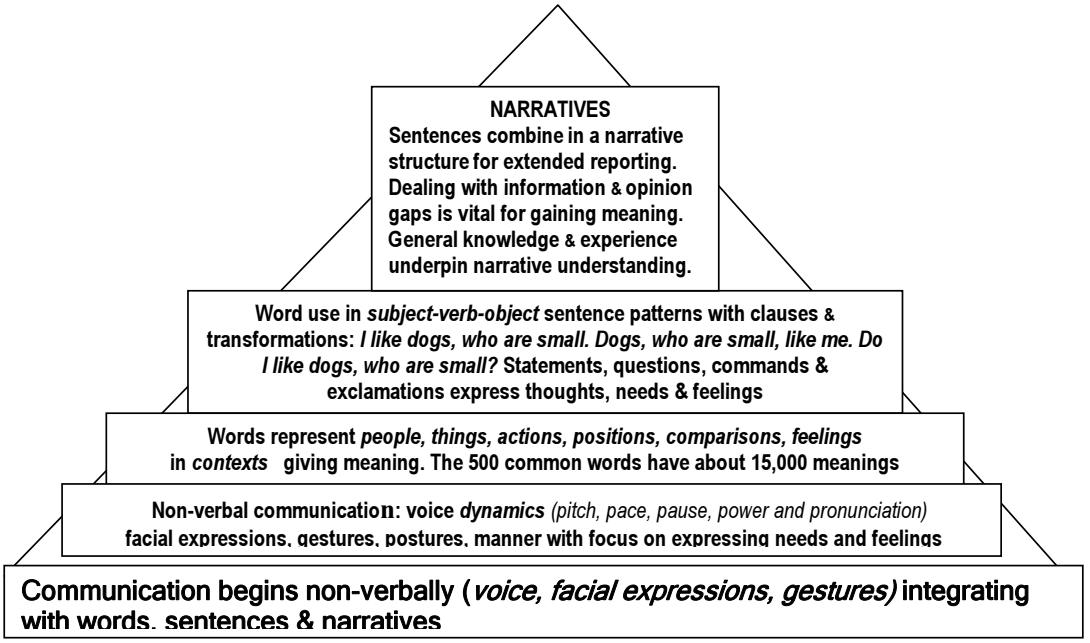
Does it surprise you that in Cuba there are no illiterates (bar the severely disabled).The country has limited material resources but highly trained teachers who value the communicative processes in education. In classroom discourse, pupils put together meaning from *large chunks of talk or text* with limited control over the interaction. Children must shift from *informal home talk (*which they can influence) with meaning in the context rather than words, to *formal class talk* where this reverses.

There is strong evidence that children have difficulties making this shift (Sage, 2000, 2003, 2004). Formal talk requires the organisation of ideas and ability to deal with *information and opinion gaps.* Take this rhyme: *'Algy met the bear. The bear met Algy. The bear was bulgy. The bulge was Algy.* This is a story about a meeting between a boy and a bear. The outcome was that the boy got eaten by the bear but this is not explicit in words. There is an *information gap*, which is only closed with a good general knowledge and ability to understand the sub-text. This hierarchical process, shown below; is one in which many of us have patchy development because our education system does not give it central value and regular teaching time. High achieving countries, like Cuba, Japan and many

East European nations have formal communication on the curriculum, recognising that if learners cannot generate and organise thoughts in speech, they will not cope with literacy and numeracy which depend on formal structures learnt through talk.

The Hierarchical Development of Communication

Non-verbal communication systems develop first, with young children understanding situations through voice tone, facial expressions and gestures and differentiating cries to indicate hunger, discomfort, boredom or feeling ill. During their first year, they gradually learn that words refer to objects, people and events and use voice, facial expressions, gestures, integrating eventually with single words to express themselves. They introduce descriptive words (*big ball)* as they start to build ideas. These expand into *subject-verb- object* sentences to either inform or question. From three years, connecting devices such as *and, but, because, when, where*, are acquired to enable explanations (*I wear a hat when it's cold)*. This is the start of building a narrative account, but there are many children in senior schools who are stuck at this stage and fail to progress because they do not have formal talk experiences. Television and computer activities replace formal talk at home. At meal times, children used to recount their day and listen to similar reports from the rest of the family. Fragmented family life means this rarely happens so that they start school without the literate talk that precedes literacy and numeracy. Because school allows limited talk experiences in our culture, this foundation for learning is never properly built with dire



consequences for personal and academic success. This has now become a pressing concern because we need higher standards of performance for today's world of technology and increasing people services

The remedy

Traditionally, teachers have taught a curriculum assuming that pupils can access this from adequate formal communication levels. There is no routine assessment of communication abilities on school entry as you might find in a country like Germany. On studies completed by Sage (in press) in a city school, over a 3 year period, all pupils started with cognitive-linguistic abilities 2 years or more below their chronological age. The recent Bercow report (2008) into child language found that in some areas over half the school entrants had severe problems with communication. The studies underpinning this review concentrated on linguistic *(sounds and sentence patterns)* rather than cognitive-linguistic development of narrative ability. However, studies (Sage, 2000, 2003, 2004) indicate that it is possible to remedy this situation by targeting formal communication in small group or whole class teaching. This is known as the **Communication Opportunity Group Scheme (COGS)**, which is now introduced.

Classroom communication, cultures and learning

Step into any classroom. Events are taking place with much interaction and negotiation. Most activity is adult-directed with some controlled by children. Sam is swapping sandwiches for Luke's chocolate biscuits, using gestures not words!

Learning develops from relationships that are socially-situated and culturally influenced through talk, voice, gestures and facial expressions (Vygotsky, 1978, 1986). Culture (*values and conventions of specific groups*) defines people's actions, determined by historical, geographical, economic and political factors (Nieto, 1999). Through culture and life experiences, as well as individual and social awareness, learning becomes embedded. Schools have many different ethnic and social cultures with assumptions that influence communication. People from Somalia are used to collecting wood, chopping it and lighting fires for cooking so are puzzled by eating utensils and equipment like weighing scales. Japanese pupils find our classrooms confusing as in their schools they talk continuously with a level of noise unacceptable to us.

Children progress from learning embedded in surrounding contexts to that which is dis-embedded with language to frame it (Donaldson (1978). Pupils must cope with chunks of talk or text with little opportunity to question. Writing answers in complete sentences rather than saying them, filling in work sheets, instructing, reporting on and summarizing events is outside normal experience.

This is a tall order for youngsters reared in visual rather than verbal worlds. Television replaces talk in homes with pictures as primary message-givers preventing words images so they have problems filling in narrative information and opinion gaps. Children have a keen sense of what goes on but not of how words are formally assembled, arranged and performed because they lack extended talk. In speaking we gain information, without awareness, from *context, a person's status, manner, appearance, attitude, voice, gesture and expressions*, relying on this for dealing with text. Birdwhistell (1970) observed that *'no more than 30-35 percent of the social meaning of conversation or interaction is carried by words'*. De Paulo et al. (1978) suggested *sense* is in what we *see*, *feel and imagine*, rather than what we *say*. This phenomenon lies at the heart of difficulties in transforming knowledge from implicit - explicit and informal - formal modes, seen in children, who have less emphasis on communication systems in learning (Sage, 2000).

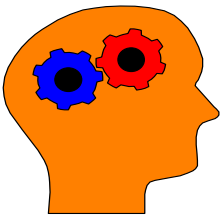
Understanding lies behind words which in isolation make no sense as our 500 common ones have about 15,000 meanings depending on context. For example, the word *'fly'* has at least thirty different meanings (Longman, Contemporary English, 2006). Children cope with *informal chat,* when meaning is embedded in situations, but frequently fail when faced with *formal explanations and instructions in dis-embedded narratives,* resulting in learning and behaviour problems (Sage, 2000). Shifting *informal dialogue (chat*) into *formal monologue (explanations etc.)* enables us to assemble events and understand how parts make wholes. *Narrative experience* helps us judge, deduce, decide and appraise words.

Wertsch (1985) said that *concepts and representations* result from talk. Culture-specific, socializing practices of adults impart to children ways of talking and thinking about words and numbers called *theory of mind*. Meaning evolves from sharing ideas, reflecting cultural knowledge, conventions and expectations. Children interpret events, forming mental representations of things, people, actions and results. Awareness of internal representations, with ability to think and talk about processes, causes and effects produces flexible thought and action.

The English marginalize formal talk in learning but Japanese children regularly speak publicly with attention to voice production, presentation, performance and the contexts in which meaning is made. I witnessed a 'Birthday Ceremony' in a Japanese school where adults publicly praised child strengths and values, as in a Mother's speech to her 4-year-old son: *'You are very kind and eat all your food. You have good mental health which I hope to help you develop. Thank you for your care of daily life'*. He replied, in front of 200 people: *'Thanks Mum and teachers for happy days. Friends and school are good. I like talking and playing. Thanks for my present'*. This illuminates talk, relationships and learning, influencing teaching and creating clear, confident pupil communication within a supportive group-culture.

Classroom Communicative Competence

Cwenar *(work in progress)* monitored pupils entering secondary school and 80 percent of 11-year-olds had cognitive-linguistic ages between 5-6 years. Students were tested on assembly of ideas (narrative thinking and structure) which is not usual but essential for school success. Over half the students (800) were on the special needs register. Brigman et al's (1999) research on school success concluded that teaching formal communication achieves narrative thinking and structure. The **Communication Opportunity Group Scheme (COGS),** organizing spoken and written ideas, has shown, through a number of research studies, to raise personal and academic standards of pupils of all ages and abilities.



Speaking embraces language, history, culture, customs and context. Non-verbal and verbal systems converge into complex, communication cultures bound by conventions. Mrs Dixon, the Head-teacher, wears smart clothes in school, drives a comfortable car and lives in an attractive house, communicating a high level of education, salary, status and lifestyle that influences interactions.

Learning is Informal, Formal and Technical Communication

Informal learning unconsciously imitates how others make relationships and needs known. Communicative behaviour with thousands of details is passed on through generations without articulating rules. We just copy what others successfully do!

Formal activities are taught by rules, rewards and punishment, molding behaviour, as in: *'Girls, don't do it'* with voice-tone indicating 'it' is unthinkable. Formal patterns are learnt when mistakes are made and corrected in binary *yes-no/right-wrong* systems seldom questioned. Countries, such as Japan, take the view that the ability to explain how a response is produced as more important than its correctness.

Technical learning results from teaching large numbers, depending less on student aptitude and suitable models but more on how material is analysed, selected and presented to audiences. The critical factor is learners' ability to follow narratives and grasp meaning. The COGS enhances narrative competences. It does not reduce a complex process into simple, trainable habits but focuses on the non-verbal and verbal *systems* through which we communicate. Speaking sorts and assembles reality, develops thinking and regulates behaviour. Perception, attention, memory, imagination, consciousness and action are the products of social experiences and communication with others. The distinction between *informal* and *formal* talk underpins this development

A huge jump exists between *private, informal dialogue* and *public, formal monologue* - moving from *shared, supportive, implicit communication of home* to *unshared, independent*, *explicit talk of school and workplaces.* Public-talk selects and organizes topics for wide audiences, projecting voice dynamically over distance with supportive gestures. Employing conventions required, acting appropriately and using audience feedback is essential for exchanges and needs expert teaching. Frenetic lives allow little time for talk and in school we are too busy fulfilling ATPs (teaching points!) for a prescribed curriculum to indulge is wide ranging discussion.

COGS developed because pupils were required to perform at a higher level in literacy-numeracy than they could achieve orally and were failing at academic tasks. 75 percent of us have difficulties in formal communication (Sage, 2000). The COGS has 14 goals (levels) for preschoolers to post-graduates. It uses zones of potential development not applicable to age but to ability. Narrative thinking is developed in the first 7 goals, extending these from 8 to 14 in more complex tasks, within the principles of *clarity, content, convention and conduct.* It takes account of an individual's *intelligence, attitude, opportunity and personality* and is clarified in the table below.

Goal	Idea development	Description
1	Record	Produce a range of ideas
2	Recite	Arrange simple ideas
3	Refer	Compare ideas
4	Replay	Sequence ideas in time
5	Recount	Explain ideas – why? How?
6	Report	Introduce, discuss describe, evaluate ideas
7	Relate	Setting, events, actions, results, reactions

There are 5 tasks for each goal (*4 oral, 1 written*), developing a specific narrative level and representing the ratio used in life activities. S*pecific and core competences are targeted* in various communication acts. A tell, show, do, coach approach includes systematic sequencing of teaching with review, demonstration, guided practice and supportive feedback. The setting is *collective*, with facilitator and students addressing learning together; *reciproca*l as both listen to each other and *cumulative*, building coherent ideas. Participants are encouraged to feedback their views on performance to others. In small groups, a specific goal can be accomplished in 8-10 hours of teaching, which takes place weekly or intensively. After the completion of the tasks, students receive a report and a certificate. Those involved choose their own content and because the format for each goal is the same they quickly learn how to move up

the ladder of success and develop awareness of how communication differs according to context.

Narrative levels differentiate tasks, so COGS is used for small or large group teaching and it is easy to develop lesson activities to suit the different thinking and language abilities of individual students. This approach has been very successful in many different subject areas and as the learners have to present their tasks on completion to the rest of the class, everyone has the chance to learn from one another and see the different narrative levels in action.

Summary

We all need to *learn to talk* and *talk to learn*. Students bring to school varieties of communication that classmates and teachers may not share, so talk allows appreciation of diversity and the ways that meaning is made. So, teachers can evolve a teaching model that places communication, culture and diversity at the centre of learning. Relevant policies and training opportunities are necessary to realise this. High-achieving countries, such as Cuba and Japan, put communication and relationships before subjects in the curriculum and reap the benefits of easier learning and higher standards. We can all do the same if we have the will to follow this way.

Note: The Communication Opportunity Group Scheme is available from Human Communication International. Training schemes are available. Contact Rosie Sage, HuComInt@aol.com

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Individualising Spelling

Brendan Culligan

Abstract

Research literature clearly confirms that many children continue to experience difficulty with spelling long after their language and reading skills have improved. Although individualised reading programmes are now a fairly common part of the language curriculum, individual spelling needs of children do not seem to have been afforded similar attention. There is plenty of evidence in research literature to indicate that the real solution to spelling difficulties lies in individual help. Because of this research evidence, there is a growing awareness that for instructional models to be effective they must be tailored specifically to meet the needs of the child. This paper outlines the results of two separate thirty week studies undertaken in two different third classes in a primary school.

Introduction

Gentry & Gillet (1993) are quite adamant that learning to spell is an individual process and that 'spelling is a complex individual accomplishment.' Torbe (1993) states that 'spelling instruction should always acknowledge the uniqueness of the learner and so an individualised approach is always best.' This supports Anderson & Lapp (1988) who argued that an individualised approach to spelling is most successful. In Ireland, the traditional approach to learning spellings is usually whole class teaching (a one size fits all approach) where the 'struggler' is required to learn the same words from the same book or list as the proficient speller. It is not reliable practice to have every child in the class learning the same list of words (Culligan, 1997).

Westwood (2003) queries how this individualisation of spelling programmes may be accomplished and states that 'in classrooms containing twenty eight or more students it is virtually impossible to find the necessary time to devote to such a personalised approach.' If there is a need to 'differentiate/individualise spelling instruction,' and research evidence strongly supports this, then teachers need to be empowered as to how to plan and implement such instruction in classes with a high pupil-teacher ratio. With this in mind, my research (with eight and nine year old boys and girls) was carried out to determine if the good practice of instruction with a small group of children in a learning support setting could be transferred to a whole class situation of more than twenty-eight pupils. I also wished to demonstrate that a consistent, rational and systematic approach is necessary if children are to overcome their spelling difficulties and

that by following a carefully constructed programme, children would spell more accurately because they are motivated to do so.

The high pupil / teacher ratio in classes and an overloaded curriculum are repeatedly cited as major obstacles in supporting children with learning difficulties. To overcome these barriers it may be best to adopt a twin approach. Firstly, the best methods for dealing with these strugglers are effective teaching practices, i.e. observing, diagnosing, planning, teaching and evaluating. Tasks should be clearly defined and these children should, according to Westwood (2003) receive as much direct guidance and support as necessary to ensure success. Everyone in the class will benefit from effective practices, and these should not be seen solely as the property of the strugglers. Secondly, the children in the classroom do not only learn from teacher, but they also learn from each other. Goldstein (1994) stated that the teacher in the classroom is the 'environmental engineer who can facilitate the environment and the experiences, so the students benefit and learn.' It is important for the teacher to realise that he/she is not the only teacher in the room.

Methodology

I will now outline procedures followed to individualise the teaching of spelling over a period of thirty weeks. This will comprise the testing materials selected, the intervention, and its implementation. Attention will also be focused on the measures and criteria employed to formulate three distinct classroom groupings (the Independent, Semi-independent and Dependent groupings). The following materials were used in the research;

- A standardised spelling test, (Daniels and Diack, 1958). This was chosen because it comprises four lists of ten words, each of which would be in the speaking and reading vocabulary of the 'average' eight or nine year old child.
- A graded dictation exercise (Dictation 2, Peters & Smith, 1993). This was chosen to profile each child's strengths and weaknesses, using a spelling error analysis grid (Culligan, 1997, 68).
- 'Corewords' Dictation Exercises (Culligan, 1997)

Dictation Exercises

Much has been written about the advantages and disadvantages of using dictation sentences or passages. Westwood (2003) asserts that unless they are used diagnostically that there is little to support the continued use of dictation exercises. This is a valid argument but it also true to say that dictation may be the bridge between isolated list learning and the child's own personal and creative writing, and is a far more realistic way of assessing spelling ability. In practising dictation, the child gains experience in many elements. S/he must attend to various functions simultaneously, e.g. attention, memory and motor

skill. Mudd (1994) urges that teachers 'should include spellings in sentences, and if possible in continuous text so that the children experience flow of writing.' It is only when a child can produce a word in written work can we say that the child is improving. It is of little benefit if s/he gets five out of five in her/his isolated spelling test and then cannot produce the same words correctly when next s/he needs them in his/her written work.

Dictation is a controlled instrument, which enables the teacher or parent to guide the child through these high frequency but troublesome words. Arvidson (1977) argues that these commonly used words are difficult to master and they cannot be learned once and for all in one given week of a child's school life. They must therefore be continually learned and relearned. Roberts (1989) urges the teacher to ensure that,

> "the child be required to return to the word after a very short interval and subsequently at frequent intervals, so that his memory of the word is refreshed and his learning reinforced."

Gulliford (1985) concurs with this and adds that spelling needs to be taken to the point where the correct response is automatic. He argues that this is a point at which much learning of spelling breaks down since it is not easy to arrange for effective revision and to ensure frequent use of words. My dictation exercises were specifically devised to fulfil this role, as the high frequency words are constantly being revisited and reinforced, a point validated by Mudd (1994) when she emphasised that it 'helps to reinforce and revise children's knowledge of spellings if past work is included in dictated texts.'

Selecting Spelling Groups

Classroom management is a key component in assisting the strugglers to overcome their difficulties. In many classrooms, children are arranged in different groups for Mathematics, English, and perhaps Irish. Such groupings are usually formed as a result of teacher's own informal evaluations, standardised screenings or assessments. Within any of these groups one would inevitably find other subgroups. If the children are grouped according to reading ability there will be children within that group with diverse language, comprehension and writing needs. More often than not such groupings are not changed accordingly if a lesson involves any of these particular areas. For example, when the lesson plan turns from reading to a writing exercise, one will find some children within the group at an immediate disadvantage. Any such inflexible system would need to be reviewed in order to take individual differences and needs into account.

Spelling attempts in both the standardised spelling test and graded dictation exercise were individually analysed to profile each child's strengths and weaknesses. Such individual diagnosis allows for the profiling of the child's strengths and weaknesses, thus enabling identification of the stage of spelling development achieved, and where the spelling process is breaking down. As

further outlined in Culligan (2009:60-62), this analysis of spelling errors resulted in children being placed in three different groups within the class, namely, Independent, Semi-independent and Dependent.

Intervention - Modus Operandi

Once the groups were selected, every child got a notebook which was alphabetically ordered, and which was used as a dictionary of personal errors. If a child was really struggling with spelling, it was used as a 'positive notebook' into which s/he entered words s/he knows or controls. The National Guidelines in Scotland (English Language 5 –14) state that 'a personal spelling book for words causing difficulty becomes both a reference for the pupil and a record for the teacher.'

Each child received a copy of my 'Corewords 1' list, which was kept for one month. When errors were made, the words were highlighted on the child's list of 'Corewords.' A different colour highlighter pen and marking system were used each day, thus enabling me to know what day and week the error was made. The child compared his/her effort with the correct one in the 'Corewords' list in order to find the 'good part(s)' and the 'bad part(s).' This would reinforce the visual imagery of the word as well as emphasising the '*Check*' element of their strategy. The child then wrote the word into his/her 'personal dictionary,' using his/her 'Corewords' list as a reference for the correct spelling. Collecting errors in personal dictionaries enabled the children feel responsible for their own spelling development. At the end of each month, I retained each child's 'Corewords' list in order to note the common uncertainties of each group and plan accordingly. Beard (1993) indicated that such classroom practice was vital to promote spelling improvement. By providing a 'clean sheet' of the same 'Corewords 1' each month, it was possible to get an overall picture of the class and detect areas of weakness and types of errors still being made. As well as using dictation exercises, other elements of the intervention included visual awareness training, name sorts, picture mnemonics, games, ICT programs and other spelling activities (see Culligan, 2009,64).

Unlike Westwood's belief (2003) that children should study the dictation before they write it, each sentence was dictated without any prior study. The children listened to it while it was read twice, and then they wrote it. When the sentence was written, time was allowed for the child to check and self-correct his/her written attempts. This was to initiate the practice of proofreading, which Torbe (1977) describes as 'a good spelling habit.' Initially, only one sentence was dictated, but as time went on and the children achieved success, more sentences were added. By the end of the first term (12 weeks), even those in the dependent group were coping with three sentences. By observing these efforts I could establish how each child was learning. Misspelled words formed the basis of the child's spelling homework.

Discussion

The evidence available from the results of both studies clearly indicates that an individual approach to spelling difficulties is more advantageous to the child than the traditional approach of list learning and Friday spelling tests. It is apparent from the results that it is possible, despite a high pupil/teacher ratio, to plan and implement an individual spelling programme in a whole class situation. Fundamental to such a programme is that children would learn words specific to their own particular spelling needs, rather than utilising the traditional approach of having each child learning the same words. It is evident that the traditional approaches to spelling are not appropriate to the development of spelling ability. The relinquishing of these traditional approaches would have huge implications for the development of spelling ability, provided a rational and systematic programme was utilised. There is evidence in the literature to support this viewpoint. Anderson & Lapp (1988: 189) maintain that spelling instruction must be 'well planned, individualised as much as possible and effectively implemented.'

Error Analysis vs. Standardised Testing

Questions regarding the relevance of information presented by standardised spelling tests in comparison to a diagnostic dictation exercise arise from both studies. These findings are similar to those of Vernon (1977) and Pain (1980). The Daniels and Diack Spelling Test, although useful in allowing for comparison of spelling ages and spelling quotients, does not give children any credit for their attempt at spelling a word. From a scoring perspective the word in question is either correct or incorrect. No distinction is made between the children who write /wimen/ or /wenaw/ for /women/. The former is a much stronger attempt and displays a more competent visual representation of the correct spelling than the latter attempt. Although there are considerable differences between these two children's attempts (one is 80% correct) this information is not accredited in the standardised test.

As no acknowledgment is given to plausible spelling attempts in standardised tests, I am convinced that a more accurate and beneficial profile of spelling ability is gleaned from diagnostic tests. It is clear then, that teachers need to exercise caution in interpreting precisely the importance of a spelling age/quotient. More benefit would accrue if the teacher, through an examination of spelling errors, could determine if the child is on the road to becoming a proficient speller. Pain (1980) stressed that

> 'Although tests of general spelling ability may be useful for comparative purposes they are not helpful when planning remedial teaching for individuals. Diagnostic tests are more useful.'

It is evident from both studies that it is unsafe to rely on a spelling age/quotient to determine homogeneous groupings. Although it is more beneficial to

consider spelling quotients than spelling ages, unless spelling attempts are analysed, neither offers much information to the teacher. A diagnostic dictation exercise will allow for a more holistic representation of the child's stage of spelling development. The literature (Pain 1980, Peters & Smith 1993, Goulandris 1996 and Culligan 1997) supports the utilisation of diagnostic tests for the identification of and planning for children with spelling difficulties. The ability of the teacher to diagnose the quality of errors in a child's writing is central to planning for individuals or creating homogeneous groupings.

Endurance of Intervention:

It is evident that all the children in both study groups achieved higher quotients and within some of the groups, these improvements were considerable. In the first study, the improved spelling quotients would tend to suggest that the children now possessed the ability to maintain progress. However, the results of a review of the same pupils thirteen months later, do not totally sustain this theory. An examination of the scores of the Daniels and Diack Spelling Test indicate a significant deterioration in the spelling quotients of the Independent group.

This was an unexpected outcome as a similar deterioration of spelling quotients was not witnessed with either the Semi-independent or Dependent groups. Although half of the Semi-independent group continued to maintain progress consummate with their chronological age, the endurance of the study interventions was most evident within the Dependent group. It was most encouraging to observe continued improvement within the most challenged group not only in terms of their spelling quotient but also in relation to the development of their spelling attempts in the dictation exercise. It is interesting to note that an examination of both the Independent and Semi-independent groups' attempts at the Peters' dictation exercise, would not reflect a similar deterioration of spelling ability. This would tend to support the argument above that the type of spelling errors is a more beneficial method of gauging development.

Similar findings are also evident in the second study. With the exception of three children in the Independent group, all children in the study improved their spelling quotient during the thirty-week intervention programme. In the dictation exercise, each child also attained higher percentage accuracy by the end of the intervention programme. In a review one year later, there was a significant decrease in spelling quotients within the Independent group and the vast majority of children in the Semi-independent group also exhibited deterioration in spelling. The results from the Dependent group indicate that like their colleagues in the first study, the vast majority maintained or increased their spelling quotients. Again, as in the first study, a similar deterioration in spelling ability is not witnessed when the Peters' dictation exercise is analysed.

Arising from these findings, two significant questions need to be addressed. Firstly, the deterioration in scores of superior spellers, and secondly, why the intervention was effective over time for those most challenged spellers. There is evidence in the literature (Schonell, 1965) that once an individual spelling programme ceases, a decline in results occurs and children fail to attain scores of previous years. It may be that the children suffered from what Chandler (2000) describes as a lack of consistency in teaching styles. Teacher attitudes might have accounted for this. Classes which perform well in spelling tend to have a teacher who had a keen interest in the subject and who fosters an interest in words. In the year following both studies, the children returned to phonetically based list learning with a different teacher. A return to rote memorisation of words devoid of context may have contributed to a negative attitudinal change within these superior spellers.

However, if this was the case it does not explain how the inferior spellers maintained or improved their scores. It may be argued that this improvement is due to maturation. However, a possible explanation may be that the improvement these children encountered during the intervention period, not only in ability but also in self-esteem, may have contributed to a positive attitudinal change that spelling was an area of curriculum in which they could improve. The utilisation of spelling games also added to their sense of achievement, which in turn demonstrated that spelling was an activity in which they could succeed and enjoy.

Having struggled with spelling since the beginning of their schooling, the one positive and successful year may have been the catalyst required for further effort to maintain the feelings of success and satisfaction. It is evident that a positive attitude to misspellings and their corrections was crucial in developing the children's self-esteem. When children became comfortable with the notion that it was not expected that each word be written correctly, they became more relaxed in their attitude. This substantiates Stewig's (1993) findings that positive attitudes provide greater learning. For the inferior speller in particular it was a tremendous boost to self-esteem when the 'all or nothing' attitude was dispensed with. If their spelling attempt was incorrect, they first examined the letters they used correctly, and then where they went wrong. Children began to talk in terms of 'little' or 'big' mistakes and as a result became more responsible for visually checking their attempt against the correct spelling.

This positive approach, coupled with the teacher's role of a 'helper' rather than trying to 'catch them out', is similar to that of Torbe (1977) who maintained that it was the teacher's function to help the child not to make the same mistake the next time the word is written. This would also support the work of Read (1986) who concluded that when teachers and pupils showed positive attitudes towards spelling, there was a relationship between these attitudes and spelling achievement. Perhaps the children now possessed what Gentry (1987) calls 'spelling consciousness; a habit of caring about expert spelling when spelling is

important.' Throughout the study this 'habit of caring' was nurtured with the use of personal dictionaries of errors, into which children entered words which had been causing difficulties. The retention of each child's 'Corewords' list at the end of each month in order to note the common uncertainties of the group and plan accordingly, was a crucial element of both studies. Beard (1993) indicated that such classroom practice was vital to promote spelling improvement.

Summary:

Results of these studies indicate that an individualised approach to learning spelling is beneficial to children. It is possible, despite the high pupil/teacher ratio, to plan and implement such an individual programme. Diagnosing children's spelling attempts to determine their strengths and weaknesses is more advantageous than relying merely on the results of a standardised spelling test. Such analysis enables the construction of more precise homogeneous groups.

A follow-up review of both study groups one year later showed that the vast majority of the Independent spellers experienced a significant deterioration in spelling quotients. It is with the Dependent spellers in both studies that one may see most benefit of the intervention. Overall, although there was a decline in results in the Daniels and Diack spelling test, the same deterioration is not evident in the Peters' dictation exercise. These results suggest that a move away from phonically based word lists and the 'Friday test' to an individualised approach improve long term spelling ability

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Why Maths Education isn't Working. A View from England.

Steve Chinn

It appears, from the recent UK Ofsted report (Mathematics: Understanding the Score) that maths education in England could do better. One of the proposed solutions to our ongoing problems with maths education is to inject millions of pounds into the system. I have no objections to spending money on education, but will the money be spent wisely? And what is 'wisely?' Is it books, or IT, or teacher training, or all of the above and more? And will it be evidence based? (More of 'evidence based' later). And will any of it be directed towards children with learning difficulties?

'Wisely' could be judged by outcomes, for example a 1% increase in performance. When we are told that results have improved by 1% are we meant to be excited? Impressed? Is it even a valid statistic?

I do a lot of CPD work, in the UK and abroad. I ask teachers a question along the lines of, 'At what age are you noticing a significant number of your pupils turning off maths?' The modal answer is '8 years old' Interestingly, this seems to be the situation in many of the countries where I work.That worries me. It means that some children in England face a further 8 years of compulsory maths purgatory.

So, what can be done? Will those vast sums of money be the answer? How much money will be the answer? Oh yes, as I mentioned, what should we spend it on?

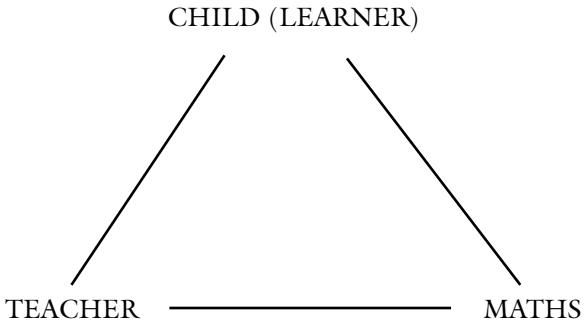
I get the feeling that whatever changes to school maths we have had over the past 50 or so years, those changes have not resulted in any positive outcomes for too many learners. Why? Maybe, the changes have not really been changes. For example, when the Minister of the Day suggests ways to improve maths scores, the Minister is likely to say words to the effect, 'More mental maths and learn times table facts at a younger age.' These words do not an inclusive education statement make.

OK. So far, so negative. Is this paper going to make any positive suggestions? It is, but the suggestions are disguised as questions. Any suggestion must be followed by thoughts on how to get it really right and that might take a few more words than have recently been devoted to methods of saving the world's

economies. As Ben Goldacre of 'Bad Science' fame says, 'It's more complicated than that.'

Also we should never lose sight of the evaluative question, 'What if...?'

I want to start with a complex mind map



Of course, the mind map could be interpreted as not at all complex, but that is not the case. This mind map has a purpose. It is not just there to impress the reader with my ability to do right brain thinking (is that another educational myth?). One of its key functions is to suggest that we cannot make any intervention or change to one parameter without it impacting on the other two parameters. For example, when some wise person decides that times table facts must be (rote) learned at an earlier age, then, obviously children are affected (because some will find this a de-motivating expectation), but it will also impact on teachers who have to deal with the resulting anxiety and helplessness issues created in some of their learners. The three components of the mind map interact in many, many ways. That is the complexity.

Interestingly, the Conservative party have recently appointed the delightfully attractive Carol Vorderman as their maths czar. In a long interview for the Times she is described as 'a firm believer in rote learning'. Maths education can rest assured that it will be moving upwards and onwards, rooted firmly in the lowest level of Bloom's taxonomy.

Sometimes questions are a good place to start:

THE CHILD (LEARNER)

What handicaps learning? This is one of those three-word questions that demands a complex, multi-faceted answer. However, a simple answer could be 'failure'.

What encourages learning? This is another three-word question and the simple answer this time is, 'Success'. However, nothing in learning is entirely simple. A learner needs to experience some failure, even though failure can be de-motivating. Much will depend on how it is controlled. We have to build on-going motivation and resilience in our maths learners. The nature of maths, especially in early arithmetic makes any failure very obvious. Learners will avoid failure by withdrawing from the task. We have to manage the maths and the child together, continuously. You can't just teach the maths, you have to teach the child.

MATHS

If traditional approaches haven't worked for all children, what can we change? For example, 2006 Ofsted ('Evaluation : maths provision for 14 to 19-year olds') highlighted an over-dependence on procedures (algorithms). This approach was criticised 38 years ago by the pioneering maths expert, Skemp...

'The increasing efforts the student makes will inevitably use the only approach which he knows, memorising. This produces a short-term effect, but no long-term retention. So further progress comes to a standstill, with anxiety and loss of self-esteem.'

... plus ça change.

What content in our maths curriculum is truly important? There are four sub-questions here. What maths content is needed for life? What life skills does maths impart? What else does maths teach us? Can we make the content accessible to and understood by more learners?

Maths has a developmental nature. If a child fails with early knowledge and concepts then it is likely that this will handicap future progress. If children create an early impression of competency based on memory rather than understanding, then educators may be fooled into believing that the curriculum works. There is also an inclination in some educators to insist on mastery before progress. An overly literal application of the mastery concept can act against those learners who do not follow expected developmental patterns. Mastery before further progression is not always a good lesson for life.

Can the many strands of maths be linked in ways that offer mutual support to each concept? For example a recent comment from the teachers' union in France stated that teaching the four operations together would confuse children, comparing this to teaching four languages at the same time. This opinion could be challenged.

I was lecturing at a CPD session following an expert who started his session with 'I am going to talk about the National Numeracy Strategy which was designed for top 75% of children.' Did he mean to imply that the other 25% were

expected to manage on their own? Perhaps there is a covert belief that only relatively 'intelligent' children can do maths. Perhaps it isn't a covert belief. Doesn't that last thought raise a whole bunch of questions and challenges?

Many research papers on maths LD from the States are based on the bottom quartile of maths ability.

And, bringing in another factor, where did this 'doing maths quickly' culture come from? I have recently completed a survey of maths anxiety in over 2000 English mainstream secondary age students (Chinn, 2009). 'Doing maths quickly' was ranked in the top five (of twenty items) for creating anxiety for most Year Groups. Special needs learners are often slow processors, so the demand for speed is effectively discriminatory.

TEACHER

Why do teachers, even those with good subject knowledge (Ofsted, 2006) rely so heavily on formulas and procedures (algorithms)?

In my survey of maths anxiety, the item on an end of term maths test was ranked as the top anxiety generating activity for all ages, both genders, dyslexics and mainstream students. What are the consequences of testing on teachers and learners? The answers will be much deeper than just the consequences of teaching to the test and will have a lot to do with motivation and the theories of researchers such as Dweck (2000) and Seligman (2006).

There could well be a link between these two opening questions. Algorithms are seductive. They seduce because they are reliable (but not necessarily educational) when used correctly and the seduction works on both the learner and the teacher. Those learners and teachers who want to explore more creative, variable and individual solutions know that they are taking risks with examination statistics.

I have commented for many years, in fact since I was a Head in the USA in 1984/85, that what happens in the USA inevitably and uncritically comes over to the UK (and then to Ireland). I was appalled to read a couple of years ago about High Stakes Testing being introduced into education in the States. Now it is in England. High stakes are risky when gambling or banking (is there a difference any more?). I think they are risky in education too, not least because they will lead to more 'teaching to the test' classroom time.

I do not want to dilute the quality of the mathematics we teach in schools. I want to see more children continuing to be involved in meaningful success in maths, to be motivated, to learn what maths can offer to their skills in general problem solving.

I have listened to educators who want to make maths 'fun' and 'real'. For example, a recent initiative linked maths education to preparations for the 2012 Olympics. Fun is only fun if children perceive of it as real and relevant. Fun will not make an inappropriate curriculum appropriate. We need to get the structure and content right first.

My education bible for 2009 is John Hattie's book, 'Visible Learning. A synthesis of over 800 meta-analyses relating to achievement.' It is a source of evidence taken from 15 years' research and may even be objective evidence unlike that quoted by some of the educators with whom I have discussed maths education recently. For example, Hattie notes that 'The lowest effects (on achievement) occurred when teachers emphasised real-world applications of mathematics.'

What are the key questions and issues for the survival of maths as a core subject?

How can we make maths more accessible to more children?

For example, if all children are required to rote-learn times table facts and some cannot succeed in that task, what can we do to make those facts accessible by alternative methods? They are important facts, but rote learning all of them is not the only way to deal with that small body of knowledge. How can we circumvent this and other learning problems that affect so many children and adults?

What factors make maths inaccessible and when do they occur? For example, some children will thrive on mental maths, but fail with written maths… and vice-versa. Different children will be at risk of failure at different times. We need to know those times, those factors and those children.

How can we address the inherently judgmental nature of maths, and make that potential for failure into a positive learning outcome?

Again Hattie's 'Visible Learning' provides evidence (although not specifically derived from research papers on maths);

'The overall relationship between achievement and many of the reviewed personality variables (including anxiety, dogmatism, extraversion, locus of control and neuroticism) is close to zero. The relationships of self-efficacy, self-concept, aspects of motivation and persistence with achievement, however, are among the larger correlates.'

Do we know what constitutes the successful communication of maths for learners? For example, what is the role of manipulatives and visual images in developing concepts? Again the answer will not be simple. There is evidence that

manipulatives do not necessarily develop cognitive skills and understandings beyond the concrete.

How aware are we of the relevant variations in the way children (and adults) learn maths, for example, how many like formulas and fixed procedures and how many are intuitive and only interested in answers? And can we modify or add flexibility to those learners and teachers?

Do we as educators analyse what and how we teach in terms of reaching as many learners as possible? Sadly I feel that children have survived some pretty doubtful initiatives over the years, for example the Kent Maths Project of the 1980s. The successful learner survives most changes, but pupils who are insecure learners and learners with specific learning difficulties do not. It is likely that each change in curriculum will create a different cohort of students with learning difficulties, especially if that curriculum follows a single path or pedagogy. For example, Matejcek and Sturma (1986) found in an historical probe into teaching methods for reading in the then Czech Republic that there was a periodical prominence of training by auditory analysis and then by visual perception. One method worked well for one kind of reading difficulty and the second for another.

So, can we link the topics in maths so that learners rarely stray far from their comfort zone as we develop their skills and knowledge? I think we can, based on the experiences learned at my last school, an independent school for dyslexic boys that was given Beacon status by the UK Government to provide training in mathematics education for other schools. Faced with bright pupils who had a history of significant underachievement in maths we created work that would take them to GCSE levels which were far above the National average. The difficulties we identified and created interventions for are not unique to dyslexics, just more common in the dyslexic population and usually occurring more severely. These principles, I would argue, apply beyond special needs, but are critical for the bottom quartile of pupils who the States label as maths LD.

The structure for this developmental maths is based on an understanding of what handicaps learning and what can be done to alleviate the problems. It addresses problems such as long term mathematical memory, short term memory, generalising and pattern recognition in a way that links concepts so that the learner can always start from their comfort zone and quickly reach the level of skill and knowledge they need for each problem. (Chinn, 2004 and 2009). It attempts to match the way the subject is structured and taught to the way the learner learns.

For me the focus in setting up a more inclusive maths curriculum is to get the content, the pedagogy and the affective issues right first. Then there are so many creative ideas out there for adding relevance, fun and enriching the learning experience.

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Peer Tutoring: An Inclusive Approach to Supporting Reading: Case study in five disadvantaged schools

Fiona King & Alison Gilliland

Abstract

Inclusion is high on the educational agenda in Ireland at present (INTO, 2003; EPSEN, 2004) with the emphasis on collaborative approaches to teaching and curricular inclusion for all pupils. In response to this, teachers are learning to adapt instruction to accommodate pupil's individual differences through the process known as differentiation (Hart, 1992).Differentiation of support can be achieved through using interactive teaching methods like peer tutoring (PT). PT is a method of one-to-one instruction where pupils work together in the role of tutor and tutee. It is highly effective from an academic and social point of view (Topping, 1988; Butler, 1999; Vaughn, Chard, Bryant, Coleman, Tyler, Linan-Thompson, and Kouzekanani, 2000).

This paper will explore an action research study using PT for reading fluency and accuracy in five DEIS schools in Ireland. Pupils involved were pre and post tested and compared to a control group. The class teacher and learning support / resource teacher in each class worked together supporting PT for reading accuracy and fluency. This paper will outline the findings and show the significant improvements in reading accuracy and fluency that resulted from the project. It will show how pupils' needs, can be met in the mainstream classroom through a collaborative approach that is effective and enjoyed by teachers and pupils alike.

Introduction

According to Voltz, Brazil and Ford (2001), inclusion is about giving pupils a sense of belonging and identity. Schools have a responsibility to make instructional changes that promote educational success and a sense of belonging for all pupils. This requires systemic change with the emphasis on changing our system to meet the pupils' needs instead of changing the pupils to fit into our system (Ferguson 1995; Thomson et al., 2003). This systemic change involves looking at what pupils need and how teachers can work more collaboratively to meet these needs in an inclusive manner.

Collaborative Approach

According to Fullan (1991) systemic change can take a long time, with most teachers taking 2/3 years to become fully competent in using new instructional methods. One way to shorten this is through the use of peer coaching (Joyce and Showers, 1982). Peer coaching is a form of teacher collaboration where teachers observe one another and learn from each other in a non-threatening way (Kohler et al., 1997). The main aim is to help teachers develop, refine and sustain use of strategies that address pupils' diverse learning needs and capabilities (King, 2007). Ultimately teachers learn to work together as advocated by the Department of Education and Science (2005) with an aim to avoid fragmented teaching for pupils and to provide a whole school approach to meeting pupils' needs. This approach is also endorsed in the Learning Support Guidelines (2000) which recommend '*shared teaching approaches'* in the pupils' classroom (2000:46).

McDonnell, Hardman, & McDonnell (2003), advocate class teachers to assume more responsibility for the design, implementation, and evaluation of students' educational programs and support teachers to work more effectively as collaborators in support of pupils' participation in general education classes. Voltz, Brazil & Ford (2001) suggest using the CLASP model for collaborative consultation among teachers. It is outlined as follows:

Clarify the problem

Look at influencing factors

Actively explore intervention options

Select the best option

Plan to implement the selected strategy

Teachers working collaboratively can decide the best way to support pupils' needs. In this case study schools elected to work collaboratively with this action research study to implement PT as an interactive approach to support reading accuracy and fluency.

Peer Tutoring

According to (Fuchs, Fuchs, Thompson, Svenson, Yen, Al Otaiba, Yang, Nyman Mcmaster, Prentice, Kazdan, and Saenz, 2001) pupils working in pairs in the roles of tutor and tutee constitute PT. It is a method of engaging in one-to-one instruction and is effective from an academic and social point of view (Butler, 1999; Vaughn et al., 2000; Murphy, 2002). PT allows for 'active learning' and pupil engagement (Greenwood et al., 1989; Kohler et al., 1994), both of which are endorsed by the Primary School Curriculum (1999): *"It is an underlying principle of the curriculum that the child should be an active agent in his or her own learning"* Primary School Curriculum Introduction, (1999:14).

Using PT at a whole class level is known as Class Wide Peer Tutoring (CWPT) (Greenwood, Arreaga-Mayer, Utley, Gavin and Terry, 2001). Peer Assisted Learning Strategies (PALS), a variation on CWPT, is a fluency building technique that facilitates learning of sight words and comprehension strategies and it has been shown to improve the reading fluency and accuracy of pupils with learning difficulties (Fuchs, Mathes, and Simmons 1997). PALS won a 'best practice' award in the U.S., by the U.S. Department of Education Program Effectiveness Panel (Fuchs et al., 2001). PT has a built in system of revision of sight words which supports the consolidation of learning. The generalisation of skills is facilitated through peer tutoring by pupils applying learned skills in different contexts. According to the *Primary School Curriculum Introduction* (1999) this is the ultimate test of learning.

An important point to remember is that all pupils must benefit from PT methods being used (Vaughn, Hughes, Watson Moody and Elbaum, 2001). One of the challenges with PT lies in the pairings of the pupils and there are various ways advocated in the literature (Elbaum, Vaughn, Hughes and Watson Moody, 1999; Butler 1999; Vaughn et al., 2000). For the purpose of this research mixed ability pairings as recommended by Butler (1999) and King (2006) were used with the tutor modelling reading and the tutee re-reading the same passage. King (2006) highlights the importance of appropriate pairing the pupils to maximize learning for all involved.

All research explored recommended the use of a motivational system. This varied from author to author. This research utilised Butler's approach (1999), who endorsed the use of a star system for cooperative and on task behaviour. On acquiring a specific number of stars a reward was given e.g. extra computer time, a homework pass.

DEIS

The research project deliberately targeted urban schools participating in DEIS (Delivering Equality of Opportunity in Schools). DEIS is an action plan for education inclusion established in 2005 by the Department of Education. DEIS amalgamated all previous initiatives supporting education disadvantage, as defined by the Education Act 1998, under one umbrella plan There are a total of 672 primary schools participating in DEIS. 190 of these are classified as DEIS Band 1,148 as DEIS Band 2 and 332 in the Rural category. The DEIS action plan highlights that '*the experience of success and enjoyment in learning is vital if they [young children] are to be encouraged and motivated to reach their full educational potential*' (DES 2005, 16). It also advocates pupils as 'active agents in their own learning' and approaches that will support children's 'self esteem, engagement and confidence' (DES 2005, 44). Only 2 specific approaches to supporting literacy are highlighted in the action plan: Reading Recovery and the First Steps programme. The characteristics of PT would seem to extol the

underpinning aims of supporting literacy as outlined in DEIS. It was with this in mind that this research project targeted DEIS schools.

Research Questions

Research Questions that formed the basis and rationale of the study:

1. Is PT an effective inclusive teaching model for pupils in DEIS schools to improve reading accuracy and fluency?
2. Is PT an effective inclusive teaching model for teachers in DEIS schools to improve reading accuracy and fluency?
3. Does PT contribute to the promotion of positive social skills among pupils?
4. Does collaborative action research promote teacher learning?

Project Methodology

In order to see if PT was an effective teaching model for enhancing reading accuracy and fluency an evaluation component was required. Action research was used to provide this evaluation component (Elliot, 1991). "*Action Research is small-scale intervention in the functioning of the real world and a close examination of the effects of such intervention*" (Cohen and Mannion, 1994: 186). Action research facilitates investigation where teachers plan, implement, evaluate actions and then discuss the implications for future practice based on the findings (MacIntyre, 1991; Cohen and Mannion, 1994; King, 2006). This research used a case study approach to research, to investigate and explore the effects of the action research carried out in the five individual schools. Robson (2002) refers to the case study as a 'flexible design research' strategy which looks at a single 'case' or a number of related 'cases' (2002: 89).

Participants

This action research was advertised in InTouch (INTO, October 2007) and called on interested DEIS schools to participate. The following criteria were applied for selection of schools:

- DEIS Urban Band 1 or 2
- 2 or more 3rd Classes
- Commitment to participation by Principal, 3rd Class Teachers and Support Teachers

five schools fulfilled the criteria. 2 schools were Dublin DEIS Band 1 schools, while the other three schools were in rural urban centres, 1 a DEIS Band 1 school and the other 2 were DEIS Band 2 school. All pupils were in 3rd class. One of the 3rd class groupings worked with PT approach and the other control group worked as normal. With the exception of 1particular pupil all pupils in the

PT group who were in receipt of a withdrawal approach for learning support / resource support for literacy did not receive this support for the duration of the project. It was important that formative assessment was used throughout to ensure that all pupils were gaining were benefiting from the input.

Training

The Principal and teachers undertaking PT from each school were given a one day training workshop on PT. This training workshop involved the following:

- The underlying principles of PT
- Existing research findings of PT
- Aims of the action research project
- Action research project approach
- Ethics:
  - Parental permission to participate in the action research project
  - Remembering that all pupils must benefit from PT
- Establishing PT as an interactive teaching methodology to support reading accuracy and fluency in the classroom.
- Viewing PT in practice via DVD (INTO, 2006)
- Managing PT in the classroom
- Resources for PT
- Collaborative teaching skills
- Materials for Testing and their application
- Pairing of pupils
  - Going through class lists of pupils and matching them
  - Noting pupil personalities while pairing
- Matching books with pupils
  - Reading at instructional level of tutees
  - Interests of pupils
  - Non-fiction vs fiction
- Formative Assessment and Summative Assessment which included the following:
  - Positive attitudes to reading
  - Recording the number of sight words
  - Reading with intonation
  - Reading with understanding – full stops, self-correcting
  - Interpersonal skills of pupils
  - Dictionary skills
  - Vocabulary enhancement
  - Increase in knowledge base from non-fiction books

- Volume of reading
- Skills increased: syllable work, prefixes, suffixes, word structure.
- Explanatory skills of pupils
- Leadership skills of pupils

Procedure

All schools were requested to follow the same process. Teachers individually tested all pupils in the PT group and the control group using the Diagnostic Reading Analysis Test (Crumpler and McCarty, 2004). Results were recorded and used to inform pairing of pupils in the PT group.

Teachers explained and modelled the procedures of PT with their PT classes. This training of pupils lasted for ten minutes per day over a two week period. After the initial training period teachers implemented the peer tutoring in their PT classes for thirty minutes per day, 4 days per week, over an eight week period. During this time teachers were supported by the researchers via, class visits, email and telephone. Each school had two support visits during the eight week period. These included peer coaching by the researchers to support the teachers in evaluating the approach and making any necessary modifications in terms of pairings, resources and other practical issues arising.

Data Collection

Quantitative data collected during the research included:

- Pre project Diagnostic Reading Analysis Test results
- Mid-Action Pupil Questionnaires (Tutors & Tutees)
- Mid-Action Teacher Questionnaires
- Post Project Diagnostic Reading Analysis Test Results
- Post-Action Pupil Questionnaires (Tutors & Tutees)

Qualitative data collected included:

- Mid-action research information from teachers
- Reflective journal entries from teachers
- Post- Action Teacher Evaluation discussion group meeting

Presentation and Analysis of Findings

Q. 1 Is Peer Tutoring an effective inclusive teaching model for pupils in DEIS schools to improve reading accuracy and fluency?

In order to define effectiveness in this context the following were taken into consideration:

- Overall and individual improvements in reading accuracy and fluency

- Positive pupils' perspectives on their understanding of the reading process as a result of participation in the PT
- Positive pupils' perspectives on their confidence levels with reading as a result of participation in the PT

Findings from this action research project show that PT is an effective teaching model for pupils in DEIS schools to improve reading accuracy and fluency. The data collated from 116 pupils show an overall improvement of 12.7 months in reading accuracy.

This is broken down across the five schools as follows:

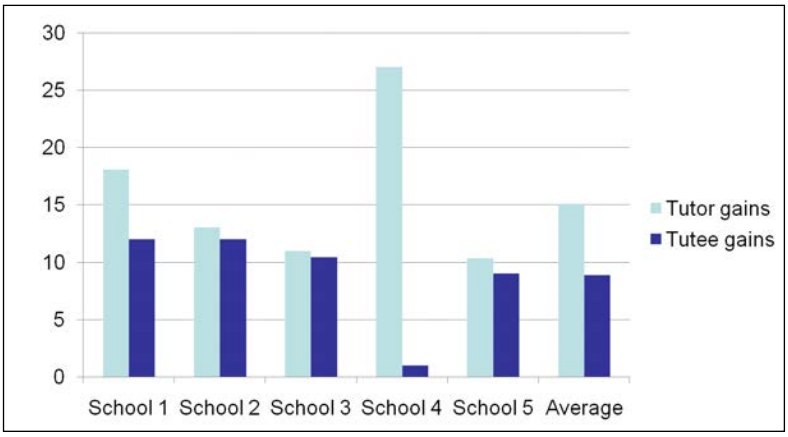

Figure 1: Tutor and Tutee gains in Reading Age

Pupils were positive with regard to their understanding of the reading process and their levels of confidence levels with reading as a result of participation in PT:

	Yes	No	No Answer	Total Response
Doing 'Reading as Friends' has made class work easier	54 80.6%	12 17.9%	1 1.5%	67 100.0%
I feel that my reading has got better by doing 'Reading as Friends'	52 77.6%	15 0.0%	0 22.4%	67 100.0%
'Reading as Friends' has made me more interested in reading	51 76.1%	15 22.4%	1 1.5%	67 100.0%
'Reading as Friends' has made me feel more confident about reading	54 80.6%	12 17.9%	1 1.5%	67 100.0%

Figure 2: Post-Action Tutors' Responses

	Yes	No	No Answer	Total Response
'Reading as Friends' has made reading other class books easier	16 69.6%	7 30.4%	0 0.0%	23 100.0%
I feel that my reading has got better by doing 'Reading as Friends'	19 82.6%	3 13.0%	1 4.3%	23 100.0%
'Reading as Friends' has made me more interested in reading	18 78.3%	3 13.0%	2 8.7%	23 100.0%
'Reading as Friends' has made me feel more confident about reading	16 69.6%	6 26.1%	1 4.3%	23 100.0%

Figure 3: Post-Action Tutees' Responses

Q. 2 Is peer tutoring an effective inclusive teaching model for teachers in DEIS schools to improve reading accuracy and fluency?

Q. 3 Does PT contribute to the promotion of positive social skills?

A similar definition of effectiveness to that in the previous section was used in this context with the following being taken into consideration:

- Overall and individual improvements in reading accuracy and fluency
- Positive teachers' perspectives with regard to the effectiveness of the model
- Positive teachers' perspectives with regard to the promotion of positive social skills using the model

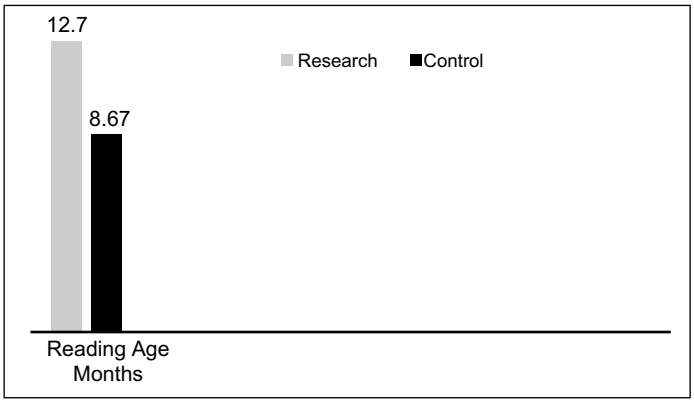

Figure 4: Gains in reading age – PT group and Control Group

Comparison with the control group indicated greater gains in reading ages for pupils involved in PT project, see figure 4 above. It is to be noted that the pupils in the peer tutoring group were not in receipt of withdrawal support for literacy for the duration of the project with the exception of 1 pupil who did receive withdrawal support for ethical reasons.

The qualitative data showed that all teachers would recommend PT and would use it again

Teachers' comments on the use of PT included the following:

- PT fosters social skills and '*getting to know other pupils*'
- PT '*ticks all the boxes*'/'*must for all schools*'
- PT enables the transfer of learning and generalisation of skills
- PT increased pupils' interest in reading outside the 'English lesson'

Q. 4 Does collaborative action research promote teacher learning?

Prior to participation in the action research project the teachers and schools involved had no working knowledge of peer tutoring and therefore gained in this regard. Further follow up research is planned to analyse the effect of this particular action research project on the teachers learning.

Additional observations indicated that:

Children with English as an Additional Language (EAL) had an average gain of 17.3 months in reading age compared to 8.8 months in control groups. All children receiving support for EAL were tutees.

Reading age gains for girls averaged18.5 months compared to 9.5 months for boys in mixed classes

An interesting finding to note is that in all five schools tutors made the biggest gains

Limitations of the study

It must be acknowledged that the research cohort was small and therefore generalisations cannot be made based on the findings. However Cohen and Manion (1989) would argue that generalisations can be made about the wider population to which the unit of study belongs for example other schools in similar contexts. Furthermore replication may be claimed when two or more cases show the same results (Yin, 1994).

Discussion and Conclusions

This action research project focused on the use of PT as an effective inclusive teaching model for supporting reading accuracy and fluency in five DEIS

schools. Findings from the project indicate that PT is an effective inclusive teaching model for supporting reading accuracy and fluency for teachers and pupils alike. Findings concur with Murphy, Nugent and O'Neill (2008) who state that Paired Reading contributes to the promotion of positive social skills among pupils. Inclusion does not focus on pupils' difficulties, rather on teaching all pupils, giving each pupil what they need to learn (Voltz et al., 2001). PT is an inclusive model that can be used to meet the needs of pupils.

An evaluation of literacy and numeracy in disadvantaged schools by the DES (DES, 2005) recommended that more attention be devoted to the consolidation of learning and to the linking of concepts across the curriculum. The same evaluation recommended that class teachers and support teachers collaborate more. PT does both. Therefore, it can also be argued that the findings of the research prove that PT would effectively meet the literacy support needs of educational disadvantaged pupils in DEIS schools and should therefore be considered as a recommended approach for DEIS teachers.

Recommendations for future research

While the research indicates that the participant teachers gained learning in the area of PT further research is recommended to fully analyse the effect of participation in action research on teacher learning. While Topping (2001) and the researchers here argue that pupils sustain their reading improvements over time, future research could investigate this assertion.

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Investigating Dualisms in Teaching and Learning

Jerry McCarthy

If the quiz-master had asked me the question, "what is dualism?" I would probably have responded with my standard answer: dualism refers to the existence of two rival and oppositional elements within some social, political, philosophical, ideological or cultural landscape. In my response, I would certainly have emphasised that the most salient and fundamental characteristic of any dualism is the polar-oppositeness of one element to the other. I would probably have added, if more details were requested, that the dimensions of the schism, that separate both parties, are usually so deep that even the most tentative arrangements towards achieving synthesis and integration are destined to fail. My response would resonate with the conviction, that in the context of dualisms, "ne'er the twain shall meet." During the trawling of literature that I undertook to inform this article, I discovered that my "standard quiz answer" is not entirely accurate because it is premised upon a core misunderstanding of the concept of dualism. I now agree with Fontaine (2000) when he states that "most oppositions (within a dualism) are not unsolvable at all." Dewey (1038) agrees and contends that the integration and harmonisation of the binary elements, that exist within the dualisms that are part of Cultures of Teaching and Learning, is possible, highly desirable and worth fighting for. Boland (1996) describes this state of harmonisation and integration as the "duality of reciprocal interdependencies. " Dewey describes the enormous potential and dynamic that this harmonisation and integration holds and articulates the many ways that teaching and learning can be enhanced through this coalescence. In this article, I will follow the pathways taken by Fishman and Mc Carthy (1998) through the maze of Deweyian writings, philosophies and educational theses in pursuit of those specific dualisms that exist within the Cultures of Teaching and Learning. Like these two American researchers before me, I will focus on the three micro-dualisms or "nested dualisms" that lie embedded within the layers of the substantive and macro dualism of Student / Curriculum. The three micro-dualisms that will be discussed in this article are: Continuity / Interaction, Interest / Effort and Construction / Criticism.

The Complexity of Dualism

The definitions and interpretations of dualism are many and varied. The term "dualism" is derived from the Latin noun "duo", meaning "two." The Collins

Dictionary describes "dualism" as "the state of being twofold or double." In his writings, Fontaine (2000) contends that a dualism exists when "there are two systems or concepts or principles or groups of people – or even worlds - that are utterly opposed and cannot be reduced to each other. They exist alongside each other; in some cases they are even dependent on each other, without any intermediate terms." Fontaine states that "dualism is not so much an historic phenomenal, but rather an anthropological one. It occurs in every conceivable field of life, in religion and philosophy, in history and politics, in literature and art, in social relationships and in personal life." Fontaine concludes his thesis by stating that "dualisms are part of the human condition." Giddens (1984) states that, in sociology, dualism is conceptualised and interpreted as "two irreducible types or phenomena" that exist within some social context. Anecdotally, the term is used to indicate the existence of two mutually-exclusive, non-recursive and irreconcilable variables, interpretations, phenomena or principles which cannot be reduced to each other. One of the two variables is usually perceived and defined as being superior to the other in terms of power, popularity, quality and status. On occasions, advocates of the superior and hegemonic variable critique and repudiate the less powerful variable.

Many of the definitions of "dualism" that that appear in dictionaries confine their focus and interpretation to the nebulous domains of philosophy and doctrine. These superficial definitions have failed to state the fundamental connections and projections between the concept of dualism and its many manifestations and applications in all spheres of human activity. This one-dimensional interpretation comes from the narrow and mistaken understanding that dualism has not got any physical manifestations and exists exclusively at a theoretical level or in our psyche, cognition and consciousness.

The profile of dualism that emerges from historic and anthropological research is one that depict dualism as a potent human condition that is universal in its appeal and flexible in its usage and applications. However, dualisms often concentrate our attention on the cauldrons of human activity where harmony and cooperation are absent. There is much evidence in research literature of dualisms being used to draw attention to the negative, to disequilibrium and to what's not working. This constant preoccupation with the negative is not healthy for the human psyche or spirit. Thankfully, humans also possess a generic blueprint or predisposition that motivates us to generate unity, cohesion, reconciliation and harmony. This latter predilection usually overcomes, overhauls and dominates any tendencies we possess towards being excessively or solely preoccupied with discord and disharmony.

One overarching dualism casts a dense shadow over most sociological debate and research. Walsham and Han (1990) describe how the dualism of "agency / structure" or "functionalism / interpretivism" scripts and informs the sociological conceptualisation of "social reality.". Cohen (1968) articulates the theoretical impasse and dilemma that emerges from this dualism: "the properties

of the elements of social phenomena obtain many of their characteristics from the larger phenomena of which they are a part, while the larger entities obtain their characteristics mostly from the relations between the parts of which they are composed." Giddens (1979) proposes the concept of "duality of structure" as a possible solution to this theoretical dilemma that resonates throughout sociology. This "duality of structure" thesis suggests that "the structural properties of social systems are both the medium and outcome of the practices that constitute these systems." In this conceptualisation of "duality of structure," dualisms are perceived as dualistic social structures that can enable or restrict individual actions, but, over time, these social structures may be reinforced, modified or transformed by individual actions. Von Hellens et al. (2004) postulate that the notion and concept of duality infers "the existence of a dialectical interaction between conceptual pairs, with no claim that these concepts are ultimately irreducible."

Fontaine (2000) developed a typology for classifying the various types of dualisms. He uses the descriptor "radical dualism" for situations or scenarios where the elements of the dualism are archetypes, ideal types or orthodoxies. Examples of radical dualisms are good / evil and god / devil. Fontaine's conceptualisation of "radical dualism" is very similar to Plutarch's concept of "fundamental dualism." The descriptor "relative dualism" or "moderate dualism" is used to indicate the existence of a context where the second or inferior element has evolved from, or is deduced from, the superior element. An example of this model of dualism is found in the philosophy and writings of Parmenides where he introduces the dualities of "way of truth" and "way of opinion." In this Parmenidesian thesis, the "way of truth" provides the gateway to truth and understanding of "being" whereas the "way of opinion" is based on the senses and on the faculty of "seeming." The descriptor "dialectical dualism" or "eschatological dualism" refers to the scenario where, over time, one of the elements fully incorporates and assimilates the other element into its essence and dynamic. Fontaine suggest that the momentum in Europe towards the development of a singular EU community represents the binary interface between the elements of "particularism" (the movement that seeks the retention of insular, separate, sovereign and autonomous political states) and "universalism" (the movement towards coalescence, unification and amalgamation into a larger all-consuming singular unit). Fontaine states that the latter scenario is an example of "dialectical dualism" in action. Fontaine also refers to Kant's concept of "transcendent dualism" and described this genre as the struggle between "phenomenon" and "noumenon," that is the struggle between "what is" and the "perceptions" of reality that we formulate within our cognitive grid.

The popularity of dualisms is universal. Dualisms appear to possess a seductive attraction and contagious appeal for many social commentators and researchers. Dualisms abound within the tomes and annals of expository and investigative literature. No matter which genre of academic, expository or research literature

one drills or quarries into, there is every likelihood that one will encounter some macro or micro dualism at the epicentre of the tome or occurring as an integral part of the documented thesis or argument.

The universal popularity, prevalence and widespread usage of dualisms can be explained at several levels. One explanation would locate the construction and application of dualisms as part of the human quest to understand our world. Man constantly and continuously seeks to make sense of his world and all of its natural, social, cosmic, metaphysical and cultural nuances, manifestations, phenomena and events. Douglas (1984) states that "it is part of our human condition to long for hard lines and clear concepts." As well as making sense of the world, we also have a primordial desire and predisposition to achieve the binary objectives of (a) wanting to interpret it and (b) wanting to acquire the capacity to summarise its various manifestations and nuances. Man's ingenuity, ambition and intellect has led to the construction of several formulae, theses, concepts, tools and instruments to achieve these twin objectives. The dualistic format - which limits one's focus at any one time, to just two elements from the entire maelstrom of elements in our world - is an ideal template to fulfil and satisfy the "interpretive" clause because it enables each pair of selected variables to be isolated, cocooned and freeze-framed so that they can be examined and cross matched using the "compare and contrast" format of investigation. The dynamics and process of "comparing and contrasting" provides a myriad of in-depth and substantial insights into the pair of selected variables. Fontaine (2000) states that "we try to comprehend the world not only by combining phenomena, but also by opposing them, by creating pairs of contrasts." The "summarising" requirement is also being satisfied, through the use of the dualistic template, because the "compare and contrast" format focuses on the interplay between just two variables and also enables the researcher to categorise and assemble data with precision and fluency.

Another explanation, for the prevalence of dualisms, has its roots in neuroscience and in the insights that this discipline provides into the structure, organisation and dynamics of the twin cerebral hemispheres of the human brain. This cerebral research suggests that the binary subdivision of the brain provides us with the dual-capacity to process and embrace both the affective and cognitive domains simultaneously. The related explanatory thesis, for the wide use of dualisms, suggests the possibility that we are predisposed and hardwired to interpret, conceive and perceive large chunks of reality as binary manifestations and binary constructs because of the dual cerebral faculties that powers our intellect and cognition. According to this thesis, we regularly or habitually view reality through bi-focal lens. An extension of this generic-predisposition and innate proclivity thesis contends that primitive men's first steps in making sense of the world, and constructing a blueprint and philosophy of life for himself, would most likely have focused inwardly on a fundamental keystone of his being, namely his gender. The fact that a binary subdivision was at the core of his being may well have scripted and determined the lens that he

carried forward and applied in all his subsequent investigations of his wider environment. One of his first primordial assumptions must surely have been that the rule of two underpins all of the cosmos and the world order. He would have encountered much to evidence this supposition in nature: day / night, hot / cold, summer / winter, land / sea, life / death. Ab initio, have we been conditioned towards a preoccupation and predilection with the number 2?

An alternative explanation for the widespread use of dualisms to interpret and comprehend reality, is offered by Berg (2009). Berg contends that the increasing usage of dualisms and bifurcations occurs in modern scenarios and situations where homogeneity, absolute certainties and substantial understandings are absent. Because we exist in a post-modernistic era, which is hallmarked by inconsistency, unpredictability and "incomplete and erroneous convictions," many social commentators and researchers employ dualisms more frequently and across a wider range of contexts to make sense of new and emerging realities. In this post-modernistic era, and because of this innate propensity in humans to define and interpret reality in binary terms, a new manifestation or genre of dualism may be constructed anywhere, in any sphere of human endeavour, in any social context, at any time and by any individual or group of individuals.

Another explanation for the presence of dualisms, across a wide range of research literature, may lie in the fact that the dualistic template fits easily with the line–of-development or continuum thesis of knowledge expansion. This thesis infers that knowledge expands incrementally as part of a continuum. Older paradigms of knowledge are constantly been deconstructed and reconstructed to reflect more advanced and newly emerging knowledge. This cycle of paradigmatic expansion and change occurs in repeated cycles. This segmented cycle of linear growth facilitates the process of freeze-framing, where any paradigmatic model can be compared and contrasted with its immediate predecessor. The dualistic framework is highly suitable for this type of analysis and comparison.

In modern society, dualisms abound. Dualisms can be identified in a wide range of social, political, ideological and cultural landscapes and domains. In political theory we encounter the dualisms of bourgeoisie / proletariat, stability / change, state / agency, legislature / executive power and universalism / particularism. In biology we encounter the dualisms of male / female and life / death. Dualisms that exist within the Christian religion include heaven / hell, good / evil, body / soul and god / devil. Dualisms have acquired a currency in a wide spectrum of popular parlance, and many debates on policy orientations and mutations, have been ignited, informed and punctuated by dualisms.

The concept of dualism has many detractors and critics. The tendency in this genre of research, that uses the dualistic lens to provide a focus and direction, is to concentrate on the norms and values of the polarities and to ignore the

"middle ground" and intermediary "shadow land. Fishman and Mc Carthy (1998) describe this reality in research as the culture of the "excluded middle" where the intermediary and middle ground is excluded from making any significant contribution to the research. Fishman and Mc Carthy claim that, when the middle-ground is excluded, a culture may emerge, within the polarities, where "ends become means" and where "all is either A or B."

Porter (1991) puts another critique succinctly: dualisms have led to the articulation of difference and division and to the "promotion of one element over the other." Certain value-laden root-metaphors have been used as slogans and banner-headlines to promote dispute and agitation and to enflame passion, fervour and a sense of grievance. We can certainly claim that the root-metaphors of certain dualisms have been the catalysts and launch-pads of many industrial disputes, strikes, and hostilities.

The concept of dualism has also been critiqued on the grounds that it legitimises and perpetuates the unequal distribution of power between the variables. The dominance of the dualistic frame within modernistic research has been critiqued on the grounds that other alternative research modes are under-utilised. The dualistic mode of research has also been critiqued for being too one-dimensional, ineffective, episodic and disjointed.

Dualisms in Education

A wide range of macro and micro dualisms exist within the educational landscape. Bleazby (2009) suggests that much of current educational debate and policy discussion occurs across and along the fracture-lines of dualisms. Parnell (1995) states that dualisms "form the basis of our thinking and are at the heart of most educational research even within the various discourses of critical and liberatory education." Bleazby (2009) also states that many of the intractable and problems that exist in education today have their roots and genesis in the ideological struggle between the polarities - and the vested interest groups that align themselves with each polarity - and in our inability to formulate policies and strategies which can inter-connect, harmonise, integrate and simultaneously prioritise both polarities. The following selection of dualisms are deeply embedded within the wider educational landscape and have, on occasions, informed and scripted educational reflection, friction, narrative and debate:

- theocentric paradigm / mercantile paradigm
- constructivism / didacticism
- child-centred / traditional
- educate / train
- mainstream / special provision
- in-class / withdrawal

- theory (pure knowledge) / practice (applied knowledge)
- abstract / concrete
- individual (self) / group (others) (social)
- reason / experience
- teach / tutor
- know / understand
- relational understanding / instrumental understanding
- student / pupil
- mental (cognitive) / pen and paper (application and practice)
- mind / body
- reason (cognitive) / emotion (affective)
- reason / imagination
- pre-service / in-service
- direct instruction / indirect instruction
- independent artisan /collegiality
- religious / secular
- male / female
- effort / ability
- formative assessment / summative assessment
- pedagogic knowledge / subject-content knowledge
- global / local
- rural / urban
- inclusion / exclusion
- aesthetic / pragmatic
- intuition / analysis
- home / school
- technology / communication skills
- technical skills / people skills ("soft skills")

Dualisms within the Cultures of Teaching and Learning

The literature review that I engaged in, to prepare for this article, – trawling through Dewey's writings, Fishman and Mc Carthy's outstanding publication and many ancillary publications on dualisms - concentrated my attention on four specific dualisms that are embedded within the Cultures of Teaching and Learning. The four dualisms that I have selected for analysis and discussion in the latter section of this article are:

- Student / Curriculum
- Continuity / Interaction
- Interest / Effort
- Construction / Criticism

The Student / Curriculum dualism is an overarching, macro dualism; the other three micro-dualisms are considered "nested dualisms" because they lie embedded and silhouetted within the layers of this macro dualism. Dewey contends that each of these four dualisms, together with their eight constituent conceptual orientations or root-metaphors, can have a direct and significant impact on the dynamics of teaching and learning and on the classroom environment. Rather than perpetuating the myth and misconception that, within each of these dualistic arrangements, there exists one superior element which is more powerful, contains greater potential, has higher status and has a superior track record, in the past, in supporting teaching and learning, Dewey advocates a culture that is predicated on equilibrium and equal prioritisation of both root-metaphors simultaneously. Dewey warns against the imbalance and friction created by excessively prioritising and promulgating just one element from the pairing, while excluding and downgrading the other. Dewey strongly recommends that each of the eight elements should be perceived and conceptualised as being equally important and critical for the enhancement of teaching and learning. In Dewey's considered opinion, teaching and learning together with the classroom environment can be significantly constrained and limited if the traditional approach, of permitting only one element within each dualism to blossom and be realised, is allowed to continue. Dewey (1902) advises that the potential and dynamic of each of the eight elements need to be ignited and released so as to "harmonise it all." The resultant outpouring of creative energy will need to be harmonised and directed towards the enhancement of the teaching and learning environment. Fishman and Mc Carthy (1998) highlight the importance of the process of integration and cohesion in Dewey's conceptualisation of the "learning process." Mirroring the Deweyian thesis, Fishman and Mc Carthy state that "there must be deep integration of the classroom's underlying dualisms" together with "we should proceed simultaneously in a variety of ways if we want to promote quality classroom experience and work." Again Fishman and Mc Carthy crystallise Dewey's thoughts in their statement: "Dewey believes the classroom's dualisms are interactive and mutually shaping; he suggests they must all be attended to if we are to dispel his educational nightmares."

Let's now turn our attention to each of these four dualisms and their binary root-metaphors and conceptual orientations.

(1) Curriculum / Student

Dewey takes time to identify and describe the three "nested dualisms" that lie submerged within this parent and overarching dualism. Fishman and Mc Carthy (1998) describe the unexpected discovery of many within one: "as we explore student and curriculum, we find beneath each dualism concentric circles of other dualisms" and again "when we study these more fundamental dualisms, we find ourselves amidst mirrors reflecting infinite regress." Dewey identifies and conceptualises the "learning process" as the unifying agency and conduit by

which each of the micro nested dualisms are connected to the parent dualism. The "learning process" is the overarching paradigm within which, and from which, these four dualisms attain their identity and existence. If enhancing the "learning process" is our objective - as teachers and educationists - then the insights that Dewey provides into these eight root-metaphors and conceptual orientations are highly applicable and timely for the contemporary classroom. By ensuring that each of these eight sub-parts operates in a synchronised, co-ordinated and unified fashion, we can ensure that our students are permanently presented with an enhanced learning environment.

- When Dewey turns his focus onto Curriculum, he provides us with many valuable insights into the processes and dynamics of curriculum.
- Dewey warns against an excessive and draconian preoccupation with the "official curriculum" while simultaneously ignoring the rubric of the student's needs, individual learning style, reservoir of prior learning, current levels of motivation and current interests.
- He warns against the habitual and excessive usage of "curriculum-centred instruction" and "penitentiary pedagogy".
- Dewey recommends the development and implementation of "direct and indirect teaching" methodologies, multi-sensory classrooms and inclusive learning environments which present a myriad of learning opportunities to every student
- Dewey also warns against an over-reliance on rote learning

Dewey's analysis of the role of Student within the "learning process" also provides us with a suite of important insights.

- Dewey (1963) warns against the creation and implementation of a culture of excessive "child-centredness," while simultaneously minimising the importance of sustained and effective engagement with the formal curriculum.
- Dewey offers the advice that pedagogy should not be excessively "sugar-coated." Fishman and Mc Carthy (1998) claim that excessive use of "sugar-coated" teaching methodologies would present students with a permanent model of teaching that is unchallenging, unfocused, superficial and unrealistic. Fishman and Mc Carthy state that "such teaching leaves students unprepared for future life. It fails to challenge them, to help them build the character traits Dewey feels they need to expand their interest, make intelligent choices and, ultimately, enrich their understanding of the significance of present experience."
- Dewey recommends that classrooms must cater for the individual difference that exists among the heterogeneous student population. Don't assume that every student is on the "same page at the same time, generating the same answers."

Dewey's overriding recommendation is that we need to get the balance right between Student and Curriculum.

(2) Continuity / Interaction

In his conceptualisation and analysis of the concept, nuances and processes of Continuity, Dewey provides us with a suite of important insights that we can use to enhance our classroom dynamics.

- Each new learning experience possesses a "continuity" dimension because it "sums the past and expands the future" (Fishman and Mc Carthy, 1998). Dewey develops and clarifies his thesis of "continuity" by describing how learning occurs within a continuum that is dynamic and continuously mutating and expanding. We are continuously engaged in learning of some form or other, making sense of our world, reflecting "in", "during" and "on" action (Schon (1983), internalising and processing new knowledge and new experiences, deconstructing old cognitive paradigms of knowledge and reconstructing and erecting new paradigms. Fishman and Mc Carthy paraphrase this Deweyian sub-thesis by describing how new learning experiences are internalised, accommodated, assimilated and embedded into our cognitive network of schemata: all new learning experiences are "complex temporarily, penetrating one another, earlier ones leaving deposits or residues which influence the later ones." The continuous linking of old knowledge to new is the "continuity" ingredient and dimension of learning that Dewey refers to.
- Dewey claims that learning becomes enhanced when the student is facilitated and provided with many opportunities to formulate a web of connections and linkages to anchor his learning: linkages between the school-based learning assignment and his experiences outside of school, between his prior knowledge and the new material that is being presented to him, between the formal curriculum and his pursuit of a solution to some presenting problem or some emerging need in his life. Dewey recommends that we maintain "a proper balance between the informal and the formal, the incidental and the intentional modes of education." Dewey also states that, unless these connections and linkages are systematically and regularly made, formal learning may lose its relevance and may become totally removed from the life experiences of the student. If this level of disconnect becomes a reality, the student's engagement with the formal curriculum will become superficial, sterile and devoid of any "emotional intensity." In this scenario, student motivation to learn will evaporate alarmingly. However, when these connections are systematically implemented and prioritised, "formal learning starts to take on the vitality of real-life discovery - doubts resolved, obstacles overcome, problems clarified." The relevance of the formal curriculum, in providing him with a suite of life skills competencies and critical knowledge, will

become apparent to the student. In addition, when these connections are systematically activated and implemented by the student, on each occasion that he engages with a formal learning assignment, his motivational levels increase, concentration spans lengthen, existing knowledge becomes a means and gateway for acquiring new and additional knowledge and the curriculum is perceived by the student as being significantly-relevant to his life -and to his life chances. Dewey fully understood the importance of activating the "emotional" imperative and ingredient within the student's engagement with formal learning. This "emotion" ingredient ignites and sustains the student's drive and motivation to learn.

- Dewey identifies the use of thematic approaches and project-work as effective methodologies for integrating learning and supporting the formulation of connections between different domains of knowledge.

Dewey proceeds to provide clarity and insights into the role that the concept of Interaction plays within the "learning process."

- Through the process of assimilation and accommodation new knowledge is internalised and mutated to fit exactly with the existing structures within our cognitive network. This means that each of student's learning is unique, subjective and different. Dewey expands his thesis by declaring that when new learning opportunities are presented: each student brings a unique reservoir of prior learning experiences, all students are not at the same stage of readiness, all students do not possess the same learning style, attention span and concentration levels, each student constructs his own learning at his own individual pace.
- In the classroom environment, learning can be facilitated and reinforced through the availability of multiple opportunities to participate in a myriad of interactions with the formal curriculum, nuances of the hidden curriculum, peers, teacher, classroom visitors and classroom resources. Dewey describes how effective learning can be facilitated and achieved through project work, collaborative work, cooperative learning, class discussions and discussions about completed homework. Dewey strongly recommends that classrooms are created that are "interaction rich."
- Important learning also occurs outside of official school-hours, in the student's environment. These off-site experiences should regularly be used to inform classroom practice.

Dewey's overriding recommendation is that we need to get the balance right between Continuity and Interaction.

(3) Interest / Effort

Dewey unveils and explains how the process and dynamics of (student's) Interest extends the effectiveness of the teaching and learning environment.

- Dewey clearly understood the importance of student interest in the "learning process" and he is fully aware that placing excessive and exclusive focus on "curriculum" and on didactic approaches, to the exclusion of student interest, can create a highly imbalanced learning environment, where the quality and integrity of the learning experience are diminished. Fishman and Mc Carthy (1998) echo the Deweyian advice and recommendation: "don't sacrifice student interest to achieving mastery of subject matter."
- Fishman and Mc Carthy (1998) described how this Deweyian sub-thesis strongly recommends that teachers should present their students with "genuine problems which excite their interest, problems which can be explored and ameliorated by engagement with the curriculum. Only in these circumstances with school learning have the emotional force of non- school learning, and only in this way will students be motivated to investigate and remember course subject matter." When the student is presented with "genuine problems" to solve, the student will be motivated to investigate the formal curriculum to discover and source solutions to the presented problem. The level of intensity that the student brings to this engagement with the curriculum is proportionate with his perception of the relevance and appropriateness that the presented assignment has to his life and interests.
- Dewey (1913) states that students are "always in motion, seeking some goal, intent on something urgent." This means that the foci of their interest are constantly changing and mutating. Teachers need to be continuously vigilant to identify the development of new interests in students, so that they can copper-fasten these new interests into the learning environment. When this occurs the student is given "reason to learn" (Schon 1983).
- When student interest is not activated, the learning experience can be hollow, one-dimensional and "isolated and decontextualised."
- Dewey advocates "indirect teaching" (e.g. employing the "discovery" principles) as a means of activating student interest.
- Dewey (1933) suggests that, when student interest is activated, student engagement occurs at both the affective and cognitive levels. To maximise student interest, Dewey advocates that problems are carefully selected to ensure that both the affective and cognitive domains are stimulated into action. When emotion underpins the student's perception of the learning assignment, his interest, concentration and attention levels will increase. Dewey states that "knowledge is a small cup of water floating on the sea of emotion." Dewey postulates that the non-cognitive dimension in learning is, in most instances, as important an ingredient, in facilitating and sustaining effective learning as is cognition. His advice is to made learning an "emotionally charged activity" for the student. Dewey claims that when the student's interest and curiosity are activated

and when "compelling goals" are presented, learning becomes "personalised" for the student and he begins to identify and become aware of the linkages between the curriculum, classroom material, learning goals, effort and desired learning outcomes. Success in learning becomes its own propagator (Rosenholtz 1991) and interest in learning becomes self-sustaining. The energy and effort that are expended in completing the workload are perceived and evaluated by the student as been minuscule in comparison to the sustained glow of achievement and gratification that the successful completion of the learning task can arouse.

- Dewey warns of the risks involved in over-prioritising the student's interests while simultaneously downgrading or undervaluing the requirement for the student to possess a mature work-ethic. The teacher should also lay emphasis on the fact that successful learning also requires the student to concentrate on the task in hand, put his / her shoulder to the wheel and make the required level of application and effort that is demanded to complete the task satisfactorily. Over-prioritisation of, and preoccupation with student interest, can result in the creation of a laissez-faire classroom environment which is devoid of any real academic challenge. In this classroom, students are merely amused, entertained and indulged.

Dewey also provides important insights into the concept and dynamics of (student's) Effort.

- For learning to be effective, the student must be attentive, concentrate on the task in hand and made a level of input and effort that is directly proportional to the gradient of the learning challenge presented. Fishman and Mc Carthy (1998) summarise Dewey's thesis on "effort": "it is not simply motion in one direction, from the curriculum via the teacher to the student. Rather, learning involves interacting processes, energy moving in a variety of directions: from student to curriculum and vice versa, from teacher to student and vice versa, and from student to student as well."
- Dewey states that "ideas" cannot be handed over like bricks, from teacher to student or from student to student. "Ideas are learned through use and not by passive reception." Learning requires active participation and effort on the part of the learner; it is not a spectator activity.
- Learning provides challenges that need to be overcome through effort and perseverance.
- When student effort is missing from - and not applied to - the learning assignment, the student is engaging in "mental truancy."
- Dewey cautions against the implementation of a "penitentiary or hard pedagogy" and the development of an amorphous, threatening and

controlled classroom environment where student effort has been mandated and created through compulsion and fear.

- Dewey identifies three additional sub-variables that define and determine the quality, dynamics and parameters of effort that the student puts into each specific learning task. Dewey describes these three variables as "For-what(s)," "To- what(s)," and "With- what(s)." The "For-what(s)" refers to the importance of making the student aware of the learning intention and the learning objectives that underpin each specific learning task. The "To- what(s)" refers to the importance of the student possessing an overview of what's involved in the learning task, being aware of what volume of work need to be done, what choices and decisions need to be made, what content and material needs to be covered, the timeframe allocated to the task, the standard of work required, the optimum learning outcomes expected and the success criteria by which the completed work will be assessed. The "With- what(s)" relates to the process of reconstructing new knowledge from old, of building bridges and scaffolding between domains of knowledge. The "With- what(s)" refers to the process and skills of using the familiar to unlock the challenges of the unfamiliar.

Dewey's overriding recommendation, in this thesis, is that we need to get the balance right between Interest and Effort. To develop the optimum learning environment, the teacher must get the balance right between the level of interest, curiosity, enthusiasm and excitement that needs to be stimulated and generated in the student and the depth and gradient of the learning challenge that is presented.

(4) Construction / Criticism

Dewey's thesis on both of these concepts clarifies the significant impact that Construction and Criticism have on the enhancement of the "learning process." Both of these concepts are deeply embedded within the processes of knowledge-construction, deconstruction and reconstruction and also within the parallel processes of internalisation, assimilation and accommodation. The synchronised, dynamic and cohesive fusion, that exists between these twin concepts, has been described by Fishman and Mc Carthy (1998) as the "vertical and horizontal axes" of the processes of knowledge-creation. Dewey (1930) states that "creation and criticism cannot be separated because they are the rhythm of output and intake, of expiration and inspiration, in our mental breath and spirit. To produce and then to see what we and others have done in order that we may create again is the law of all natural inquiry.... Production that is not followed by criticism becomes a mere gush of impulse; criticism that has not a step to further creation deadens impulse and ends in sterility." Fishman and Mc Carthy (1998) summarise this Deweyian thesis thus: "there can be no genuine construction without criticism, and there can be no genuine criticism

without construction." The meaning, interpretation and suite of dynamics that Dewey ascribes to the twin concepts of Construction and Criticism are very similar to the processes of "synthesis" and "analysis" that Bloom conceptualised and encapsulated within his "Taxonomy of Educational Objectives."

Dewey provides some significant insight into the impact that Construction has on the dynamics of learning.

- The learner has to be an active participant in the learning process if effective learning is to occur. He also states that: "such things (knowledge, beliefs, ideas) cannot be passed physically from one to another like bricks; they cannot be shared as persons would share pie by dividing it into physical pieces."
- Dewey also states that the process of formulating cognitive networks and schemata is an integral part of the process of construction. Fishman and Mc Carthy summarise and crystallise this Deweyian supposition: "this thinking… is intelligent in that we employ information from the past and careful study of the present, reflecting upon and testing both."

Dewey provides some interesting insights into the concept of Criticism.

- Dewey conceptualises and interprets "criticism" as "constructive criticism." Fishman and Mc Carthy describe this genre of "constructive criticism" as the ability to "identify things by focusing on their distinctive traits, marking off important attributes previously left vague or submerged in the larger whole." This genre of criticism resonates with and is predicated on positivity and optimism and is far removed from the alternative model of criticism that is hyper-pessimistic, blinkered and fuelled by vested interest. The invasiveness of negative criticism ruptures the inter-flow between "construction" and "criticism" and leads to inertia and stagnation within the learning process.
- This conceptualisation of "constructive criticism" positions and locates the concept of criticism within the dynamics of internalisation, assimilation and accommodation and within the underpinning cognitive faculties of reasoning, thinking, human judgment, reflection and critiquing which are employed to test all in-coming stimuli for accuracy, validity, verity and currency.

It is work noting that Dewey does not provide a mathematical formula or ratio-format to define and indicate the specific quantities of "construction" and "criticism" that are required to maximise the effectiveness of the learning process. This problem and dilemma, of getting the "mix" and "ratio" correct, is left for solving by each individual practitioner. Dewey's overriding recommendation is that we need to get the balance right between Construction and Criticism to ensure the development of the most effective learning environment for our students.

Conclusion

I have benefited greatly from my latest investigation of Dewey and the four dualisms that he unearthed within the Cultures of Teaching and Learning.

I now possess eight dynamic lenses through which I can view and investigate the various rubrics and layers of my practice. These eight lenses have also focused my attention on eight major principles, pillars and root-metaphors that should underpin my practice and my classroom environment. A mirror has been raised to my teaching and my classroom environment. I am now in a position to self assess and measure the effectiveness and quality of my pedagogy and classroom environment against the set of criteria and insights that have been indicated and revealed by Dewey. I believe that the additional insights, that I acquired from this study have impacted positively on my teaching and on my classroom. This study has informed me of the importance of ensuring that I employ both "direct" and "indirect" modes of instruction and that the "hidden curriculum" most always be considered a priority in my classroom. This research has also highlighted the importance of creating an inclusive and heterogeneous classroom where "an enriched learning experience is created for each learner"(Fishman and Mc Carthy, 1998). Within this recommended classroom culture, student intuition and student creativity are ascribed a higher status than memorisation and repetition. In this inclusive classroom, the gradient of the learning challenge that is presented is thoroughly planned so as to perfectly match the ability levels of each individual student. In this heterogeneous classroom, individual difference is validated, welcomed and accommodated. Students in this classroom environment are encouraged to discuss, to engage in collaborative and cooperative inquiry so that they can "develop the disposition to work with others to understand and shape the changing environment."

I also discovered that these four dualisms can be a teacher-researcher's best friend. These dualisms provided me with highly effective, strategic and sharply-focused lens to guide my trawling through one strand of research literature. In general, when we employ dualisms as our investigative-lens, we can begin to unwrap and reveal the complexities, minutae and peripheral layers of any educational issue, policy, thesis or debate and can identify the constituent core values and conceptual orientations. (Fishman and Mc Carthy, 1998) claim that when a researcher employs dualisms to investigate some conceptual or theoretical landscape, he / she acquires an unique spotlight to sieve through the mosaic of "competing values and points of view which lie behind these dualisms." I have acquired clarity to the effectiveness and wide-applicability of dualism as pragmatic and practical lens. I now realise that dualisms, as investigative lens, can be utilised to investigate any conceptual or theoretical landscape. In this research, I limited my trawling of research literature to just eight concepts, four dualisms and the published works of Dewey, Fishman and Mc Carthy and a limited volume of other researched work in this field. Whenever I commence my next research odyssey, my preparation phase will

certainly include a "quarrying" into the selected landscape to unearth the significant and influential dualisms that lie therein. I am confident that, having unearthed this new suite of dualisms, I will be in possession of a valuable roadmap which contains clear signposts to the directions that I need to follow in pursuing my research objectives. I agree with Fishman and Mc Carthy when they claim that dualisms: " point out where to look.".

Because the dualisms within the Cultures of Teaching and Learning exist at the reality of the chalkface, any research that is framed by,or incorporates, an investigation of these dualisms can certainly claim to be "naturalistic," "dynamic," "vibrant," and "contextualised" research. Consequently, the insights that are attained from this genre of research have an immediate currency and applicability for the contemporary classroom. The critical insights emerging from this genre of research can be used to "engineer change" in practice and to enhance teaching and learning. This avenue of investigation can also pinpoint and script the tensions that exist within the dynamics of practice, together with offering possible avenues of redress and improvement. Fishman and Mc Carthy claim that when a definite set of dualisms is used to frame inquiry and investigation, the researcher is provided with a "set of categories or questions with which to probe any perplexing situation" or to unearth any "dichotomous activities at work in the situation."

Research into dualisms also possess the immense potential of being solution focussed. This genre of research can suggest avenues and approaches by which reconciliation, cohesion and fusion can be constructed and realised between here-to-fore diverse and contestation entities. Fishman and Mc Carthy suggest that a significant and positive spin-off from research undertaken into dualisms is the way that our attention is directed to the engineering of solutions for contexts where "competing values and points of view" have being the norm up to now. Both Dewey and Fishman and Mc Carthy provide many valuable insights into how integration and harmonisation can be achieved in situations where friction previously existed between dualistic components: refrain from exclusively prioritising one element over another, create a culture of co-operation and co-dependence, seek inclusive solutions and eradicate either-or options, blur and make porous the boundaries that separate the elements, overarch difference, extend the middle ground and reconcile the dilemma of the dualism "without sacrificing either member."

At one level we can state that there is considerable evidence to suggest that Dewey was anti-dualistic. Dewey was fully aware of the "nightmare," inertia and stagnation that can be created within the constellation of a dualism by the existence of oppositional and rival elements. Equally, Dewey can also be described as being pro-dualistic because he fully understood the vast potential that can be released - and utilised to enhance teaching and learning – when all the eight root-metaphors within the Cultures of Teaching and Learning are fully activated, equally-prioritised and fully integrated.

This research has been instrumental in bringing Mr. Dewey in from the cold and back into my cognitive world! My preparations for this article have reawakened my interest in revisiting his multitudinous writings on a regular basis to inform my practice. I have joined the ranks of researchers, teachers and educationalists who contend that Dewey, and his theses on teaching and learning, have been cast aside and "retired" prematurely. Certainly some of Dewey's pronouncements the meanderings may be justifiably critiqued on the grounds that they contain a certain degree of opaqueness, ambivalence and contradiction but I believe that his theses on teaching and learning still present us with a raft of insights and maxims that can assist us in establishing the most effective learning environment for our students. I contend that Dewey is not pass and that he still provides many valuable insights for today's classroom. Cassidy(2000) accurately reflects my views when she states that Deweyian ideas on teaching and learning are highly "relevant to today's teaching."

Note: In the past, my engagement with Dewey has always ended in frustration on my part because of his well-documented practice of not completing any singular thread of thought or topic-development within a singular publication. One major hallmark and characteristic of Dewey's writings is that he re-visits and further-develops the same topic over several publications. I have always found it difficult and frustrating having to refer to several of Dewey's writings simultaneously and having to constantly have to transverse and crossmatch his writings to reveal his holistic learning of thought on any given theme. I am now confident that, by using other dualisms as beacons to guide my voyage through Deweyian terrains, I will successfully reacquaint myself with Dewey and his published works once again.

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Using Live Modelling to Teach Behavioural Chains

Patricia M. Daly & Christy Demetry

Modelling is a useful teaching strategy for teachers of students with moderate to intensive educational needs (Westling and Fox 2009). First developed as part of Bandura's Social Learning Theory (1965), modelling, as a teaching procedure, takes advantage of children's' ability to learn through imitation. In modelling, the teacher or a peer demonstrates how to perform an action or sequence of actions while the target student observes. The student then imitates the actions of the model. With sufficient practice the student learns the new behaviour. Modelling is a particularly helpful strategy when the pupil has learned or can perform some components of the target behaviour already.

Cooper, Heron, and Heward (2007) describe two forms of modelling, planned and unplanned. In planned modelling, the model may be live (in vivo) or videotaped. Planned modelling involves a deliberate structured attempt to teach a skill or set of skills by careful demonstration and explicit teaching. Unplanned modelling can occur in any situation where a person simply learns a skill or routine by noticing someone else doing the skill or routine and imitating them.

There is an extensive literature supporting the use of modelling for teaching. Modelling has been used as a component of a set of strategies to teach many skills including conversation (Ganz, Kaylor, Bourgeois, and Hadden, 2008), safety behaviours (Mechling, Gast, and Gustafson (2009); understanding emotions (Bernad-Ripoll, 2007); reading (Bellon-Harn and Harn, 2008), Picture Exchange Communication System use, (Ziomek and Rehfeldt (2008) and mand training (Jennett, Harris and Delmolino (2008). Bellini and Akullian (2007) presented a meta-analysis of video modelling (using a peer or adult model) and video self-modelling (in which the model is the child who is learning the skill). For video self-modelling, the child is prompted through the task with any level of prompt needed. These prompts are then edited out of the final video segments so the child only sees him or herself performing the behaviour correctly and independently. The authors concluded that when strict criteria for effectiveness were applied, modelling emerged as an effective intervention for teaching social-communication skills, functional skills and behavioural skills to children with autistic spectrum disorders.

The student must be able to perform two prerequisite skills to benefit from modelling as a teaching tool. First, she must attend to the performance by the

model. If the student cannot reliably attend to the performance, she must be taught to do so. Second, the student must be capable of imitating the performance of the model. In other words, the student has to have the physical and cognitive ability to copy the actions of the model.

When the task being taught is complex or has several steps, the model can perform one step or a couple of steps at a time which the student then imitates. The student is praised for accurate imitation. When modelling alone does not set the occasion for imitation or when the attempts to imitate are incomplete or incorrect, prompts are added to the modelling process. Adding verbal directions while demonstrating, or using gestures, are examples of prompts. The teacher might need to use error correction procedures to prevent the student from practising errors. The student's incorrect response could be interrupted and the correct responses modelled again. The teacher could use more intrusive prompts to prevent errors such as hand-over-hand prompting. Since a major advantage of using modelling to teach children with moderate to intensive educational needs is its non-intrusive nature and the reduced likelihood that children will resist, the addition of intrusive corrective or preventive prompts might defeat the very purpose of using modelling in the first place.

Teaching Chains of Behaviour using Modelling

A chain of behaviour is any complex task a pupil needs to learn that contains several discrete steps. The pupil might be able to do several of the steps before you teach the chain, he has just not put them together in the particular sequence you want to teach. For example, he might be able to pull strings, cross them over each other, but not ever have tied his shoes successfully.

Several steps will increase the chances that modelling will be successful for teaching chains of behaviour like shoe-typing, tooth-brushing, or making snacks.

1. Make a clear and concise task analysis of the chain to be taught. Keep the steps as large as the student can imitate correctly. Adjust the task analysis as you use it to accommodate the student's unique needs and skills.
2. Pre-test to see if the student attends to you while you model the task. If the student attends for even one step then proceed with the technique.
3. Have copies of all materials used in the task for the student so you can demonstrate steps while she imitates. This way, the student does not have to remember a sequence of steps and can start learning immediately by imitating each step AS YOU do it.
4. Stand parallel to the student if the task involves use of both hands or feet in any sequential manner. For example, if teaching to put pants on, put two chairs next to each other and seat yourself and student before you

start the task. The student can imitate exactly what you do and does not have to 'translate' your actions from left to right or front to back as he would need to if you demonstrate while facing him.

5. If the task does not entail actions that could harm the child (use of a knife for cutting) use least-to-most prompting. This means adding the least intrusive prompt first. If this works to support the student to perform the step correctly, no further prompt is added. This will allow you to see leaps in learning and will reduce the probability you will need to use hands on.
6. Adjust any materials or objects used so they will be salient to the student. Examples are adding colour prompts to clothes, using special toothbrushes or toothpaste, adding colour or pictorial prompts to microwave buttons, and pinning or using Velcro to stick coloured patches on one pant leg or one shirt sleeve. If you have to use verbal directions as part of the teaching process you can more easily identify objects and materials for the student in this way.
7. Collect data on each step at least one time during each practice session. It is easiest to do this by converting the Task Analysis steps into a data sheet that allows for multiple data collection sessions. Collect data on the trial that is likely to be the most successful. Attempting the whole chain four or five times per teaching session **before** collecting data will work well for most students. While collecting data be sure to record all prompts. Chart the number of steps completed independently.

Maria learns to tie her shoes

Shoe-tying is a good chain to choose for modelling. It can be difficult to follow typical verbal prompts for tying laces. When both laces are the same colour, the specificity of verbal prompts is impaired as the child could be told, 'loop one bow around the other' and not know which bow is which. If one half of each shoe lace is dyed a contrasting colour, the directions and the demonstration can be more focused and easier to follow. Then a verbal direction or prompt could be, 'loop the white bow around the black bow'. This system was used in a primary school to teach a 10 year old girl with MGLD to tie her shoes.

Pretesting showed Maria did not know how to tie her shoes independently. If her shoe lace was open she went to an adult in the environment and said, "Shoe". Several times a day she would request a teacher or SNA to tie her shoes if her laces became undone. Apart from the danger inherent in walking around with open shoe laces, learning to tie them would give Maria more independence.

Accordingly, the teacher made a Task Analysis for shoe tying with 14 steps. The teacher made a prop to teach the task using modelling and imitation (see Figure A).

Figure A. Props for teaching shoe-tying.

Task Analysis Data Sheet for Tying Shoes

STEPS	T1	T2	T3	T4	T5	T6
1. Hold the white shoelace in the right hand and black shoelace in the left hand.						
2. Cross laces by putting the white shoelace in the left hand and the black shoelace in the right hand.						
3. Take the black shoelace and wrap it over the white shoe lace and drop it in the 'hole'.						
4. Let go of the black shoelace.						
5. Grab the black shoelace from underneath the white shoelace.						
6. Pull out with both laces until tight.						
7. Let go of the white shoelace.						
8. Make a loop with the black shoelace leaving a long tail and hold it at the bottom with the right hand only.						
9. Pick up the white shoelace with the left hand and wrap it around the bottom part of the black loop.						
10. Push the middle of the white lace through the small 'hole' under the loop.						
11. Let go of the black loop.						
12. Grab, with thumb and first finger, the newly made white loop on the other side of the hole.						
13. With the other thumb and first finger, grab the black loop.						
14. Pull the knot tight.						
Number of Independent steps per Trial						

Data Legend

V verbal **G** gesture **M** model
FP full physical **PP** partial physical **I** Independent

The prop consisted of two small planks of wood. One of a pair of runner shoes was nailed onto each board. Half of each white shoe lace was painted black and then the shoes were laced.

The teacher wrote a script to say while she demonstrated each step and then waited for Maria to imitate. If Maria make an error or did not make any effort to imitate, the teacher used hand-over-hand to assist her. The task was modelled and imitated four times and then an unassisted trial was presented. The teacher collected data on Maria's completion of the 14 steps of the task analysis during the assessment probes and during teaching sessions (sees Figure A). Maria learned the task to independence in six sessions. At the end of the last session Maria sat back on her chair, lifted one of her own shoes onto the chair and undid the shoe lace. She then tied it independently on the second try.

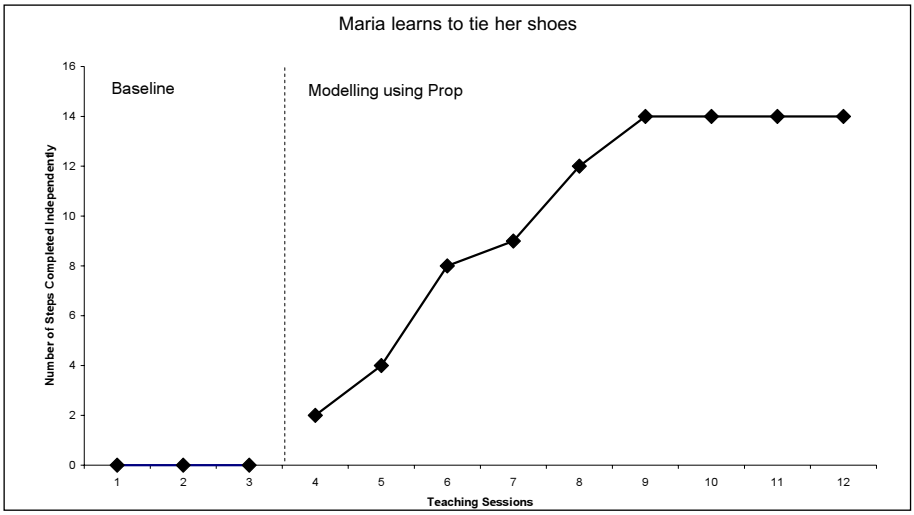

Figure B. Number of steps completed independently per session.

Conclusion.

Modelling as a teaching strategy has several advantages for both the teacher and the pupil. The process is entirely positive. Showing how to do each step is a form of prompt for the pupil and is likely to result in fewer errors and less need for correction. Many pupils with special educational needs benefit from carefully tailored visual supports as prompts. Modelling provides a live visual support for these pupils throughout the task.

Figure C. Maria generalises her shoe tying skills to her own shoes.

Note: It is editorial policy to use fictitious names for student participants in research published in LEARN. Fully informed consent was given by the student's parents to use her photographs in this journal.

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Team-teaching: Supporting student and teacher learning in post-primary classrooms

Finn Ó Murchú

Introduction

As readers will attest, team-teaching, where two teachers teach together in the one classroom at the same time, is not a new concept but is increasingly being seen as an idea worth developing further in Irish post-primary settings (DES, 2007, OECD, 2009). Previous contributions in this journal (McCarthy, 2002; Nolan, 2005; Barry, 2005: King, 2007) and others have identified the benefits, for both students and teachers, associated with a range of delivery models including team-teaching.

While team-teaching is in its relative infancy in many post-primary settings in Ireland, it is clear that teachers are increasingly recognising the benefits and challenges, which may accrue from such practice, for both themselves and for their students. Research in Irish schools higlights a number of benefits associated with team-teaching. First, Barry (2005) and King (2007) examined primary school practice in Ireland and highlight the value to all students' learning that can emerge from two teachers working in the same classroom. Nolan (2005) rightly reminds us that, "the option for withdrawal or in-class support must be made in the best interest of the individual student" (2005, p. 59). Second, McCarthy's work (2002), is based on post-primary settings and argues that team-teaching promotes a new professional connection. "This linkage was a vibrant source of learning for these teachers because it facilitated access to alternative practice, ideas and values" (p. 86). It would appear that team-teaching has the potential to play an important role in enhancing learning in post-primary classrooms. However, what is not so clear is what exactly that role might be or how to go about instigating and sustaining such collaborative action.

This article is based on the author's work in the area of special education and in particular upon emerging findings from involvement in research activities that tracked a small scale team-teaching initiative involving seven post-primary schools located in the Vocational Education Committee (VEC) sector. What follows seeks to outline how team-teaching practices can assist in providing additional time and space for learning in classrooms. Learning, that incorporates job-embedded professional learning, as well as student learning.

The first section of the article will look at the context for team-teaching in relation to the promotion of inclusive practices. The second section will set out some salient features of team-teaching from the literature. The third second section will examine the benefits associated with team-teaching, as viewed by teachers and students, in providing additional time for student learning and the fourth section will identify teachers' perceptions of their own learning through team-teaching. Some emerging possibilities and practicalities associated with instigating and sustaining team-teaching will be addressed in the final section.

Team-teaching and inclusive practices

Team-teaching takes many forms. The USA in the 1950s used team-teaching at a time of teacher shortages, while shared learning areas were a feature of Irish primary schools in the 1970s. Teacher training and teacher education has long drawn on the model of teacher and student teacher working together in the one classroom. Pupil teacher ratios have also inspired various forms of subject teacher collaboration where both subject teachers would sometimes share the same space and students with one another. The term 'team-teaching' first entered the lexicon of Irish official documentation with the publication of the Special Education Review Committee (SERC) report in 1993.

> *The remedial teacher should be encouraged not to restrict themselves to a withdrawal model of work-organisation. When appropriate, schools should be encouraged to implement adapted curricula and adopt a flexible approach to school organisation including* ***team-teaching*** *in order to meet their particular needs.* (p. 220)

The Department of Education and Science has continued to encourage schools to look at a range of ways to use available resources to support students within the mainstream classroom setting and to avoid an over reliance on one-to-one withdrawal. Of note is the 2003 primary circular which stresses the need to differentiate between the manner in which resources are accessed and the manner in which they are used.

> *However, the practice has developed in recent years of using resource hours for individual tuition only. An exclusive reliance on this approach is contrary to the principle of integration in teaching and learning. Wherever possible, schools should provide additional help for children in the mainstream classroom, or if necessary, in small groups……..Although resource teaching allocations have been sanctioned on the basis of individual applications, the overriding principle is that the resources be deployed in the manner that best meets the needs of pupils with special needs in the school.* (Circular SP ED 23/03).

The Department published *Inclusion of Students with Special Educational Needs Post-Primary Guidelines* (2007) further endorses such a view and states that 'the mainstream teacher has a key role to play in the inclusion of students with special

educational needs in mainstream schools" (p. 71). The guidelines subsequently outline in more detail the fundamental prerequisites and benefits associated with team-teaching for both students and teachers (p. 106-107).

The guidelines also highlight some of the different terms used to describe such practices. Reading the literature one is often confused and, on a good day bemused, by the range of titles including 'coteaching', 'co-teaching', 'collaborative teaching', 'cooperative teaching', 'teaming' and 'partnership teaching'. Much time and energy has been devoted by many in unravelling what each of these terms mean and such efforts are important and should not be easily dismissed.

Prerequisites	**Benefits for students**	**Benefits for teachers**
Managerial support	Learning enhanced	Reduce isolation
Teacher trust/respect	Individual needs met	Share decision making
Teacher parity	Full access to curriculum	Work with more students
Teacher adaptability	Range of groupings	Mutual support
Teamwork	Differentiated learning	Sharing work load
Clarity of roles	No stigma of withdrawal	Reduce student discipline
Time to plan/review	All students benefit	Share good practice

Table 1. Outline of the prerequisites and benefits associated with team-teaching as documented in the *Inclusion of Students with Special Educational Needs Post-Primary Guidelines* (2007).

However, it may prove more fruitful for the purposes of this article to succinctly state that the use of the word 'team' in team-teaching draws us into the world of classrooms as places where all occupants (teachers and students) can engage in activities that support the teaching and learning that takes place. For research purposes I have found it useful to describe team-teaching as involving two teachers who are timetabled to share equally, instructional and other responsibilities for a single group of students, in the same room and on a regular basis.

As documented, in the reports published by the Irish inspectorate since 2006, team-teaching is increasingly a feature of supporting learning in mainstream classrooms for students identified with special educational needs and in receipt of additional resources. At a local level a number of contextual factors would appear to have influenced such decisions. Student voice and self-advocacy have altered the context and manner in which additional support is provided. Many students, though not all, have expressed reluctance to receive support in ways that may mark them apart from their peers, such as withdrawal from class. Teachers are also conscious of other difficulties associated with the withdrawal of students from class, which may result in students being overly confused by a range of teachers and teaching styles and by a timetable that is complicated and

fragmented. Such realities also challenge best efforts at maintaining communication and consistency of approach among the assigned teachers. Another significant change in recent times has been the introduction of special needs assistants (SNAs) into Irish post-primary classrooms. In fulfilling their non-teaching duties SNAs have shown the benefits that can accrue by having another adult present in the classroom and have awakened anew an interest in the potential positive outcomes of having two teachers in the classroom. At a very practical level, some schools have not sufficient space to exclusively meet identified needs through a withdrawal model and are obliged to consider other models of support such as team-teaching.

So what exactly is team-teaching or what might it be in the Irish post-primary context? The next section examines the literature associated with team-teaching and the project undertaken by the seven schools.

Team-Teaching and the Irish context.

A review of literature on the topic of team-teaching, the majority of which emanates from the USA, reveals a positive but qualified evaluation of the impact of team-teaching upon the quality of learning for students and for their teachers. A number of models of team-teaching have emerged and the table below outlines briefly the various types of team-teaching that may be undertaken by teachers. It should be noted that each type listed could be further subdivided and that research observations conducted in this project very often witnessed the deployment of a number of different types of team-teaching within single lessons.

Significant cautions are attached to all of these practices. An over reliance on any one method or an overly strict interpretation of their implementation is not advised nor is the typecasting of a teacher to perform only certain roles with certain students. Explanations of the range of options available to teachers should be neither over-simplified nor over-mystified. Over-simplified explanations may lead to less than optimal use of the arrangement and over-mystified explanations will prevent teachers from even trying. Ultimately, decisions on which practice to engage in are determined by the identified needs of the students and, in particular, for the students to whom the additional resources have been allocated.

Thousand, Nevin and Villa (2007) draw on a range of studies to illustrate how team-teaching can result in increased overall student achievement, improved social skills, fewer disruptive problems, improved attitudes and self-concept with more positive peer relationships. Scruggs, Mastropieri and McDuffie (2007) conducted a substantial analysis examining thirty-two qualitative investigations of co-teaching in inclusive classrooms. They suggest that such students benefit from being exposed to peer models, improved motivation and the reduction in the time spent waiting for assistance. Other listed benefits to students include the opportunity for students to experience and imitate the cooperative skills

6 Types	Activities	Examples from practice
Interactive Teaching (Classic team-teaching)	Both teachers actively and equally share the instruction to all students	Rapid altering of speakers and respondents (eg one teacher writing on board what the other is saying, teachers feed off each others actions and of their students…)
Complimentary Instruction (Supportive)	One teacher assumes instruction for the students while the other teacher provides follow-up instruction. Opportunities for observing student(s) in action can also be used.	Similar to theme teaching in that the strengths of teachers are drawn upon within the same lesson (e.g. theoretical aspect of a subject taught by one teacher other teacher formulates questions).
Station teaching	Where various learning stations are created and the co-teachers provide individual support at the different stations	Teachers may also draw upon students to 'man' such support stations (eg explaining their history project to fellow students)
Parallel Instruction	Class is subdivided and each teacher provides instruction on the same content or skills to a smaller group of students.	Teachers work with half a class on same topic (e.g. scientific or mathematical problem solving where comparisons can be drawn).
Alternative (Split) teaching	Division is based on a particular learning need of the groups.	Division may be based on working with student(s) who need extra help in completing a task or who may require additional learning challenges. One-to-one and small group teaching can occur within class setting
One teach, one assist	One teacher teaches and the other monitors the room checking that students are on task and supporting individuals where required.	At start of lesson one teacher teaches while the other checks homework. Reverse action by teachers at end of lesson where review and notation of homework occurs.

Table 2. The different types of activities/cautions based on the work of Maroney (1995) Villa, Thousand, and Nevin (2008) and Murawski (2009).

shown by the teachers. Peer interaction in the form of cooperative learning and peer tutoring are also flagged in a number of studies (Mastropieri et al., 2005; Pugach & Wesson, 1995).

The personal, professional and pedagogical advantages for teachers are also highlighted by Thousand et al (2007) stating that, "Co-teachers themselves (general and special educator teaching teams) reported experiencing professional growth, personal support, less isolation and an enhanced sense of community within the general education classroom" (p. 421). Teachers also reported that team-teaching arrangements had increased their confidence in handling classroom problems, increased positive attitudes towards the classroom and tolerance towards children with cognitive difficulties.

Other reviews of team-teaching practices were less supportive of this delivery model. Zigmond (2004) studied team-teaching arrangements in inclusive science classrooms in six high schools and found little difference in the amount of time students spent working on task, working in groups or interacting with the teacher. Volonino and Zigmond (2007) concluded that the research base

does not provide sufficient support for the practice of team teaching. Scruggs, Mastropieri and McDuffie (2007) concluded that while teachers typically supported the practice they were in need of significant support from senior management. Their studies suggest that "the dominant model was of 'one teach, one assists', even though this mode is not highly recommended with the special education teachers being often observed to play a subordinate role". In such arrangements the special education teacher's role was usually confined to that of assistant with the dominant general educator recorded as engaging in whole-class instruction with little evidence of differentiated practices. A meta-analysis by Murawski and Swanson (2001) of six studies between 1989 and 1999 indicate that team-teaching had moderate benefits to student outcomes in reading, mathematics and social development, and that more research was required, which should also seek to determine if team-teaching activities were actually implemented as intended or designed.

The fact that team-teaching may not be implemented correctly, and subsequently misjudged and misrepresented, is addressed by Friend, Chamberlain-Hurley & Cook (2006) who indicate that a significant success criteria for team-teaching is for teachers to have parity of esteem where both are seen and treated as equals before, during and after the lesson. They suggest that research which indicates that the promise of team-teaching is not being realised, may reflect less on the merits of team-teaching and more on the integrity of the models under review, the context in which they are undertaken and the underlying change required to implement such practice. In this regard an important distinction between Irish and USA team-teaching pairs is that the latter, with less formerly qualified special educational needs personnel, is more likely to create a scenario where both teachers will be qualified in their subject area with neither being seen as more qualified than the other in the area of special educational needs. This context-sensitive arrangement of greater subject parity was kept to the fore in constructing the team-teaching project.

The project, that significantly informs this article, involved seven self-selected VEC schools who agreed to engage in team-teaching practices with a particular focus upon literacy and numeracy. A cross section of teachers self-selected with only a minority having any formal training in special educational needs. In keeping with Department recommended use of additional teaching hours, approximately twenty teaching pairs were established. Team-teaching was usually conducted during single English and Mathematic class periods a day (15-20% of a teacher's timetable) with particular attention being initially given to advancing students' literacy and numeracy skills. The majority of these lessons focused on first, second and fourth year (transition year) students. It was thought best to avoid exam classes in the introductory phase. The students involved in the project had a wide range of abilities and needs that reflected the categorisation and incidence of need as outlined by the National Council for Special Education. The majority of these needs were met through the team-teaching model. More in depth research was undertaken in two of the seven

schools which included observations of lessons, interviews with and distribution of questionnaires to teachers, students, principals and parents. In each of these schools two sets of teaching teams were engaged in teaching English and Mathematics respectively. The methodology adopted in the research was an interpretative approach where the views of the participants were paramount and the researcher sought to adopt an inquiring role seeking to 'look with' more than 'look for'.

The next section outlines some emerging Irish post-primary findings in relation to teachers' and students' perceptions of team-teaching and how it contributes to student learning. Of significance is the apparent alteration in patterns of time which seems to provide additional space and opportunities for teachers and students to engage with one another.

Team-Teaching and student learning

Teachers identified a range of benefits that accrued for students from team-teaching arrangements. Of immediate value to student learning, as deemed by their teachers, was the enhanced opportunities for dialogue and feedback between teachers and their students. Teachers were also quick to recognise the significant increase in the number of students who would be sitting state examinations at a higher level than previously predicted. Similarly there was a notable improvement recorded in literacy and numeracy scores through pre- and post-testing analysis. Teachers also spoke of students possessing more positive attitudes towards themselves and their learning, with frequent reference to students having greater pride in their work. Student attendance at school increased while, in general, misbehaviour was reduced in most classes and non-existent in the team-teaching classes. English and Mathematics (team-taught subjects) were identified by students as being in their top three favourite subjects for that academic year. Progress in social and emotional development was also indicated with teachers commenting on students being more confident in themselves, helpful to others and generally happier in class than hitherto. The benefits to students identified as exceptionally able and gifted and to students on the fringes, but not in receipt of additional resources, were not lost on teachers who were able to personalise the learning for individuals and small groups of students within the class setting.

Time which so often is cited by teachers as preventing desired action becomes time for such action. The alteration to the 'grammar of schooling' (Tyack & Tobin 1994) that occurs with team-teaching would appear to 'free up' teachers to engage in actions that promote teacher and student learning in an inclusive manner. As one of the teachers asserted

> Time is the big one. Time and flow are the two big things. Time is far better used inside in the team-teaching lesson because there are far fewer interruptions and there are a lot of nitty gritty bits being done for them anyway and on top of that then the flow of the class. Your concentration isn't

> broken by x, y and z, in the classroom. Somebody else is watching that or maybe it's me watching that, depending on whose more in control on the day…..the ball is always in play. (Pairing A, Teacher 1).

In a similar fashion another teacher flagged that:

> If you were teaching that class as a mainstream (on your own) you'd loose an awful lot of the insight. Lisa there now…… even you know Joe you'd loose so much you just wouldn't have the time. You would not have the time. (Pairing B, Teacher 1)[1]

The same teacher later commented that team-teaching reduced her stress levels, not just from a discipline perspective, but it reduced the previously encountered stress/frustration by allowing her 'to get' to students and assist individual student's learning during the course of the lesson. This point was reinforced by the frequency of one-to-one attention received by individual and small groupings of students as observed during this researchers observations of lessons.

Students were also well aware of the progress that they were making in their team-taught class. A first year student commented that:

> It's nicer to stay in the class (than withdrawal) and have the other teacher come in because you know what's going on in the class and you don't miss out. (Student 1)

A classmate of the student was seen to nod in agreement and added that 'if you stay in class you have the craic'. The socio-cultural dimension of learning together was stated in a variety of ways. One student from a second year class identified the collective role of all involved in the class.

> I've learned that my class can work as a team. If you can't do teamwork then you're not a class. It's something you do with your friends, with other students and with your teachers. (Student 2)

The notion of being part of a team and of helping one another was exemplified when during observation of a lesson this researcher saw the student quoted above help others during a particular lesson. While the teachers individually worked with different groups within the class the student spotted that his classmates were waiting 'in traffic' (Jackson, 1990). Unbeknownst to both teachers, and without permission, the student came to the assistance of his classmates and then returned to his seat. Later, when asked, the student said he assisted because he knew the classmates had been absent and needed help. When the teachers were asked one commented that they had seen the student move from his seat but let it go because they guessed the intention behind the action. The teacher did surmise, that if alone in the lesson the response would have been somewhat different and may have been along the lines of "Sit down ...what

1 Pseudonyms are used throughout this article.

are you doing?" adding "You would feel well if he gets up it is out of control." (Pairing B, Teacher 2). A more mutually trusting relationship between teachers and students was often commented upon and this influenced students' engagement, participation and ultimately their achievement.

A parent highlighted the value for her son being involved in team-teaching rather than being withdrawn from class. It was noted by the parents that their son "was publicly asked a question in front of their buddies for the first time in a long while" which was facilitated more easily by one of the teachers circling the class and knowing that their son would know the answer when asked. Significantly the parents added that the team-teaching lessons were very effective for their son in that they allowed him to help others as well as be helped by others.

The ease associated with accessing assistance from teachers was also commented upon by students who stated that it was of significance that they could receive assistance in public by putting their hand up, or in private by signalling silently the need for assistance without drawing attention to themselves, or interrupting the rhythm of the lesson.

> My favourite thing is knowing, knowing that when you are stuck that there is one of the teachers there to help you….you get help faster and the class isn't stopped. (Student 3)

Indeed as one student expressed, its not just being able to access assistance that is important but 'its nice to know the help is available even if you don't use it'. The safe learning environment was appreciated by students who commented that team-teaching had many advantages including the fact that 'there was no messing', though some students found this very fact to be the biggest drawback ie 'we're not allowed mess'.

Motivation to learn both in school and through homework was also identified by students who valued the quality and frequency of formative assessment which was informative and part of the daily routine. Most team-teaching lessons observed began with one teacher leading the lesson and the other checking homework by moving through the class. Commentary, observations, corrections and conversations were the norm. As a result students later declared that they always had their team-teaching homework complete as it was always corrected – "even if one teacher was out"! Such continuity and stability was a common response regarding the benefits of team-teaching. For some the familiarity of knowing may have been a reassurance of stability in their school day, while others expressed a similar view in terms of their work. "I like my work being corrected in front of me" (Student 8). Indicating the pressures of high stake national assessment another student commented

> Continuity of the class is great, I'd recommend it for exam years as there is no way that you couldn't but finish the course……None of my work goes to waste as I know it will be looked at and commented upon by a teacher. (Student 4)

Time for sharing and listening to a range of views was also raised by more senior students who valued their opinions being listened to in class.

> Two different opinions from the teachers means that if you don't agree with one there is always the other teacher's opinion. (Student 5).....It's good to have two opinions as different opinions from the teachers gives you more of a basis from which to learn. (Student 6)

The most significant drawback stated, apart from not being able to mess and always having to have your homework done, was that having two teachers was sometimes confusing. However, it was agreed by most students that confusion could also lead to learning and that it was important to ask questions when confused, a task that seems easier to achieve in team-taught arrangements. Another minor complaint was the level of noise in some team-teaching classes which one or two students found off putting.

As for students' views on teachers' experiences of team-teaching, the apprenticeship of observation (Lortie, 1975) would appear to be alive and well in classrooms. When asked if they thought that their teachers enjoyed team-teaching and whether as teachers they would like to team-teach students commented;.

> If I was to teach I'd like to team-teach but it would depend on whom I would be team-teaching with….the chemistry….it's a waste of time if the personalities aren't the same because one will lose out and it's back to normal teaching (Student 4)
>
> My team-teachers like team-teaching and the more it goes on the more they enjoy it. I think part of the reason that they enjoy it is because they learn from each other. (Student 5)

So what exactly has team-teaching to offer teacher learning? The next section will look at teachers' responses to this question and will also draw upon the perceptive observation of the above-quoted student regarding 'chemistry', which the literature describes as 'compatibility'.

Team-Teaching and teacher learning

Fullan (2007) observes that in our efforts to improve schools, "We still have not cracked the code of getting beyond the classroom door on a large scale" adding a little later that "The interface between individual and collective meaning and action in everyday situations is where change stands or falls" (p. 9). The alignment of inclusive learning with good teaching for all students has been well flagged for more than twenty years (Hegarty, 1987), while Little (1990) has shown how powerful collaborative cultures can be, in promoting student and teacher learning. As for why such knowledge has not influenced action on a large scale, Fullan outlines some negating factors stressing, 'that when it comes right down to it many teachers silently play the privatisation card, that is they

find privatisation a lot less risky than opening the doors of the classroom, even or especially to colleagues' (p. 149).

However, it would equally be important to remember that privatisation may be for very good contextual reasons. Teachers may seek to protect their students, and their valued time with them, from new ideas and actions that may inadvertently be detrimental to the quality of learning and teaching in their classrooms, classrooms that have to already take account of a range of factors which are sometimes viewed as competing with one another. For example, any new action in a post-primary setting would be obliged to take cognisance of the importance of high stake examinations and must be seen to support students and teachers in meeting the demands as stipulated by such examinations and subsequently by society in general.

Other contextual factors associated with Irish post-primary classrooms may also need to be taken on board. Elmore's (2004) view that 'improvement is more a function of learning to do the right things in the settings where you work' (p. 73), sits well with the practice of teachers engaging with one another and with students on a daily basis. However exhortations by Elmore and others to engage in teacher observation and other associated practices such as peer coaching or assisted performance activities (Darling-Hammond & Richardson, 2009) do not always nestle nicely into the Irish post-primary educational landscape. As Barth's (2004) honest words indicate, observation is very worthwhile but isn't easy.

> Making our practice mutually visible will never be easy, because we will never be fully confident that we know what we are supposed to be doing and that we are doing it well. And we are never quite sure just how students are going to behave. None of us wants to risk being exposed as incompetent. Yet there is no more powerful way of learning and improving on the job than by observing others and having others observe you. (p. 4)

In addition to Barth's thoughts, there may be other reasons why such beneficial but risky activities have not taken root in Ireland. Observation by colleagues may be deemed contrived and/or too teacher-focused being more associated with teacher accountability than learning. Furthermore such actions do not always appear to meet the immediate needs of either students or teachers in the classrooms visited. On the other hand team-teaching, with a focus on student learning, offers opportunities for teachers to engage in a range of joint activities, including joint in-class activities, in a manner that is in keeping with Department circulars (2003) and guidelines (2007), and in a manner which may be deemed more natural, helpful, meaningful, regular and less threatening than the above mentioned observation practices.

The project tracked some of the learning that came with the move from daily "pedagogical solitude" (Shulman, 1993) i.e. solo teacher, to a part engagement on a daily basis with "pedagogical duet" i.e. team-teaching. An early theme was

the affordances to reflect on their own practice as a teacher and that of their colleagues

Time for reflection

For one teacher reflection occurred while simultaneously teaching.

> Because it's the personal faults that Elaine holds **a mirror up to me,** like when I look at her at the board when I am doing corrections I keep one ear cocked and I hear her speaking about the mean, the symbol or mean is x bar, where I would shoot it out like a machine. (Pairing B, Teacher 2)

Reflection also occurred when teachers stepped out of team-taught lessons and into their more conventional solo-taught classes.

> Now I don't know how much of that is down to team teaching being in the school, but I find that **it's almost like that extra pair of eyes inside your head** going, no, you need to go after that one now or you need to let that one go, that is just somebody acting the twit or whatever. But that kind of thing, assessing what you are doing as you are doing it, is reinforced by having another person there but it is something you take with you when you go into the next class**.** (Pairing D, Teacher 1)

The impact of team-teaching activities upon solo-taught lessons is also captured by another teacher who observed;

> Or you'd be able to say, say if something wasn't working out for you, you'd try and remember, now how does Éamonn get that across to the others and because it's not working this way for me, oh yes I know how he, you know, you can recall things that you've seen somebody doing differently that you're trying to do and it worked. Now I know it's a different group, every class is different, but at least you're learning how it is different. It gives you alternatives and options. (Pairing A, Teacher 2)

Time for transfer of learning and its use

Proximity to each other as teachers in action also brought the advantage of sustained immediacy associated with the use of new or forgotten practices as you went to subsequent classes. In commenting on the transfer of learning to other classes, one teacher explained how he was now 'running with' group work and paired work on their own, and while informed of such practices in the past, it was only having regularly witnessed and engaged with a teacher who used such practices was the learning now being employed.

> So you become a little bit more refreshed and a bit more adventurous and a bit more confident as a teacher. …. You're going to see the positives and negatives; you're going to tailor the methodology to eventually get maximum benefit from it and once that's happening and you can see it working and you're learning from your fellow professional, well you say if it works there with them then why can't it work with these people (solo-taught class) so let's

> bring it in here as well. So the experiencing of situations that you ordinarily might avoid lends itself to practising new methods in the classroom on your own because you saw it working there. You tried it once, you saw how it might be improved, and you tried it a second time you owned it and said yes this is how to do it. (Pairing A, Teacher 1)

Learning about matters relating to classroom management were usually associated with matters of discipline. While discipline itself was no longer a major issue, the value of observing another teacher's style of engagement was not lost on many of the teachers. One relatively experienced teacher spoke of understanding what forms of classroom management were required in all classes.

> I think my management of students has improved. I think that strategies and methods that I use have improved. I understand now at this stage at what point I can let the students go…No, I genuinely think that my approach, my outlook on students is a little bit more… even the ones I don't know, I understand now that it's just a question of me not having the time to get to know them, so I just kind of treat them as if I do know them. I treat them with that little bit of warmth in the small contact that I do have with them and because I never get the opportunity to interact with them in the way that I am getting a chance to interact with these students *(through team-teaching*). So if I can't actually do it with them *(students in non team-teaching classes)* why not give them the benefit of the doubt. (Pairing D, Teacher 1)

Compatibility and learning

Teachers raised the issue of compatibility with their teaching partner at the very beginning of the initiative and it featured regularly throughout the course of the research. The initial fears around teacher compatibility/incompatibility were expressed in a variety of ways; 'one teacher would dominate'; 'a personality clash will occur between teachers'; 'approaches to discipline may differ as may teaching styles'; 'one teacher may slack off'; 'a teacher may feel excluded'. Initial struggles and pressures in team-teaching centred around issues of parity. In the course of the project one pairing dissolved over issues of lack of parity with one teacher feeling undermined by the other teacher. For some pairings any discomfort associated with the new arrangements quickly evaporated while for a minority the struggle was sometimes significant where collaboration also caused collisions, though here also it was reported that such tensions faded at an early stage in the partnership. Such conflict, while difficult at times, was also seen as healthy and developmental. Honest talk among teachers brought with it some tension but also considerable learning about teaching, learning, collaboration and ultimately about teachers themselves. Looking back over the course of the initial team-teaching year one teacher commented.

> Yeah, I would be inclined to think the fear factor for people initiating themselves into team-teaching, they'd prefer a colleague that they are familiar

> with and that they get on with. But I would be inclined to guess that after a year of team-teaching people would be much more open minded ……..We're all professionals and if you sign up for this business of team-teaching and you agree it with management that you are putting yourself forward -well I don't think you can't be overly choosy about who your partner is going to be. (Pairing A, Teacher 1)

For others initial fears of teacher differences gave way to celebrating the fact that they were partnered with a teacher whose differences facilitated professional learning.

> The contrast is a big part of the success; I can't emphasize that enough because we have different teaching styles. Definitely the paired work and the position on homework definitely I would have changed almost across the board. I'd have more people working in paired work. Now that said the paired work is more difficult and less successful on your own and you do feel that. (Pairing C, Teacher 1)

> I have just learnt a lot from his teaching style, he would do a lot of chalk and talk, and I would do more group work, because of my background in TEFL, group work, class discussions, and all the rest. But I find it very interesting the way he can talk and talk for a specific period of time but yet hold the kid's attention which I kind of, I don't know, before I suppose I had this idea that chalk and talk was a teaching method that was used in the past and we had progressed from this but now I see that there is a place for it. It actually can be very effective too. So I suppose I learnt a lot from him. And there's lots of good modelling maybe going on subliminally. (Pairing C, Teacher 2)

As the year progressed and confidence grew, it was generally agreed by participating teachers that team-teaching wrested on teachers focusing on the benefits to the students, on teachers having similar values rather than styles and upon teachers being adaptable to what team-teaching was or might be. However, it would be unwise to underestimate the personal, professional and pedagogical efforts required to make team-teaching a success. Words of caution and advice from participants will be outlined in the final section of this article as well as some emerging possibilities, particularly in relation to planning and reviewing lessons.

Time for learning: Some possibilities and some practicalities

The emerging findings from the team-teaching project suggest that team-teaching has a part to play in extending and enhancing the repertoire of supports for learning available to both students and teachers. While not a teaching strategy, team-teaching can facilitate a range of teaching strategies, interventions and learning opportunities for students which simultaneously promote professional engagement, experimentation and adaptation in real time in real classrooms. The practical issues and possibilities that follow have emerged from looking with and listening to participants involved in the project. Once

more local contexts trump all and the views below are general and should not be seen as prescriptive and should be read safe in the knowledge that team-teaching may not suit all teachers nor all students all of the time.

The ultimate yardstick for team-teaching will be student progress. As one teacher pointed out, a student no longer withdrawn from class may yet remain withdrawn within class. Student progress may emerge in the form of quantitative data such as, state examinations and levels taken, summative in-house examinations standardised testing and retesting, homework, attendance, discipline referrals etc. Progress and development in social and emotional domains which are interlinked with more academic gains can also be tracked and shared and celebrated. Team-teaching affords opportunities to enhance and to measure other valuable learning outcomes such as the quality of student participation, cooperation, engagement, teamwork, perseverance, self-esteem, sense of belonging and other gains that all involved in education cherish. Team-teaching provides time and space for more innovative and dynamic forms of assessment such as the use of observation schedules when reviewing individual student progress. Some of the schools are now conducting pre- and post- testing of social and emotional aspects of student development (OECD, 2000) in a manner similar to standardised testing of literacy and numeracy. Targets as set out in individual educational plans (IEPs) and other similar plans can also be monitored and reviewed in real time. Team-teaching ultimately assists with measuring what is valuable to students and teachers rather than simply valuing what is measurable.

As the literature and those voices documented from the project have stressed, a key factor to ensure the success of team-teaching is that there is parity between both teachers. There would be little value and worse a lot of wasted time, energy and money, as well as possible hurt incurred, if both teachers' respective time in the classroom is not maximised equally. How pairings are formed would appear best achieved initially on a voluntary basis until such time as teachers are comfortable and confident enough to teach with any teacher. For new pairings setting a review date may also be of assistance, though constant communication and daily review appears to be the norm. Pairing teachers initially with the same subject background would appear to be advisable, though there are no hard and fast rules on this matter. Pairings, once arranged, should be timetabled to work consistently with one another across the school week, and fragmented approaches are best avoided as they are seen as unhelpful for teachers, especially those engaging in the practice for the first time. Therefore pairings will have to be timetabled at the time of construction of the master timetable, not after.

Metaphors used to describe team-teaching include it being described as a marriage or as a dance. Either way it takes getting used to, requires commitment, patience and other attributes associated with marriage and dancing! For a humorous but insightful take on these and other issues see Murawski (2009). Egos need to be parked in team-teaching and powerful

symbolic gestures like both teachers names on students' timetable and both teachers attendance at parent teacher meetings also help. Support from senior management is important, as played out in pairings being formed and timetabled. Temptations to use one of the pairings to cover an absent colleague in another class should be resisted. Senior management can also facilitate teaching pairs sharing their experiences with colleagues at staff meetings. It would be important to ensure that team-teaching doesn't become the preserve of only a few and ironically become in itself exclusive. Addressing colleagues, while daunting for some teachers, can also be very effective in indicating progress made by individual students or groups of students.

While time was seen to be expanded within class and is essential for the promotion of inclusive practices, time outside of class, or rather the lack of it outside of class, was a significant issue for many teachers. The one documented fear that was realised for many, but not for all, was the lack of time to plan and to review team-taught lessons with their colleagues. Planning time and review time were often scarce commodities. Rushed moments before lessons were observed by this researcher and recounted by participants. Post-primary school structures put upon teachers the need to rush to another class and are not always conducive to joint activities resulting in pre- and post-lesson activity often occurring on the way to and from lessons. The alteration to the pedagogical rhythm within class where time is expanded, has caused some pairings to examine how they might introduce planning and reviewing within their lessons, as opposed to relying exclusively on out of class time. A shift towards using some class time as time for teachers to plan and review was beginning to emerge from the project, and in particular the view that students could be involved in such planning and reviewing. While it is too early to comment, such practice offers much potential though not without some dangers if overdone. Used appropriately, planning within the lesson may sit well with the work of Roth and Tobin (2006) who use co-generative dialogue to motivate and sustain student involvement in their learning by giving them a greater voice in planning and reviewing lesson activities.

Other practicalities in relation to team-teaching that need to be addressed include providing teachers with ongoing opportunities to learn and to motivate and sustain teacher involvement in team-teaching. It would be important that teachers continue to be allowed to make optimal use of the learning opportunities for themselves. As well as filtering all actions through the impact it has upon students, schools in the project have begun to examine how best to extend and improve their team-teaching practices (Table 2) and how best to share and involve other colleagues. As well as presenting at staff meetings, a minority of schools in the project have expressed interest in using Japanese Lesson Study (Kelly & Sloane, 2003) and student work samples (Blythe, Allen & Schieffelin Powell, 2008) as opportunities for further learning within the structures of team-teaching. Other developments in the area of special education, such as Response to Intervention (RTI) also offer possibilities.

In conclusion it is hoped that some of the magic, and also the reality, that is team-teaching has been captured in these pages and that this article contributes to future discussions. Significantly team-teaching allows opportunities for individual student needs to be met in the collective settings of the classroom and that in itself is no mean achievement, especially when such a set up allows the students to be both provider and receiver and the teachers to be both teacher and learner. While school structures may make team-teaching challenging at times, these challenges are not insurmountable. A particular strength in the Irish context is the professional culture of our schools where parity of esteem and parity of subject knowledge give teachers an added advantage over their counterparts in other jurisdictions.

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Asperger's Syndrome: Transitions from primary to secondary school

Tomás Mac An Bhreithiún

Introduction.

Transition between primary and secondary schools is an important step for all students. This article will look at some cognitive differences of young students with Asperger's syndrome (A.S.) with a view to integrating these cognitive areas in their transition plans from primary to secondary school level. The second part of the article will also look at students with A.S. and some specific areas that may need to be addressed during transition. These include memory functioning, sensory processing, anxiety, language and social comprehension, social communication and challenging behaviour. The role of the A.S. aware teacher and classroom assistants and classroom adaptation will also be looked at. Finally, a difficulties and strategies matrix for successful transition will also be outlined.

Biological roots-What's special about Asperger's Syndrome ?

It is recognised that there are neurological connectivity differences in the brain of students with A.S. Between two and five years it is noticed that the head size is much larger than the norm and reaches adult brain size between these ages instead of at twelve years of age, which occurs for most of the rest of the population. We know that there is high connectivity in students with Autistic Spectrum Disorder (ASD) or A.S. in the different regions of the brain, but that there is also low connectivity *between* regions of the brain so that it may be difficult to bring information in from other regions of the brain. Thus, students may often become bogged down by detail (Jordan, 2008). This may be seen in the atypical amygdala functioning in relation to processing emotional information in this area of the brain. The amygdale, which has a role in emotional atonement and awareness in the brain, encounters difficulties in its connectivity with other cognitive brain areas so emotional awareness, emotional understanding and interpretation may become impaired (Jordan, 2008). According to Damasio, the amygdala connectivity to these cognitive areas of the brain may take a long time to develop and may not develop in certain cases, (Damasio,1999). There is also the complication of mirror neuron firing difficulties. Mirror neurons are those that fire when you do an action and also fire when you see someone else doing that action. When we see for example the typical Irish handwave for goodbye and then see the typical Italian handwave for goodbye we see them as being different in gesture but we understand the

commonality of the intention of the two different gestures as the same neurons firing in the brain. Students with A.S. have difficulty with the 'motor intuition' of these gestures and their underlying meaning (Jordan, 2008).

Memory Functioning

There are also differences with memory functioning. Flashbulb memory and autobiographical memory are good. Students with A.S. are good at talking about facts or about themselves. However, their personal episodic memory is poor. As memories are laid down and constructed, we may alter our memories as new information is recalled or processed in our cognition. Our memories become more schematic therefore (Mac An Bhreithiún, 2004). Many students with A.S. are visual learners and so using visual cues may be a useful strategy to support or scaffold their memory structures, at both primary and secondary levels. Visual timetables, technical plans of objects, visual concept or mind maps may all be of support for both learning and as aids for recall in examinations. Mono-attention or single track attention add to difficulties with noticing sameness and may also present students with A.S. with difficulties in recall situations. Making differences minimal is one way of reducing this difficulty (Jackson, 2009). Students with ASD/A.S. are like scientists trying to figure out the world for themselves. Giving the students a conceptualisation of the world where intention and social comprehension are embedded in a social matrix of meaning can only support and develop their social and emotional understanding of human behaviour.

Sensory Processing

Sensory processing of perceptual information is often very difficult for students with A.S. to integrate into their sensory systems. (Holzhauser -Peters, & Leslie, 2008). The brain develops as we are learning through social interaction, however for students with A.S. there may often be no socially meaningful patterns. Students with A.S. may need to be socially tutored to find out what is relevant. If not, how can they select? One perspective considers integrating sensory information to be overwhelming at the perceptual level. Cognitive psychologists consider that the difficulty is in the chunking of the information together, e.g. in a classroom full of people who are talking loudly all the details are noticed by the student with A.S. The student needs time to process all of the details and also needs strategies to 'chunk together' these details. There are times when all the sensory systems are impacted at once, causing sensory overload. Processing of all this sensory information becomes impossible and so the system may shut down causing staring to occur (Holzhauser-Peters, & Leslie, 2008). One strategy is to reduce the sensory overload, building up the meaning by chunking the environment. There is awareness in the United States for the sensory processing disorder to be recognised as part of the ASD/Asperger's diagnosis .

Communication and Language

In relation to Communication and Language, students with A.S. may have additional language difficulties. Previously there were a lot of undiagnosed females falling through the assessment net as female students are usually better at social skills. The previously more male focussed diagnosis is now been widened to allow a broader diagnostic focus. Grammar and phonology are fine but the pragmatic/semantic aspects of language are more difficult. Therefore, language needs to be taught in a functional context that makes sense. (Noens and Berckalaer-Omnes, 2004). Communication is the key which opens language for students with A.S. as it may be hard for them to develop language. Therefore, language needs to be contextualised and associated with meaning /action. Structural flow diagrams for the communication of behavioural control exemplify the use of visual strengths to support emotional communication. Social and cultural meaning – what lies beneath – is often opaque. Since we cannot judge individuals with A.S. in terms of their behaviour, we may need to look at the social context of the behaviour. The saliency of social signals for Asperger's students needs to be teased out more for transition to be more successful (Cryer, 2003).

Anxiety

Anxiety reduction is another area that may require specific attention in relation to successful transition. Untreated anxiety interacts with and may exacerbate symptoms for students with A.S. Treating Asperger's symptomology first may be too long-term to be effective in anxiety reduction (Jordan 2008). Evidence-based anxiety treatments within the frame of ASD/A.S. should be used, coupled with short and long-term goals in relation to working on anxiety and ASD/A.S. Cognitive Behavioural Therapy (CBT) in schools as part of the school counsellor's/care team brief could be a powerful tool for treating anxiety symptoms (Bourne, 1995). Stopping the anxiety first is an effective way to arresting the subsequent depression in teenagers/adults (Bourne, E.J. 1995). Engaging the school psychologist by facilitating the setting up of 'anxiety groups' with clear exercises and breathing techniques that can be tailored to the student's own needs, is another useful technique that may reduce and relieve anxiety (Wells, 1997). Other techniques such as sensory relaxation, meditation, yoga, and specific relaxation exercises such as using OSTAR, a series of exercises aimed at reducing tension and anxiety, are also highly effective. Talking with others using drawing and music may also support prevention and resilience. Collating information by mapping the student's specific A.S. profile and the implications for teaching, is also useful. Planning an individual education programme (IEP), by focusing on the student's communication, social and behavioural/adaptive functioning needs, along with access to the curriculum classroom is also practical and extremely effective during the transition period. Usual strategies for calming a student may not work. The student may need time alone rather than being comforted by another person. The idea of an

Emotional Toolbox has proven to be a successful strategy for cognitive restructuring in the treatment of anxiety and anger in students with Asperger's syndrome (Sofronoff et al. 2005). The concept is to identify different types of 'tools' to fix the problems associated with negative emotions such as anger, anxiety and sadness. The therapist works with the student to identify different tools that help 'fix' the feeling, as well as some tools that can make emotions or consequences worse. The differentiation between the two is essential here. Constructive emotional repair is the aim of this therapy. (Attwood, T. 2007).

Language and Social Comprehension

In all instances, the student with A.S. experiences subtle difficulties with the understanding and use of language. Many may not have developed the necessary skills to initiate communication; they must be taught if the student is to be able to express his/her needs and to interact effectively. Superficially their language appears to be well developed and this can lead people to over-estimate their understanding of language. Attending to instructions or explanations the student may not be 'tuning-in' to the relevant aspects of the 'message' or may be distracted because of the tendency to focus on non-essential details. In dealing with abstract ideas or concepts, students with A.S. find ideas and concepts difficult to understand because of their concrete and literal understanding of language. Idioms and metaphors are likely to be interpreted literally. '*She hit the roof*', *'Get your skates on'*. They will not appreciate sarcasm or even humour in many instances. Cutting down on the amount of language used, especially when giving instructions, is important. Thinking about our use of language and how the student will interpret it is a step in the right direction. The student may think literally and in concrete terms and may have a slower speed of processing language so give the student enough time to process information rather than expecting an immediate response. It is important to note that a student's level of comprehension may be at a lower level developmentally than that suggested by their expressive language skills (Mc Clure, 2009).

From the social understanding perspective even if they understand the words they may not grasp the speaker's underlying meaning. Respecting others' viewpoints can be problematic as can progressing a conversation from a single aspect, recognising and repairing communication breakdown and recognising the listener's non-verbal messages. The casual and particularly temporal aspect of the communication can be particularly difficult. They slip from past to present tense during speaking or writing activities very easily. Also apparent inattention when spoken to in a group may be seen. They often have difficulty understanding what has been said; may try to analyse what has been said; may be 'buying time' to formulate an answer; may not be aware that they are part of the group being addressed. The dwelling on obsessional interests is common also. Student with an ASD/A.S. often introduce a favourite topic into virtually every conversation. They often have an inability to ask for help successfully and

may react inappropriately to a situation that is causing a problem. Their literal interpretations of everyday idioms can cause difficulty and may need explicit instructions. Facial expression and tone of voice, insensitivity to social rules and humour are also complex for them to interpret.

Teachers could use simple language that is concise and clearly understood, provide visual support where practical, talking to the student directly, praising all attempts to communicate, speaking slowly to give time for understanding and response (Lawrence, 2008).To explain alternative perspectives or to correct erroneous assumptions, Comic Strip Conversations can support the student to access the thoughts, beliefs, knowledge and intentions of others in a particular social situation (Gray, 1998). Other strategies include using familiar words, teaching students to ask when confused and teaching new words in a variety of contexts. Encourage the student to listen and accept the student's best verbal efforts. Cut down on the amount of language you use when giving instructions. Avoid idioms. Tell the student what should be done rather than what should not be done. Creating a home-school communication book for the student who is reluctant to speak or who does not use speech, is a way of supporting more non-verbal students. Simple drawings to encourage conversation can provide clear visual cues for the understanding of intention for students. By providing opportunities for the student to practice his/her language skills we afford opportunities for the broadening of social meaning in a context. Teach social skills as they do not come naturally (Lawrence, 2008). Getting to know the student as an individual will help to understand his/her A.S. profile and enhance our knowledge of assessing how they interpret the world and how they learn through their interpretation of the world. Using their strengths to teach new skills is a basic starting point.

Social communciation

Social interaction with understanding is an innate ability for most students, however this does not come naturally to those diagnosed as having A.S. Mindblindness or the inability to guess other people's emotional states (theory of mind) can often impact on social communication impairment. (Ives & Munro, 2002). Social understanding must be taught specifically. Difficulties with social interaction will be most obvious in less structured situations such as break and lunchtime, in the corridor and transition between lessons. Whole class lessons, when students with A.S. may interrupt or shout out inappropriately and repeatedly, may sometimes occur. Students with A.S., when speaking to teachers and peers, may do so in the same manner as they often have no recognition of social status. Commenting inappropriately on someone's appearance or actions, adhering to set rules in a rigid way, interpreting language in a literal manner may mean that initiating and maintaining friendships could prove difficult. So also the combining and integrating of new ideas may all be problematic areas for the student with A.S. It is important that the teacher understands the perception of the student with an ASD/A.S. We should not expect the student's

understanding to match their level of academic ability. Helping the student to explore what happened from their perspective can help them understand the effect it had on others and how they could change their reaction in future. This does not happen immediately. It requires much practice, as their generalisation skills are limited. Concepts often have to be relearned in varying social situations. Therefore, giving the student an opportunity to explain a situation from his/her point of view is appropriate. Sharing viewpoints using visual information such as comic strip conversations, visual flowcharts, stick figure representations are all effective methodologies that connect with the Asperger's student. (Lawrence, 2008).Routine and structure may often need to be reemphasized. Targets set should be realistic, attainable and short term.

Teacher strategies and SNAs

A good understanding of the student's social interaction problems by knowing the areas which may upset them is fundamental to being proactive with supporting their behaviour. Establishing a relationship with the student based on consistency and routine, careful planning, using real social situations to encourage the student to work with a peer partner, also help. Working in both small groups and in whole class situations and helping the student to communicate with others by exaggerating social gestures and expressions can also support here. (Lawrence, 2008). Staying near the student when activities are new or likely to cause confusion and planning personal social lessons to emphasise social rules, may facilitate learning. The teacher who wishes to be pro-active in A.S. should involve parents and seek to ensure that all staff share information and are supportive of the student. They also will need to evaluate the outcomes of their work in the classroom through IEPs (Individual Education Plan) and IBP's (Individual Behaviour Plan), and in addition keep all staff informed of the strategies they are using, so as to encourage consistency in the implementation of strategies. Establishing regular communication between home and school is of paramount importance. (Lawrence, 2008).

The classroom assistant should be fully informed of the classroom planning.

Special needs assistants could work with the teacher to facilitate visual strategies to develop independence. Students with ASD/A.S. learn visually, verbal instructions may not be enough to ensure learning. A special needs assistant should avoid being 'velcroed' to the student and so create opportunities for independence and social interaction. It may also help the student's self esteem if his/her assistant is seen working with other students, this is particularly true at second level. Using schedules, timetables or calendars that help to show when something will happen and also using accessible pictorial or written rules to remind a student what they should do, may be ways of facilitating the student by reducing anxiety levels. The special needs assistant could help by providing a checklist using objects of reference, photographs or a written list to assist the student to follow directions independently. Assisting the student to

communicate, as in difficult situations the student needs to be able to ask for help, to take a break, to express emotions such as fear or anger is supportive. By assisting with social skills, which will help the student initiate, sustain or escape anxious social situations, such as going to a quiet place, completing a calming activity or using relaxation techniques and by facilitating specific play and leisure skills which might occupy his/her interest can assist, facilitate and support the individual student (Lawrence, C. 2008).

Challenging Behaviour

The Report of the Task Force on Autism (2001) recommended that : 'no student should be discriminated against by being suspended or expelled from their educational programme due to behaviours resulting from the severity of their disability'. The report also recommended that a visiting teacher service with teachers with a high level of specialised ASD training be put in place for persons with ASD (The Report of the Task Force on Autism 2001). Students with A.S. and a diagnosed learning difficulty are often misunderstood as having purely challenging behaviour. However, it is much more likely that they have underlying difficulties linked to the fact that they have a diagnosis of A.S. Their rigidity in thinking, language, and actions may often make them seem arrogant, controlling and perfectionistic. In their mind there is only one way of doing things and that is usually *their* way due to the cognitive inflexibility in their thinking (Holzhauser-Peters, & Leslie,2008). Areas of difficulty are transitions between activities and locations, change of routine, sharing, waiting, sensory difficulties, turn taking, unstructured time (free play, assembly, breaks) and group work. Many students with A.S. do not exhibit any behavioural problems of significance in the classroom. A student with Asperger's will have fewer skills to cope with difficult situations and may have learned a number of unusual behaviours to deal with them (Clements, J. & Zarkowska, E. (eds) 2000). The student is not the problem. The challenge is to understand what might give rise to problem behaviours and respond appropriately. The student may be oversensitive to certain stimuli or may experience anxiety, fears, eating and sleeping problems and may engage in rituals and obsessions or exhibit aggressive behaviour to themselves or others.

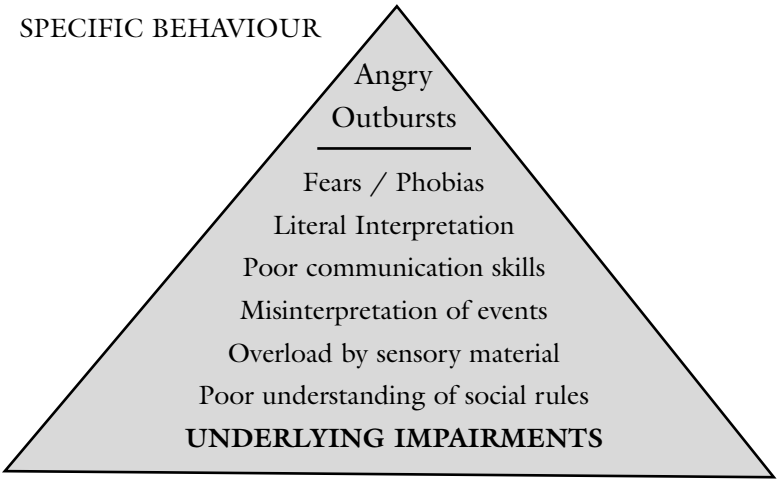
Where appropriate intervention is established, there is likely to be a reduction in inappropriate behaviour. In the classroom the student with A.S. may react to difficult situations in a number of ways. It is important to view behaviours through the ASD/A.S. lens as behaviour alone is misleading when trying to understand A.S. (Clements & Zarkowska, 2000).

A starting point is to probe the underlying difficulties that might cause the problem, to observe in what situations, or time, does this behaviour occur and how often does it occur? It is important to ascertain what the behaviour means from the student's perspective and how does the student's behaviour differ from that of his peers? What might be confusing to the student about this situation?

What new skill could the student learn to better handle the situation? The overall aim is to identify the problem behaviour and the possible communication intent underpinning it.

Observing the student and identifying an alternative and more appropriate behaviour is often a good starting point. Providing interesting activities to engage the student, changing distracting stimuli and providing a place for the student to take a break or engage in 'time out' activities under supervision of a special needs assistant is a good strategy when they are overwhelmed by sensory information and need a place to 'clear' their sensory systems (Lawrence, C. 2008). Non-verbal cues such as an agreed gesture could be given to the teacher when sensory overload occurs and a break is needed. This communicates the need while at the same time does not draw attention to the student with A.S.

Iceberg Analysis



Offering choices and planning predictable routines are also ways of providing structure to the student with A.S. This can be achieved easily by planning a crisis strategy when things get out of hand and also for the teacher to know the triggers which can upset the student. Helping the student to manage his/her behaviour by using social stories may facilitate the shaping of behaviour toward more appropriate outcomes. Offering a 'time out' space in another room may also help defuse challenging behaviours (Lawrence, 2008). In more serious instances of challenging behaviour, using the support of other professionals by formulating a behaviour support plan based on a formal functional assessment may sometimes be necessary. Develop behavioural targets which shape the student's behaviour towards more appropriate behaviour. Challenging behaviours may usually be caused by anxiety that occurs as a result of an underlying difficulty related to the triad of impairment.

Difficulties and Strategies Matrix for Successful Asperger's Transition from Primary to Secondary Level.

BEHAVIOURAL STRATEGIES

Difficulty: Running away and not coming back when called.

Strategy: Use a social story to explain the social rules, providing a 'safe haven' where the student can go if they are not able to manage.

Difficulty: Inability to get started on work or appearing to be absorbed in their own world.

Strategy: Divide the task into achievable parts and list on a white board. The student can then cross off each step as they complete it. Reward finished work with a special interest activity, avoid open-ended questions and be directive.

Difficulty: Calling out and making inappropriate noises and remarks.

Strategy: Social story explaining behaviour expectations in class.

SENSORY STRATEGIES

Difficulty: Transition between one lesson and another due to the crowded and noisy corridors.

Strategy: For the first few weeks of term make the transition a few minutes before the end of the lesson to avoid the busiest times. Provide a 'help' card that can be handed to a member of staff should difficulties arise at this time.

Difficulty: Leaving lessons without permission, some students reach sensory overload due to classroom noise, fear of failure, lack of understanding of work etc.

Strategy: Provide a 'time out' card with clear rules regarding its use to enable the student to leave the lesson for a short time to reduce their anxiety levels.

Difficulty: Managing to wait in the playground before the school begins.

Strategy: Provide a designated area where the student can wait until school begins. This time could be used to check the timetable, note any changes and organise equipment.

Difficulty: Refusing to go into certain rooms such as Science lab, art room, or Design Technology room.

Strategy: Be aware that this may be due to smells, such as chemicals, paint or cooking, in these rooms. Consider seating the student near a door or window.

ORGANISATIONAL STRATEGIES

Difficulty: Having the appropriate equipment for each lesson.

Strategy: Itemised list of equipment for different subjects, keeping two sets of stationary-one at home, one for school. Colour coding books for each subject. Storing materials and books for different subjects in transparent zip folders. Some students may need a designated area in their form room or student support room to store their belongings rather than a locker to begin with.

Difficulty: Coordinating the thinking of content, spelling and handwriting simultaneously.

Strategy: Use adult support to scribe the students' thoughts for them to copy. Use a laptop or computer if available.

ENABLING EMOTIONAL AND SOCIAL ENGAGEMENT.

Adapted early engagement.-structured-exaggeration/music.

'Peer Support'- integrated play opportunities-structures- 'buddy' schemes and 'circle of friends'. 'Friendship bench' in the yard.

Making people more salient/understandable-reduce other stimulation and sue social stories, Comic book conversations visual flowcharts for emotional meaning.

HOMEWORK STRATEGIES

Difficulty: Difficulty starting and completing homework.

Strategy: A social story to explain what homework needs to be done. More detailed instructions may be necessary, especially when it is an open-ended task. To establish the homework routine, consider reducing the amount of work expected in the first few weeks.

Difficulty: Not getting information into the homework diary.

Strategy: When possible, write up homework on the whiteboard at the beginning of the lesson rather then at the end. Peer to check that the homework is entered correctly, including where, when and to whom it should be given when finished. Some schools enter homework details on their website.

Difficulty: Not completing homework correctly.

Strategy: Be aware of difficulties with literal interpretation. Some students when asked to 'find out about' a topic will not naturally assume that they have to record the information. An instruction in the homework diary such as 'copy out the questions' may also be taken literally.

Difficulty: Organising their own time, e.g., spending too long on homework in order to get it finished. Unable to pace themselves for long-term projects.

Strategy: Structure long-term homework into smaller steps. Ensure that the students understand that they only have to work for the given amount of time on homework. It is not always necessary to finish the task, provided the required amount of time had been spent on it.

SOCIAL STRATEGIES

Difficulty: appearing rude, making inappropriate comments, interrupting or speaking inappropriately to staff and peers.

Strategy: A short written explanation in the from of a social story, including a conversational script about appropriate ways to speak to others. ASD students are visual learners and respond more positively to oral information if it is accompanied by the written word or drawings.

Difficulty: Unstructured times and crowded areas-break/lunch, arriving, leaving school

Strategy: A designated quiet place for break and lunch times. Enter/leave slightly before /after the other students.

Clubs at lunchtime. A help card that can be given to an adult, supported by a written explanation about what to do if they get into difficulties at unstructured times.

Difficulty: Working with a partner or cooperatively in a group.

Strategy: Provide written rules for working cooperatively within the group and go through them at the beginning of the activity. Role play and social stories. Alert the student to the beginning of the lesson if there will be group work involved or not. If there is to be group work, tell them who their partner or group will be. Chose their partners sympathetically.

Difficulty: Team games, winning/losing.

Strategy: Rules, individual roles and outcomes of the game all need to be specifically taught. Explanations supported by drawings, role play/modelling by adults or peers, social stories.

Difficulty: Personal space, being too close to other or needing too much personal space.

Strategy: Rules regarding personal space needs to be specifically taught. Clearly define the student's work area within the classroom.

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Some Emerging Programmes

Comfor Programme. (Noens and Berckalaer-Omnes, 2004). Leiden University in Holland, it facilitates communication.

Friends Programme. (9-10 year olds). This programme is an Australian programme that was tried in Ireland last year. It teaches resilience.

Interest Programme-Emotional engagement –New South Wales research in Australia, PhD. Study. It facilitates communication through interest levels of the students.

Pact Programme (Pre-school autism communication training, 2004, pilot scheme) was carried out in three centres.

NICCY research (11 to 16 years). Northern Ireland research into youths with Asperger's syndrome and families. Not yet published.

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