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I.L.S.A.

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Readers are invited to submit papers to be considered for inclusion in the 2017 issue of LEARN. Papers should reach the Editorial Committee, *LEARN*, ILSA, c/o Drumcondra Education Centre, Drumcondra, Dublin 9, by January 31, 2017. 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*

All members of the National Executive Committee are contactable by mail to:
The Irish Learning Support Association, c/o Drumcondra Education Centre,
Drumcondra, Dublin 9, or by email through the website.

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

The Association is concerned with the education of children and young people with learning difficulties. Its aims include promoting cooperation 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 and provision of opportunities for peer-support.

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Editorial

Few teachers have been untouched by the disturbing and sometimes tragic effects of mental ill health on students in their schools. Increasing numbers of young people are experiencing a wide range of mental and emotional illnesses (Coghlan, 2013: 2), and mental ill-health is affecting young people earlier and earlier in their lives (Dooley and Fitzgerald, 2012: 25). Teachers, however, who are in daily contact with children and adolescents, are in an ideal position to introduce interventions and strategies designed to develop and maintain the mental well-being of their students. For this reason, it is very important that teachers are aware of the nature and the extent of these illnesses.

Coughlan (2013) identifies eight studies, carried out between 1991 and 2004, that used standardised self-report measures to gather data on the mental health of Irish adolescents. These uncovered very high levels of mental illness among young people, including depression, anxiety, alcohol and substance abuse, challenging behaviour, self-harm and suicidal ideation. The most comprehensive of these studies is reported in *My World Survey* (Dooley and Fitzgerald, 2012), which records data collated from more than 14,000 young people aged 12-25 years. Findings from this survey indicate that more than one-third of young Irish people are outside the normal range for depression (35%) and anxiety (34.5%). The survey also shows that psychological difficulties have increased over time (p. 8). This finding is supported by evidence from research carried out among American college students between 1938 and 2007 and among high school students between 1951 and 2002 (Twenge *et al.*, 2010). Similar findings were recorded by Collishaw *et al.* (2010), who examined trends in emotional difficulties from 1986 to 2007.

More recent research was carried out by the Psychiatric Epidemology Research across the Lifespan Group (PERL). This study used clinical diagnostic interviews to determine the prevalence of mental health disorders among young Irish people (Connor *et al.,* 2013). Two separate age groups were examined, one aged from 11-13, and the other with an age range from 19-24 years. This research outlines the mental health of adolescent students across the period of transition from primary to post-primary school, and of older students shortly after their transition from senior cycle to third-level education or to the workplace. It is, therefore, of great relevance to teachers and other professionals working at all levels of education in Ireland. The research on the 19-24 year old age-group was a follow-up on an earlier study carried out with the same subjects when they were between 12-15 years old. An important aim of the later research was to investigate the continuity of mental illness from adolescence into young adulthood. Coughlan (2013) notes that this follow-up research comprises the only longitudinal study on the prevalence of mental illness among young people in Ireland (p.2).

The researchers found that, among the younger group, one in every six adolescents was experiencing a mental disorder (15.4%). The most prevalent of these disorders were anxiety, behavioural disorders, severe depression and persistent mild depression. Within this age group, one in fifteen adolescents had engaged in self-harm and a similar number had experienced suicidal ideation. One young person from the study reported a previous suicidal act (pp. 25-27). These statistics

represent serious, sometimes crippling challenges for many young people in this group, and reveal an incidence of mental ill-health greater than that among young people of a similar age in either the USA or the UK.

The study of the older group of young adults showed that almost one in every five (19.5%) was experiencing mental ill health at the time of the investigation. Mood disorder, experienced by almost one in twenty (4.8%) of the young people, was the most prevalent illness in this group. Major depressive disorder was the most common of the mood disorders identified, with an incidence of over one in every twenty-five (4.4%), while anxiety was found to be experienced by just over one in ten (11%) of the 19-24 year olds. One in ten (10.1%) of the participants reported the experience of psychotic symptoms over the course of their lifetime. One in every twelve (8.5%) of the young adults in this group had self-harmed and almost one in five (19%) had experienced suicidal ideation. A previous suicidal act was reported by approximately one in fifteen (6.8%) of the participants in this study.

These are stark statistics, that reveal an alarming extent of mental ill-health in students across the two age groups studied. However, the situations or difficulties in young people's lives that may, over time, cause mental illness have been well identified. Some of the negative factors that have been shown to cause mental ill-health are stress, alcohol and drug use, bullying, suicidal behaviour, gambling behaviour, family status and living arrangements, school demands and performance, experiences of bullying, and ongoing stressful problems that may include financial stress (Dooley and Fitzgerald, 2012). In addition, the transmission of distress from the interparental relationship (Davies, Sturge-Apple,Woitach and Cummings, 2009), poor physical health (Doherty, Moran and Kartalova-O'Doherty, 2006) and homelessness (Lawless and Corr, 2005) have been identified as stressors that may contribute to mental unwellness. Internal factors such as poor self-concept, perfectionism, or the hypersensitivities of the very able may also contribute to mental illness, in particular to anxiety (Kitano, M., 2010: 5-10).

There is growing recognition internationally that there is an urgent need to promote mental well-being (Barry, 2007), and there is evidence that there are very effective interventions that have been successful in many different settings (Jané-Llopis *et al.,* 2005). We know also that much can be done to protect young people from experiencing mental disorders. Protective factors include resilience, optimism, coping, social support, life satisfaction, self-esteem and help-seeking behaviour (Dooley and Fitzgerald, 2012: 9). The ability to talk with someone who cares was identified by young people as a coping strategy, although 16-21 year olds suggested that they would not talk to a teacher about problems, particularly about self-harming (Haydock, 2001 cited in O'Brien, M., 2008). Research has shown, too, that training in mindfulness protects against mental ill-health and that it also assists the recovery of those experiencing depression or anxiety (Sundquist, Lilja, Palmér, Memon, Xiao Wang, Johansson and Sundquist 2015). It is, moreover, well-known that physical exercise promotes mental as well as physical well-being, increasing positive self-concept, self-efficacy, social skills and improving academic performance (Hallal *et al.,* 2006). With that knowledge, there is much that teachers can do within their schools and classrooms to promote the mental well-being of their students.

Well-Being in Post-Primary Schools (DES, HSE and Department of Health Ireland, 2013), the guidelines for promoting mental health at post-primary level, refers to the World Health Organisation (2001) fact sheet, which identifies the need to focus simultaneously at several different levels in order to promote mental well-being, including changing the school environment and improving students' individual skills. While *Well-Being in Post-Primary Schools* is very precise and informative in terms of whole-school planning, policies and support teams, and in outlining the steps to be taken when difficulties are identified, it does not give specific details about how the development of resilience, optimism, self-esteem, help-seeking behaviour and other preventative factors might be supported in the second-level classroom. *Well-Being in Primary Schools* (DES, HSE and Department of Health Ireland, 2015) refers to the importance of positive classroom management and strategies (p. 11) and suggests that "mental health should permeate all aspects of school life and learning" (p. 8), but again there is no specific detail given as to how this may be infused into the teaching of the curriculum, or into teacher-student interactions in the classroom.

There is an onus on every teacher to be consistently mindful of the well-being of the young people s/he is teaching; to show respect for each student and to ensure that each student's voice is heard within the class group; to enable success for each student, but also to show that the process is more valuable than the product; to teach so that every student experiences failure in such a way that s/he understands and values failure as an opportunity for learning; to value persistence and to affirm it consistently and, finally, to create opportunities for students to work together collaboratively in such a way that all students contribute to the learning in the classroom. One of our most important tasks as teachers is to ensure that all students feel that they belong in their class and in their school.

There are some inspirational vignettes in the accounts of research in this edition of *Learn*, that illustrate how the development of resilience, connectedness, trust, optimism and help-seeking behaviour has been supported by carefully planned teaching or interventions. There is evidence, too, of how careful observation and sensitive questioning may create opportunities for young people to develop the sense of belonging and connectedness that is so essential to well-being. It is the nature of learning support and special education teaching that the mind of the teacher is consistently focussed on the empowerment of the child through the development of skills, confidence, self-esteem, emotional resilience, trust and social competence. All articles included here, both practical and theoretical, either directly or indirectly have this focus. All have implications for the well-being of students of all ages, most particularly for those who have additional learning needs.

ILSA values this sharing of expertise and research by psychologists and teachers, through their contribution of the articles that comprise this edition of *Learn*. We thank this year's contributors for making *Learn* 2016 another valuable resource for teachers and for other professionals who, either directly or indirectly, support students who have additional learning needs.

JEAN JOHNSTON
Editor of *Learn*
August 2016

Working Memory, Academic Attainment and Special Education Needs: Part One

Tomás Mac An Bhreithiún

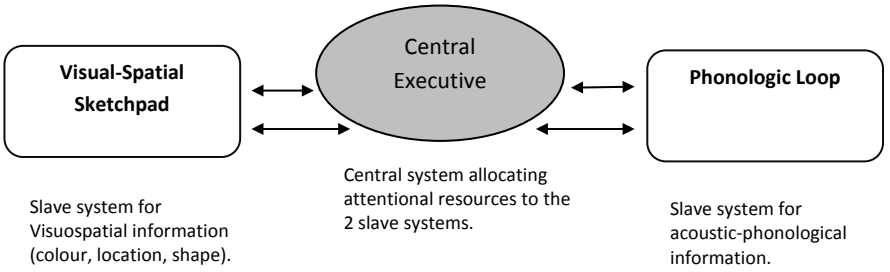
Introduction

This article will examine the theoretical structures of working memory (WM). It will also examine working memory and academic achievement, and will examine models of the relationship between memory and achievement. It will outline failures of working memory, as well as its relationship with special educational needs. Working memory, special educational needs, reading attainment, phonological development and language will be considered. Finally, the area of intellectual disabilities and other conditions will also be looked at in the context of working memory.

The Baddeley and Hitch (1974, 2000) Multi-Component Model of Working Memory

The most widely accepted model of working memory was proposed by Baddeley and Hitch (Baddeley & Hitch, 1974; Baddeley, 2000). Their multi-component model of WM is a structuralist model and Baddeley and Hitch's model can be conceptualized as being non-linear and more multi-directional. In the latter model, memory is a cognitive system that provides a temporary storage of information during complex cognitive activities and consists of three components. At the core of the framework of their WM model is the concept of a Central Executive system which is a domain capacity system, the function of which is to control resources and also monitor information processing. (Baddeley, 1986, 1996; Baddeley & Hitch, 1974). The Central Executive system is modality independent, meaning it can process information from other systems. This system takes attentional control over the memory process by allocating memory resources to the two modality/domain-specific storage components, firstly the Phonological Loop (PL) that is responsible for the maintenance of auditory information and, secondly, the Visuospatial Sketchpad (VSSP) that is specialised for dealing with visual and spatial information.

Figure 1: The Baddeley and Hitch (1974) Multi Component Model of Working Memory

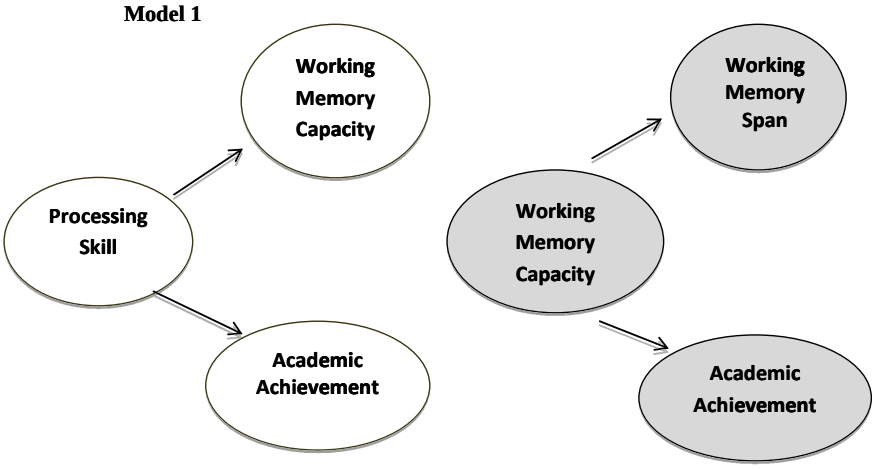


Working Memory and Academic Attainment

Individuals with working memory deficits are compromised in key aspects of everyday life (Gathercole, Alloway, Willis & Adams, 2006; Kane, Brown, McVay, Silvia, Myin-Germeys & Kwapil, 2007), and tend to make poor academic progress during their time at school (Alloway, Gathercole, Kirkwood & Elliott, 2009).

Alloway proposes that working memory capacity is strongly related to learning abilities and academic progress, predicting current and subsequent scholastic attainment of students in both literacy and numeracy across the primary school. There are two main models in relation to WM and educational attainment. The first model contends that WM difficulties can be traced back to deficits in a specific processing domain. Students with poor skills in processing spoken language may produce low listening span scores, as they are unable to attend to both the processing demands of listening to a sentence and making a semantic decision which leads to lack of success in the task (Pickering, 2006). It is also known that phonological Short Term Memory (STM) and WM are both predictors of children's reading comprehension across a wide age range. These deficits may also impact on reading and mathematical attainments. This category would include children with specific language deficits or impairments (SLI). Pickering (2006) contends that neither the low listening span scores or poor levels of academic attainment are the result of poor WM capacity *per se*, instead, they are both impacted by a primary language processing problem. Many studies have also indicated that the relationships between WM measures and reading and mathematics cannot be described in terms of the processing element of specific WM tasks (Engle, Tuholski, Laughlin & Conway, 1999). Pickering's (2006) contention is that the most important element is the general capacity of WM and not skills within a specific processing domain.

Figure 1.2: Alternative Models of the relationship between Working Memory and Achievement (Pickering, 2006, p.222)



The second model is that WM capacity directly impacts the ability to acquire complex skills and to learn knowledge. The processes by which WM contributes to the acquisition of complex skills and knowledge during the school years are not well understood. Pickering (2006) argues that statistical associations between WM and attainment scores in reading and mathematics do not explain these processes. This is because these attainment scores:

> …tap the endpoints of scholastic attainment and thus provide no information regarding the nature of failed individual learning episodes that led to poor attainment levels (Pickering, 2006, p. 221).

Failures of Working Memory

One important feature of working memory capacity during childhood is the degree to which it varies across individuals of the same age. Performance increases from 5 years until the teenage years when it starts levelling off. Adult performances are typically reached by around 15 years. Gathercole (2008) cautions that while WM may be useful and flexible, information held in WM is easily lost through distraction or overload. 'Those with poor capacities will therefore struggle to meet the heavy WM demands of many situations, of which the classroom is a prime example' (Gathercole, 2008 p. 382). Gathercole, Lamont and Alloway (2006) examined WM and learning, by using observation and analysis of the WM constraints of routine classroom activities. They investigated WM and learning directly. Their aim was to bridge the gap between classroom practice, WM and learning, in an attempt to try to analyze more deeply the learning situations in which WM demands impacted on learning goals, and also to identify ways to support poor WM function.

In detailed qualitative case studies of three boys, who had been identified as having poor WM scores shortly after starting full-time schooling, they identified four kinds of learning failure that could be attributed to students failing to meet the WM demands of classroom-based activities.

i. Students with low WM span had difficulty following even relatively short instructions. They had difficulty meeting the combined processing and storage demands that certain structured activities within the classroom involve. An example of this would be writing, which involves generating a sentence, remembering how to spell the words and then writing them without forgetting the sentence.

ii. Students with low WM capacity tended to lose track in complex tasks because they were working within a more complex task hierarchy than their typically-developing peers due to their greater place-keeping load in literacy and mathematical activities.

iii. Students with poor WM indicated frequent episodic forgetting. They were observed to fail on several occasions to remember information that they had encountered in the recent past.

iv. Students were also observed to be reserved in group activities despite normal social relationships with peers and a preference for simplifying tasks wherever possible (Gathercole *et al.,* 2006).

The behavioural observations outlined above have been corroborated in subsequent research (Alloway *et al.*, 2009). Gathercole *et al*. (2006) concluded that failures of WM can result from either excessive memory demands of tasks, or from the very poor WM capacities of some students.

Because information is permanently lost from WM, the child will not be able to process the learning activity and to complete it to its conclusion. This forces the child to guess or abandon the task prior to completion. 'Activity failures such as these represent missed learning opportunities for the child, and the more frequent they are, the more that learning will be delayed' (Gathercole, 2008, p. 383).

Working Memory and Special Educational Needs (SEN)

Research by Gathercole, Pickering, Ambridge and Wearing (2004) investigated the structure of WM and its development across the childhood years in children aged 4-15 years of age. The children were given multiple assessments of each component of Baddeley and Hitch's (1974) WM model. The researchers found that from six years onwards a model, consisting of three distinct but correlated factors corresponding to the WM model, provided a good fit to the data. This research suggests that from six years of age, the basic modular structure of WM is present, possibly even earlier. Each component undergoes sizable expansion in

functional capacity throughout the early and middle school years to adolescence, (Gathercole *et al*., 2004). Research into WM suggests that the current practice of diagnosing SEN on the basis of cognitive functioning should be held up to scrutiny. There is now extensive evidence of a causal relationship between WM deficits and learning difficulties (Gathercole & Pickering, 2000; Swanson & Saez, 2003), and recent findings indicate that children with WM problems perform poorly in many classroom learning situations, due to WM overload aligned with poor WM capacity. Further research by Gathercole, Brown & Pickering (2003) compared the WM abilities of students recognized by their schools as having special educational needs with those students making normal academic progress.

Working memory tasks do not directly index the skills involved in key academic areas such as literacy and numeracy. According to Gathercole *et al.* (2004), children do not fail WM tasks because they are unable to carry out the processing involved due to a lack of knowledge of the assessment domain. These researchers contend that children fail because they are unable to store and process larger amounts of material simultaneously. There is a difference in baseline assessment which taps into previously acquired crystallised knowledge. WM is an area of fluid cognitive ability, that is not constrained by prior knowledge/experience. WM constitutes a 'relatively pure measure of a child's learning potential and indicates a child's capacity to learn' (Alloway & Alloway, 2010).

If WM deficits are pervasive and impact both verbal and visuospatial domains across SEN groups, then an ecological strategy could support this in the classroom. On the other hand, if WM deficits are more specific and vary across SEN groups impacted by specific core deficits, then it may be better to differentiate intervention for each of these individual profiles (Alloway, Rajendran & Archibald, 2009). Research by Alloway *et al*. (2009) suggested that differential memory profiles are associated with the development disorders of Specific Language Impairment (SLI), Developmental Coordination Disorder (DCD), Attention Deficit/Hyperactivity Disorder (ADHD) and Asperger syndrome. The four cohorts had distinct WM profiles, rather than a pervasive WM deficit that impaired both verbal and visuospatial functioning across all groups equally. The authors report that WM difficulties appear to be a secondary deficit, possibly underpinned by core deficits of the disorder groups in language, motor, behavior or social difficulties. The different WM patterns in the different developmental disorders have a number of implications (Alloway, Rajendran & Archibald, 2009). It is likely that children with SLI struggle with both the storage (STM) and processing (WM) of verbal information. Children with DCD also appear to have difficulties with both the storage and processing of information in the visuospatial domain. Children with ADHD demonstrated pervasive WM impairments across both verbal and visuospatial domains, the authors caution that this may be due to a lack of behavioural inhibition rather

than a WM deficit *per se*. For children with Asperger syndrome, poor performance was in the storage of information in the verbal modality (verbal short-term memory) with scores in the typical range for the other storage and processing memory tasks. It is thought that deficits in verbal short-term memory may be reflective of language and communication difficulties associated with Autistic Spectrum Disorders rather than representing generalized WM impairment (Alloway *et al.,*2009).

Maehler and Schuchardt (2011) investigated WM in children with learning disabilities, to ascertain whether those with a discrepancy between WM and general intelligence were really characterized by different cognitive functioning within this domain to those without such a discrepancy. The results of the research of Maehler *et al*. (2011) indicated specific deficits in WM in students with learning disabilities compared with a normal control group of typically-developing students. However, the specific pattern of WM deficits was demonstrated regardless of whether the students had been diagnosed with a specific learning disability (normal IQ), or had the same learning problems but lower IQ. This result corroborates the previous study (Maehler *et al.,* 2011) in that WM is associated with learning disabilities irrespective of intelligence level. This does not seem to support the idea of discrepant cognitive functioning in poor learners with higher versus low IQ.

Working Memory and Reading Attainment (RA)

Gathercole, Brown and Pickering (2003) investigated a longitudinal cohort of 54 students aged between 4 and 7 years of age, and examined whether measures of WM skills taken directly after school entry served as useful predictors of students' attainment levels in the English National Curriculum assessment at Key Stage 1. They found that early WM scores were found to be highly significant predictors of students' subsequent levels of attainment in literacy, but not in mathematics, two and a half years later. The researchers also found that WM scores accounted for unique variance in students' spelling and writing scores at 7 years of age (Gathercole *et al.,* 2003). However, the research did not incorporate measures of non-verbal WM that would have indicated the capacity of the visuospatial sketchpad. This research underlines the usefulness of combining knowledge-based assessments with measures of fluid cognitive ability in order to obtain the best estimate of a child's chances of future academic success.

Research by Gathercole *et al.* (2006) investigated associations between WM (measured by complex memory tasks) and both reading and mathematical abilities in a sample of 46 young people, aged from 6 to 11 years, with reading disabilities. (Gathercole, Alloway, Willis & Adams, 2006). The sample was characterized by deficits in complex memory and visuospatial STM and by low IQ scores. Gathercole and her colleagues found that severity of reading difficulty

was associated significantly with complex memory, language and phonological awareness scores. The findings suggest that WM skills, indicated by complex memory tasks, represent an important constraint on the acquisition of skill knowledge in reading and mathematics (Gathercole *et al.,* 2006).

Research by de Jong (1998) investigated the specificity of 'reading disabled' students' deficits in WM to clarify whether their deficits could be accounted for by deficient processing or impairments in verbal short-term storage capacity. A group of 10-year-old 'reading disabled' students was compared to two groups of able reading students who were closely matched on age and reading age. The students were then tested on measures for WM capacity, short-term capacity and processing speed related to the language and also to the numerical domain. The results showed that 'reading disabled' students performed worse on all of the measures of WM capacity, irrespective of the domain which these measures reflected. Neither their inefficient processing or their deficits in verbal short-term storage capacity could explain the results. The research proposes that 'reading disabled' students seem to have a general lack of capacity for the concurrent processing and storage of verbal information (de Jong, 1998).

A correlational study (Gathercole, Pickering, Knight & Stegmann, 2004) related performance on the WM battery to grades obtained on standardized national examinations in English, Mathematics and Science at seven and fourteen years. At age seven, performance in both Mathematics and English was associated with WM scores. However, the cohort of 14-year-olds indicated a different pattern of results from the younger individuals. While similar associations were established between WM scores and attainment in Science and Mathematics, their performance on the school assessments in English were only weakly correlated with their WM scores. Testing at age seven focusses on basic literacy skills, while at fourteen it involves a much broader evaluation of the quality of comprehension and also the interpretation of literacy texts. Baddeley (2007) reports that despite the importance of WM, academic attainment also depends on many other factors and takes a more ecological perspective.

Working Memory and Phonological Development

According to Gathercole, Alloway, Willis & Adams (2006), individuals with dyslexia, otherwise known as a specific reading difficulty, have an individual WM profile. This research has indicated that as language learning relies heavily on WM, children with dyslexia often do not have the structure and sounds of words as their WM capacity limits their ability to hold and manipulate information in their mind at the same time. This subsequently has an impact on their learning of reading and writing skills.

Alloway, Gathercole, Adams, Willis, Eaglen and Lamont (2005) explored the relationship between aspects of WM function and students' competence in key

skills at school entry. They examined 194 students on WM measures. The findings of the study indicated links between phonological short-term memory ability of students (Digit Recall test and the Word Recall test of the WMTB-C) and abilities in writing, speaking and listening and mathematics, as well as in personal and social development. The findings implicated the importance of the phonological loop in the child's acquisition of key skills in the early years.

In relation to children with dyslexia, the relationship between STM and letter knowledge can account in part for the delay of letter knowledge in these children, as research has indicated that dyslexic-type children have indicated difficulties with early letter learning (Pennington & Lefly, 2001; Snowling, Gallagher, & Frith, 2003). They have also been found to have difficulties with STM and perform at a lower level on the repetition word test (Brady, 1997). Early letter acquisition involves the process of converting letters (graphemes) into sounds (phonemes) which have to be stored briefly until the last letter has been translated, only then can blending take place and the word produced. This temporary storage of letter sounds involves STM. Several studies have indicated that STM and phonological sensitivity made independent contributions to reading acquisition (Hanson & Bowey, 1994, Leather & Henry, 1994, Rohl & Pratt, 1995). Research by Wager *et al.* (1994) found that phonological sensitivity had an effect on reading achievement, whereas STM did not. However, research by de Jong & Van der Leij (1999) found that both phonological sensitivity and verbal STM were substantially related to later reading fluency. Both studies indicate that individual differences in phonological sensitivity are more pertinent for reading gains than individual differences in verbal STM. The relationship of verbal STM to reading ability seems to be in its relationship to phonological sensitivity. The researchers note that the difficulties that children with dyslexia have with phonological sensitivity are more severe and persistent than verbal STM difficulties, which seem to be best seen as a correlated and contributing symptom to dyslexia (Pennington *et al*., 1991).

Early reading acquisition involves concentrating on the phoneme-grapheme correspondence, using one-syllable words with two to three phonemes. Decoding of individual phonemes may tax STM, and memory capacity may be exhausted by the blending stage. Later as phonological processing gives way to morphological processing, which involves longer words of one-syllable or word forms such as morphemes, the load on memory may become a burden and memory may become overloaded. De Jong and Van der Liej (2002) also examined the role of speech rate in reading acquisition and found that serial rapid naming was highly correlated with reading fluency. There is some evidence to suggest that speech rate explains part of the difference in verbal STM between dyslexic and normally developing readers.

Phonological memory also plays a role in reading ability and verbal STM. Nonword repetition is a measure of the ability to hold phonological data in the

phonological store. There is evidence that children with dyslexia have difficulties with nonword repetition (Roodenrys & Stokes, 2001, Snowling, 2000) which indicates phonological store difficulties. One hypothesis for the impairment in the phonological store/loop is a deficit in long-term memory (LTM). Research has indicated that the availability of phonological information in LTM can support the holding and reconstruction of phonological codes in phonological memory (Gathercole, 1995). The phonological deficit hypothesis (Snowling, 2000) proposes that most of the difficulties experienced by dyslexic children in phonological processing comes from a common underlying deficit. This deficit is a mixture of poor and less defined long-term phonological representations of spoken words. A consequence of this deficit of impoverished phonological representations is an impairment in the development of phonological sensitivity and so in reading acquisition. Another consequence may be insufficient support from LTM for the coding of sound sequences in the phonological store.

Freed, Locton and Adams (2012) found that some children (n=35) with a SLI not only had difficulty with phonological and linguistic tasks, but also with visuospatial tasks. The implication is that children with an SLI may not be able to assist themselves in their learning with compensatory visual STM strategies. Therefore, Freed *et al.* (2012) highlighted the importance of testing for visual memory skills in children with SLI, before putting visual supports and teaching strategies in place in order to increase opportunities for learning.

Working Memory and Language

Specific Language Impairment (SLI) is distinguished by an "unexpected failure to develop language at the usual rate, despite normal general intellectual abilities, sensory functions and environmental exposure to language" (Alloway *et al.,* 2009, p.372). It is also defined as children who exhibit a delayed development of language both in comprehension and production, without other obvious intellectual impairments (Bishop, 2004). These children have also been found to be impaired on various WM tasks, especially on those that are thought to measure the phonological loop effectiveness (Gathercole & Baddeley, 1990).

The phonological loop is thought to play an important role in language acquisition, as auditory input is transformed into a phonological representation and then held temporarily for analysis and transferral to LTM (Gathercole Baddeley & Papagno 1990). Phonological WM capacity has been shown to predict children's ability both to acquire (Gathercole, Service, Hitch, Adams & Martin, 1999) and produce language (Adams & Gathercole, 1995). Some impairment in the functionality of the phonological loop has been thought to be a causal factor in children with SLI. An overfocus on capacity rather than on rehearsal processes has been apparent in the debate. However, deficits in the use of rehearsal do not appear to be present in children with SLI (Gathercole, Baddeley, 1990; Montgomery, 1995).

Combined evidence from research suggests that STM difficulties are linked to SLI. It is claimed that WM deficits involving simultaneous storage and processing of verbal memory are linked to SLI (Hoffman & Gillam, 2004). Research by Archibald and Gathercole in 2006 investigated WM abilities in students with a specific language impairment (SLI). Deficits on verbal WM tasks were present in these students. Poor performances on measures of verbal short-term memory were also recorded from these students. These deficits were found to be fifty times more common in this group of students than in the general population. A close link between WM deficits and language impairments is therefore established. Poor memory function leads to general rather than specific deficits in learning; all of the SLI students in this research also showed impairments in mathematics and literacy as well as in language (Archibald and Gathercole, 2006). Research by Quail, Williams and Leitao, in 2009, investigated students with specific language impairments (SLI). They studied the impact of providing visual support on students' performance on an auditory (WM) task. Their findings support previous research that the provision of visual information supports WM performance in students with SLI and typically developing students.

Some interventions have included giving children practice with encoding and maintaining phonological representations and supporting LTM to make up for the reduced storage (Montgomery, 1995). Gill, Klecan-Aker, Roberts & Fredenburg (2003) found significant and lasting improvements in the ability to follow instructions when children (n=30) with SLI were taught a rehearsal strategy that uses visualization techniques for the various instructions. Other strategies have included training of phonological awareness with SLI children on the basis that a phonological deficit includes a deficit in the conscious knowledge of phonological structure (Gillam & van Kleeck, 1996). Their research reported improvements, after a course of phonological awareness training, in children's performance on nonword repetition tasks that are frequently used to measure phonological loop performance. Children's ability to translate a phonological representation into WM and the phonemic awareness tasks were demanding on WM, and so the intervention provided direct practice on WM.

Working Memory, Intellectual Disabilities and Other Conditions

Research has found that children with learning difficulties have a greater rate of WM deficits than typically developing children (Alloway & Temple, 2007). The profile of WM deficits can vary according to the developmental difficulty experienced (Melby-Lervag & Hulme, 2013). Children with Moderate Learning Difficulties (MLD) have deficits in verbal WM tasks, but often perform within age-expected levels in verbal short-term memory, visuospatial short-term and WM measures (Alloway & Temple, 2007). An explanation for this, that has been proposed, is that verbal short-term and WM may involve different components of memory. Short-term memory involves storage while verbal WM is thought to

involve both storage and processing tasks. While storage plays a pivotal role in phonemic knowledge and acquisition, more complex tasks such as reading may involve the capacity to coordinate different memory systems. The relationship between WM and attainment is statistically significant, even after the contribution of verbal and performance IQ have been accounted for (Alloway & Temple, 2007).

Research has indicated that children with Developmental Coordination Disorder (DCD), indicate a very different profile when compared to children with Specific Learning Impairment (SLI) or Mild Learning Difficulties (MLD). Verbal WM skills were poorer than those with DCD and Asperger's syndrome, but visuospatial STM and WM abilities were within the expected level for their age (Alloway *et al.,* 2009). Such tasks involve a range of complex cognitive skills and children with SLI have difficulty with storing and processing verbal information, which can have an impact on the learning of vocabulary and language skills needed for academic success (Archibald *et al.,* 2006). In contrast, the profile of children with DCD may be seen as having two dimensions: one relating to movement control that affects cognitive tasks with a motor component, which includes WM and IQ tasks, and another dimension relating to difficulties in processing and storing information, as indicated by deficits in both verbal and visuospatial domains (Alloway, 2011). Other research has found that children with DCD have memory difficulties of a more pervasive nature, as they perform at a significantly lower level than children with MLDs in measures of verbal short-term memory, visuospatial short-term and WM (Alloway & Temple, 2007). The findings from this research have correlated with research involving typically developing children. The links between WM and learning outcomes were found to be independent of IQ, suggesting that the learning difficulties were attributable to WM deficits and not the core deficits associated with DCD (Alloway, 2011).

Maehler and Schuchardt (2011) investigated WM in students with intellectual disabilities which indicated that these children have functional limitations, primarily in the phonological loop of WM (Baddeley, 1986), which are indicative of a specific structural deficit. Building on this research, their study examined whether it was possible to identify specific phonological subfunctions as causal factors in these qualitative deviations from typical development found in children without intellectual disabilities. In a three-group design, specific subfunctions of phonological WM were examined in students of the same mental age (one group of 15-year-olds with mild intellectual disability [IQ 50-69], one group of 10-year-olds with borderline intellectual disability [IQ 70-84], and one group of 7-year-olds of average intelligence [IQ 85-115]). The results revealed impairment of the phonological store in terms of reduced storage capacity only, and indicated that this deficit increased with length of the item sequences to be remembered. However, this deficit was observed only in children with mild

intellectual disability; the performance of children with borderline intellectual disability corresponded with that of a control group of 7-year-olds matched for mental age. These researchers propose that deficits in storage capacity are associated with deficits in language development. This seems to be one of the main underpinning causes of cognitive impairment in children with mild intellectual disability.

Pickering and Gathercole (2004) reported that children with general learning difficulties performed poorly on measures of the phonological loop, central executive and visuospatial sketchpad. Children with SLI indicated marked impairments on phonological loop and central executive tests, which is consistent with the results reported by Alloway *et al.* (2009) and which suggested that these children demonstrated combined storage and processing deficits within the verbal domain.

Conclusion

This article initially examined the theoretical construct of Working Memory and then moved on to outline the interface of Working Memory and its relationships to academic achievement, reading, phonological development and language. It has also considered intellectual disabilities and other developmental conditions. Part two of this study will examine the practical applications of memory theory to the classroom, and its relevance to the teacher in terms of practical interventions to support memory deficits in schools.

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The Role of Levelled Readers in Supporting the Development of Literacy

Bairbre Tiernan

Introduction

Opportunities to practise reading enable students to become fluent readers. Without appropriate access to books, including levelled readers, students may find learning to read a struggle. Allington (2006) states that "some children don't develop adequate fluency or rate of reading," as "they have limited reading practice in appropriately levelled materials"(p. 95). One of the advantages of levelled readers is that readers and texts can be matched using reading ages and corresponding reading levels. However, as teachers, we should be concerned about being too inflexible in the use of levelled texts in and across reading programmes. This article discusses what levelled readers are and highlights benefits and issues that should be considered when using levelled readers to support literacy.

What are levelled readers?

Levelled readers are sets of reading materials that are ordered on a progression from simpler to more complex and challenging texts (Brabham & Villaume, 2002). The readers increase in difficulty in vocabulary, story content and skill development (Lerner, 2003). According to Smith (2002), by the mid-20th century, collections of texts arranged in graduated levels of difficulty comprised a significant portion of basal readers. Hoffman *et al*. (2006) assert that the popularity of levelled texts waned during the 1980s, when the call for more authentic literature and natural language led many publishers to abandon strict levelling procedures and carefully controlled vocabulary.

In recent years, levelled readers have re-emerged as a popular resource to support teachers in developing literacy. A number of factors have influenced this, including the need to address concerns about the overuse of whole-group instruction and more traditional ability-based small groups. The issue of grouping arrangements became a concern as it became apparent that many young students, especially those in need of the most practice in literacy, were receiving the least (Glasswell, Parr & McNaughton, 2003). Caldwell and Ford (2002) report that in traditional small groups, most of the instructional time for

below-level readers was spent on skill instruction with very little actual reading of text, and in whole-group instruction. Those same readers spent most of their time with texts that were too difficult for them to read on their own or even with support. Concerns were also raised about the material being used to support the development of literacy. There was a recognition that trade book basals of the 1990s had difficulties in meeting the needs of struggling readers, due to the emphasis on natural language (Hoffman *et al*., 1998). The success of Reading Recovery (RR) (Clay, 1993) also had an impact on the popularity of levelled readers, as this intervention showcased the use of levelled readers.

Why use levelled readers?

Levelled readers support students learning to read, struggling readers and skilled readers. The practice of using levelled readers in classrooms is underpinned by the belief that students learning to read need to be introduced to texts that are not too difficult; that struggling readers need exposure to texts that do not cause frustration, and that skilled readers need to develop their proficiency through exposure to challenging texts (Kontovourki, 2012). In terms of struggling readers, Allington (2006) reviewed research related to text appropriateness and student learning, and found that the level of difficulty inversely relates to the learning. He states that "many, many students are confronted daily by texts that are too complex for optimal learning" (2006, p. 60).

Teachers often rely on the levelling system provided in the texts to match 'the right book' with 'the right reader'; to scaffold students' reading behaviour; to chart their reading growth, and to make grouping and promotion decisions in relation to literacy. Children in turn use them to practise and develop the basic reading skills of decoding, fluency, vocabulary and comprehension. However, clarity with regard to the purpose and rationale behind the use of levelled readers is essential when deciding to use them with students. This can include any or all of the following: developing interest in reading, reading confidence, word attack skills, reading fluency, motivation and comprehension.

It is appropriate to employ levelled readers with both younger and older students. Focusing on beginner readers, clarity around the purpose and rationale behind the use of levelled readers is particularly important in junior classes. Perera (2005) argues that early reading books (including levelled texts) have the potential to influence students' conception of reading, their reading acquisition, their writing competence and their image of themselves as readers. Therefore, it is important to determine whether the levelled texts in question are indeed dependable, good books for early literacy teaching and learning.

According to Perera (2005), books must meet the following three requirements in order for them to be considered 'good books':

- They should support students as they begin to learn to read.
- They should show students that reading is enjoyable and rewarding.
- They should offer good models for student's own writing.

Two key linguistic features of good storybooks for beginning readers include a recognisable story structure with satisfying ending and that they should use rhythmic and natural-sounding language.

Selecting early reading books for beginner readers is a balancing act between natural language and controlled vocabulary books. Natural language books use language familiar to students to tell the complete story. Controlled vocabulary books use sets of words chosen according to the frequency they appear in language and in books, and/or words that demonstrate sound relationships in phonics instruction. Students have an easier time understanding stories written in familiar (natural) language, but may have difficulty decoding some of the challenging words. However, using controlled vocabulary in stories can be boring and unengaging for students. The answer for the most effective reading instruction is to provide balance between these two book types.

For older readers, the focus of developing reading can be complex because, as Snow (2002) states, poor comprehension can be caused by deficits in decoding, vocabulary, fluency, motivation or background knowledge, as well as by a lack of strategic behaviours for monitoring and repairing misunderstanding. Therefore, getting the gradient level of the text correct becomes very important. Students need to be able to read fluently, and fluent oral reading has been shown to have a strong positive relationship with reading comprehension (Shiel *et al*., 2012). The role of motivation cannot be underestimated here. Older students may be disillusioned regarding reading, so motivational components need to be considered, for example: selecting interesting texts; embedding reading instruction within a content area such as science, and providing opportunities for students to make choices when selecting levelled readers. Reader preference is an important and often underestimated aspect of reading in schools. It plays a role in developing reading motivation. Allowing students to self-select readers within a levelled range has positive effects in developing motivation and engagement with reading.

For both younger and older students, the goals of independent reading are to practise a smoothly operating reading process, to exercise choice, and to develop reading interests (International Reading Association & National Council of Teachers of English). Providing students with a selection of appropriately levelled readers which match their reading ability facilitates them in reading independently. Independent reading that offers guided choice, that teaches students how to select books that are on an appropriate reading level for them, and during which teachers confer with students, yields positive results (Moss & Young, 2010; Kuhn *et al*., 2006).

Using levelled readers to support the development of literacy

Levelled readers lend themselves to small group reading instruction and individual reading instruction, as opposed to whole class reading instruction. Research on effective schools and differentiated or individualized instruction has indicated that the use of smaller, flexible learning groups, based on students' current skills and learning needs, may be more effective than whole-class instruction (Connor, Piasta, *et al*., 2009; Gersten *et al*., 2009). Connor, Morrison and Slominski (2006) also report that correlational evidence from their research suggests that instruction provided in small groups may be up to four times as effective as instruction delivered to the entire class.

The practice of using levelled readers in classrooms complements the concept of differentiated reading instruction. The concept of differentiated reading instruction is rooted in the belief that, because there is variability among any group of learners, teachers should expect student diversity and adjust their instruction accordingly (Tomlinson *et al*., 2003; Tomlinson, 2001; Tomlinson, 1999). It is an approach that enables teachers to plan strategically to meet the needs of every student. Students are grouped according to reading and word study levels, and use levelled books in order to develop decoding and comprehension skills and strategies. There is evidence that the effect of particular types of instruction on reading gains may depend on students' reading and oral language skills (Connor, Piasta, *et al*., 2009; Connor *et al*., 2004; Juel & Minden-Cupp, 2000). Connor and her collegues (2011) argue that specific instructional activities that are effective for students with typical reading and language skills may be ineffective for students with weaker or above-average skills and *vice versa*. Organizing instruction for specific groups of students can enable the teacher to plan and implement appropriate guided reading instruction that is focused on areas of needs common to all students in the group.

Another powerful way to use levelled texts is to adjust reading tasks to each student's appropriate learning zone. From Vygotsky (1978), we know that individuals learn best when they are in a context that provides a moderate challenge, that is the 'zone of proximal development'. Rather than avoiding any use of more difficult levelled texts with readers, teachers can use instructional support to help students gain access to a more challenging reading experience. Glasswell and Ford (2010) argue that, when a student engages in reading and the text is challenging, the teacher can support that student in developing his/her skills, strategies and confidence. Clay (1993) also suggests giving students challenging texts, explaining that text should be just challenging enough. Reading at the instructional level "allows students to build the use of effective cueing systems" (Tyner, 2004, p.32).

The role of assessment when using levelled readers

Both formative and summative assessment should be considered when discussing the role of levelled readers in supporting literacy. In relation to summative

assessment and levelled readers, standardized assessment and tests play an important role in the process of matching a reader and the appropriate text. A student's standardized score or reading age on a valid standardized reading test is valuable as a precursor in selecting the text that best matches with the student's reading ability, so that he/she can engage with the text in a meaningful way. However, caution must be exercised with regard to test results in that they are just a 'snapshot' of the student, and may not necessarily reflect the child's true ability. Unfortunately, many teachers focus only on the reading level of students. More often than not, there is little reporting attention given to the quality of the reading process within that level, for example to comprehension measures, to fluency or to self-correcting behaviours (Burkins & Croft, 2010).

In relation to formative assessment, diagnostic teaching lies at the centre of adaptive teaching, and assessments should be used as a teaching tool to extend, rather than to merely measure instruction (Hall, 2002). Observation, checklists, listening to the student read, running records, and miscue analysis are all very useful in informing the teacher about the student's reading ability. These informal assessment methods can be used very effectively in association with levelled readers. Assessment data obtained when using levelled readers can be used to understand students' individual learning needs and can inform the teacher when making instructional decisions.

Reliability of levelled readers

Given the popularity of levelled texts in Irish classrooms and their potential role in teachers' instructional decision-making processes, there is a need to examine whether the levelling system used in these books is reliable. Pitcher and Fangs (2007) analysed the reliability and quality of levelled readers. Their findings suggest that, much like readability statistics, "the levels allocated to the sample texts of their research represent only crude estimates of text difficulty rather than accurate measures" (p.50). Clay (1991) also states that all gradients of difficulty used in text levelling, although crucial for teachers to make good instructional decisions, are "inevitably fallible" (p. 201). The quality of levelled texts can vary greatly within and between levels.

Generally, levelling books is a subjective activity and there is no clear right/wrong way to do it. Different levelling criteria are applied by different publishers, for example, the RR levelling system operates according to criteria such as "text and print features, vocabulary, sentence complexity, content, text structure, language and literary features, themes and ideas of books" (Brabham & Villaume, 2002, p. 439). However, it is important that consistent criteria are applied throughout the process.

Selecting quality, accurately levelled books is critical to reading instruction. It is vital that teachers develop an awareness of, and become knowledgeable about the various factors that influence text difficulty and text quality. Once they do, they will be in a better position to judge and select high-quality texts that meet the developmental needs of their students. Therefore, the readability of books

should be examined. Table 1 outlines Tyner's (2004) framework for examining and levelling texts.

Table 1: **Tyner's framework for examining and levelling texts**

Criteria	
Overall length of book	Phonic complexity
Number of words on a page	Familiarity of content
Number of lines on a page	Familiarity of theme
Legibility of type	Complexity of story line
Size of print	Type of text
Spacing between words and between lines	Repetitive language
Range of punctuation	Sentence structure
Range of illustrations	Vocabulary
Correspondence of illustrations to print	

(Tyner, 2004, p.41)

Using such a framework is necessary as no method of evaluating text difficulty, either readability formula or levelling systems, has been found to be faultless so far (Dzaldov & Peterson, 2005; Hill, 2001; Perera, 1982). It is, therefore, unwise to depend only on such measures in determining text difficulty and, consequently, reader-text match. Texts should be previewed using questions, such as those highlighted in Table 2, to make sure that the levels are appropriate for the readers being targeted.

Table 2. **Sample questions when previewing texts**

General questions	
Does the size and style of print, and the space between words and lines, enable the book to be easily read? Are the illustrations of good quality? Do the illustrations help the reader understand the text? Is there an appropriate balance of text in relation to the illustrations? Is the book written in a clear style of language? Does it contain many unfamiliar words? Are there many long sentences? How complex is the grammar? Are ideas clearly organised?	
Fiction book	**Non-fiction book**
Does it have a good story that will capture the reader's attention? Are the characters believable? Will readers be able to identify with the story?	Is the information up-to-date? Is the subject matter appropriately simplified without being patronizing? Are technical terms clearly explained? Is information easily accessible with a clear contents page and a good index?

(Hinson & Gains, 1997)

Glasswell and Ford (2010) report a concern that in maintaining a focus on assigning numbers or letters to texts as labels that represent their difficulty, sight can be lost of what matters in reader–text interactions (p. 57). Because comprehensibility resides in the interaction between reader and text, when estimating a text's difficulty teachers should also take into account a range of factors involving the reader (age, preference, reading strategy); the text (word, sentence, structure, topic, picture support), and the context (task, purpose) (Pitcher & Fang, 2007). Levelled texts selected for students to read independently need to be sufficiently interesting, yet at a manageable reading level.

Conclusion

In conclusion, levelled readers have a role to play in supporting practice with regard the development of literacy. However, Pitcher and Fang's (2007) recommendation that teachers develop a healthy scepticism about levelled texts should be noted. Teachers should consider levels assigned to texts by someone outside their classrooms only as starting points for further refinement in the light of various factors that influence the comprehensibility of a text.

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Training teachers to be school-based consultants: How to get started

Paula Long and Joan Tiernan

Introduction

The movement towards inclusion in special education has resulted in increased numbers of students with a range of special educational needs (SEN) being placed in general education classrooms. This is now an established key policy objective in many countries (Lindsay, 2007). The goal of inclusive education is to widen access to education for all students, including those with special educational needs and other vulnerable students. Promoting full participation, engagement and access to equal opportunities for all learners is central to the concept of inclusion, and is critical for those students vulnerable to exclusion. Ensuring equitable access to the core curriculum for all children (including students eligible for special education, students for whom English is not a first language, and students with diverse cultural backgrounds) requires that the adults responsible for their care and education work together in a collaborative, consultative way.

Hallahan, Kauffman & Pullen (2012) define collaborative consultation as when "...the special education teacher or psychologist acts as an expert who provides advice to the general education teacher" (Hallahan *et al.*, 2012, p.37). This definition can be broadened to include parents as part of the collaborative consultation process, as they are in a position to act as experts about their children.

Collaboration can broadly be defined as the interaction among two or more individuals, encompassing a variety of behaviours, including communication, information sharing, coordination, cooperation, problem solving, and negotiation. This definition is not confined to any one professional group, but can include a range of professionals and non-professionals alike. Friend, Cook, Hurley-Chamberlin, and Shamberger (2010) offer a definition of school-based collaboration specific to the needs of educators, as joint planning, decision making, and problem solving that may occur in a variety of formal or informal group configurations for the purpose of accomplishing a common goal (Cook & Friend, 2007; Cook & Friend, 2010; Friend, Cook, Hurley-Chamberlin, & Shamberger, 2010). While collaboration focuses on the interpersonal aspects of working with partners, consultation is concerned with the process. Consultation is defined as a "collaborative problem solving between a mental health specialist

(the consultant) and one or more persons (the consultees) who are responsible for providing some form of psychological assistance to another (the client i.e. a student in their care)" (Medway 1979, p. 276). Collaboration became recognised as the style of interacting with others, and it was identified as being separate from the process of consultation.

A number of different models of consultation have been described in the literature, (e.g., behavioural, mental health, process, instructional). However, at its simplest and irrespective of the model being considered, consultation is a problem solving process that has a number of core characteristics, including that:

1. it is a problem solving process that involves a number of steps or stages that are progressed through sequentially;
2. the success of the process of consultation depends on the relationship between the consultant and the consultee;
3. consultation is both a remedial and preventative intervention;
4. the consultation process helps the system to build capacity to solve similar problems in the future.

Awareness and understanding of these core constructs is a prerequisite for the development of competence in the area of consultation.

Collaborative consultation is therefore a process in which people work together to solve a common problem or address a common concern. In an educational context, consultative services can include:

- collaboration with classroom teachers to design or implement instructional strategies or to adapt instructional content or materials;
- advice to teachers concerning adjustments to curriculum, instruction, or environmental factors in the classroom that may facilitate learning for a student or group of students;
- consulting with parents and students themselves regarding learning strategies and organisational skills;
- consulting with district and community resource personnel.

The following features characterise a successful collaborative consultation process:

- participation is voluntary;
- identification/clarification of the problem to be addressed is a shared task;

- participants in the process are equal and all contributions are valued equally;
- the collaboration is based on mutual goals;
- there is mutual trust and open communication among the participants involved;
- the process depends on shared responsibility for participation, decision-making;
- the process involves participants who share their resources;
- accountability for the strategy initiated and the outcomes that result, is shared among participants;
- all participants' skills are employed in identifying and selecting problem-solving strategies.

Professionals themselves can benefit from working in partnership. Collaboration provides opportunities for professional development through formal and informal learning from peers with diverse experience and expertise (Kelley, 1996; Wesley *et al*., 2001; Rush *et al.,* 2003; Green *et al*., 2006; Mc Wayne, *et al.,* 2008). It is widely accepted that partnership and collaboration are central to educational professionals' roles, with benefits not just for children, but also for children's families and the professionals themselves (Lumsden, 2005; Woodruff *et al.,* 2005; Dalli, 2008; McWayne *et al.,* 2008). McWayne, *et al.* (2008) found that collaboration helped professionals working in partnership to achieve personal goals. Collaboration also contributed to their professional learning, as well as providing them with new perspectives on learning and development. Guo *et al.* (2011) reported that early childhood educators' sense of efficacy was increased by a sense of community in their settings, as well as opportunities to participate in decision-making. Early childhood professionals have valuable experience and knowledge about children's learning and development needs, and partnership provides important opportunities for sharing this expertise.

Professional partnerships are particularly important for professionals working with students with special educational needs (SEN). The support of professionals in several different fields may be required for children with SEN to thrive in inclusive settings (Wesley & Buysse, 2004; King, *et al*., 2009; Trepanier-Street, 2010). It is crucial therefore that professionals work in a collaborative, coordinated way to support families and children, ensuring that the child's best interests are at the centre of the process, including the decisions arising from the process.

The characteristics of effective partnerships include positive communication practices, collaborative planning, and the pursuit of common goals (Kelley,

1996; Lumsden 2005). All childhood professionals share a desire to ensure the best possible learning and development outcomes for children, and many professionals identify a need for collaboration to meet this aim (Woodruff & O'Brien, 2005; Dalli, 2008). Effective partnerships with professionals ensure that every child receives holistic and comprehensive support to meet their learning and development needs.

Farrell & Walsh (2010) found that student teachers felt more confident in their knowledge following collaborative learning activities, and qualified teachers also benefit from sharing their expertise with peers. Working in partnership allows professionals to draw on one another's knowledge to solve problems and plan effective approaches to responding to children's needs. Partnership also provides professionals with opportunities for critical reflection, a key component in the creation of knowledge about childhood learning and development.

Research into professional partnerships (e.g. health and education professional partnerships) highlights the importance of communicating effectively within and between settings (Hopps, 2004; Lumsden, 2005; Brandes *et al.,* 2007; Mc Wayne, *et al.,* 2008; Mogharreban & Bruns, 2009). Research undertaken by Hopps (2004) identified nine specific strategies to assist open communication between settings. These included:

- mutual respect;
- collegial meetings;
- reciprocal visits between settings;
- willingness from both sides to collaborate and communicate;
- formal and resourced processes that support collaboration;
- newsletters to facilitate information sharing.

What skills are needed for effective collaborative consultation?
A range of skills is needed for effective consultation. A competent consultant (whether a specialist teacher or school psychologist) requires three principal categories of skills (Block, 2011). These include:

- interpersonal skills that help us to function with people, and include communication skills such as being able to put ideas into words; listening to others; giving feedback; being able to ask questions and to disagree reasonably, and to maintain a relationship;
- technical skills that relate to our basic training specific to one's discipline, for example as a teacher or psychologist where we have some expertise that we can share with others;

- consulting skills with reference to the ability to move the problem solving process through the stages or phases of the consultation process and include, for example, entry and contracting; problem identification; problem analysis; planning an intervention and review.

Communication is essential for professionals to work in partnership. However, the diversity of professionals working within the early childhood and education sectors may lead to challenges, as professionals with different backgrounds may not share a common language or ways to describe children's learning and development (Wesley & Buysse, 2001; Lumsden, 2005; Weiner & Murawski, 2005).

Effective communication requires support at an organisational level. This means leaders and professionals all take responsibility for creating time and opportunities to communicate and share their expertise (Lumsden, 2005; Green *et al.*, 2006). Green *et al.* (2006), found that formal and informal training as well as coaching and mentoring supported close communication between professionals, and time allocated for professionals (in this case mental health workers) to spend in the classroom was particularly effective in building collaborative relationships. Likewise, other research found that it can be beneficial for professionals to plan together, collectively, for children's learning and development (Case-Smith & Holland, 2009; Mogharreban & Bruns, 2009).

Teacher training in consultation.
Teacher training in consultation, collaboration and coaching skills, is evolving internationally. In the USA, the concept of the consulting teacher has evolved since the early 1980s, with clear role and responsibility criteria set down. The principal role of the consulting teacher is to work with teachers and their caseloads to help them to meet the performance standards set down by their State Education Department.

Support from a consulting teacher can also be offered, for example, in the following areas:

- developing a growth plan based on a teacher's strengths and weaknesses;
- observing lessons and providing feedback in post-observation conferences;
- co-planning lessons;
- modeling a lesson;
- providing resources and materials;
- arranging a visit to another classroom to demonstrate a new practice.

The consulting teacher is expected to have knowledge and competence of working with a range of students including those with SEN. In the USA, the role has expanded to support teachers who fail to meet required standards of practice, but essentially the role is to support mainstream teacher in, for example:

- the development of individual education/behaviour support plans for students experiencing difficulties;
- relation to classroom management strategies;
- curriculum differentiation and adaptation, and
- relating to students with a range of SEN.

In discharging this role, the consulting teacher can use consultation as a framework for including the classroom teacher in the problem-solving process. In the USA, this role is developed through a specialised training programme incorporating the concepts of consultation practice over a number of semesters.

The concept of the consulting teacher is only now emerging in Ireland and pre-service or in-service training in consultation skills is limited. Here, the role of the specialist teachers is beginning to change, particularly in primary schools, and has now expanded to support classroom teachers in delivering services to students, in line with the *Continuum of Support* (2007, 2009, 2010), which states that the classroom teacher retains ultimate responsibility for the teaching and learning of **all** students in their classroom, including those with SEN.

The aims of the consultation process are twofold: solve the immediate presenting problem, and use the learning acquired in doing so to prevent further problems and to respond more effectively in the future (Gutkin & Curtis, 2009). Whether being delivered by a school psychologist or a specialist teacher, the skills required to engage in this process successfully are essentially the same.

A range of essential skills has been identified for effective consultation (West & Idol, 1987; West & Cannon, 1988). These include (a) a working knowledge of consultation theory and models; (b) training and practice in consultation; (c) good communication skills; (d) skills in collaborative problem-solving; (e) knowledge of systems change; (f) experience and knowledge of equity issues, values and beliefs; (g) skills in staff development, and (h) the ability to evaluate the effectiveness of the intervention implemented following the consultation process.

Why is intervention implementation fidelity important?

Evidence-based interventions have credible and reliable evidence of effectiveness to support them. This means that there is strong research to suggest that the interventions chosen to address a particular presenting problem produce the

expected and desired outcomes. Partners in any collaborative consultation process need to be conscious of the evidence available for the possible strategies suggested in the consultation process, and to be aware that a requirement of such interventions is that they are implemented according to the instructions. Therefore it is imperative that those implementing any intervention that arises from a consultation process are familiar with the intervention and what is involved. According to Forman, Olin, Hoagwood, Crowe, & Noa, (2009, p.26) factors that are important to successful implementation and sustainability of evidence-based interventions in school settings include, for example:

- development of principal and other administrator support;
- development of teacher support;
- development of financial resources to sustain practice;
- provision of high-quality training and consultation to ensure fidelity;
- alignment of the intervention with school philosophy, goals, policies, and programs;
- ensuring that program outcomes and impact are visible to key stakeholders;
- development of methods for addressing turnover in school staff and administrators.

Collaborative consultation can be an effective means of addressing these issues.

The ultimate goal of school-based consultation is the design of an intervention or plan of action that addresses the needs or presenting problems of the client (i.e. a student). According to Gutkin & Curtis (2009), the success of any plan is determined by assessing whether the referred problem is resolved or ameliorated. Successful implementation of any plan depends on teachers (classroom/subject teachers and special education teachers) understanding the proposed plan; being engaged in the process of developing this plan that they themselves will have to implement; understanding their responsibilities in its implementation, and being able to implement it with fidelity and commitment.

As mentioned above, the desired outcome for any consultation process is the implementation of an agreed intervention by the consultee, designed to effect change for the client(s). This desired outcome involves the understanding of further concepts such as: response to intervention (RTI) (Reschly & Bergstrom, 2009), treatment fidelity (Smith, Daunic & Taylor, 2007), progress monitoring (Fuchs & Stecker, 2003) and evidence-based programmes (Kratochwill & Stoiber, 2001), to name but a few. While these concepts and their relationship to consultation are critical to the effectiveness of consultation practice, they are beyond the scope of this article. However, they need to be included and

referenced in the consultation conversations in order to develop the awareness of the consultee of their crucial role in the process of change for the client(s). How this might happen can only be assured if the consultee in the consultation process understands and engages in the process voluntarily. The means of achieving a successful outcome also hinges on the consultee engaging in the process willingly, participating actively, and having the skills to communicate effectively with the parties involved.

Engaging the consultee in the consultation process is an important goal for the school psychologist. To go one step further and encourage the consultee to act as a consultant within their own system (the school), involves addressing one of the two core functions of consultation, prevention (the other being remediation). The first stage of any consultation process is that of entry and contracting. This a particularly important stage, as it sets the scene for the consultation process to take place, clarifies what may be involved, what responsibilities are whose, and how long the process might take. This clarification stage can also address possible barriers to successful consultation, thereby reducing the possibilities of the process failing. Additionally, it allows for the consultation process itself to be explained to the parties involved.

According to Block (2011), the skills needed to complete the business of this stage include the ability:

- to ask direct questions;
- to elicit the consultee's expectations of the consultation process;
- to clarify and state simply what is needed from the consultee;
- to probe the consultee's underlying concerns;
- to challenge and confront constructively;
- to begin the process of developing a relationship with the consultee.

Listening skills, ability to elicit information and give feedback, and to disagree constructively are essential sub-sets of the skills required to execute this stage.

Can we train these skills and what do we know about training?
There are four essential categories of skills that should be included in any teacher training for collaborative consultation (Bradley, 1994; Gravois, Knotek & Babinski, 2002; Smith and *et al.* (2012). They include:

- personal interactive style, and the impact of personal characteristics, beliefs and values on the collaborative relationship;
- communication skills, which address the interactive process, problem-solving styles and the interpersonal skills of the participant, which

comprise listening skills, interpreting nonverbal communication, giving and receiving feedback, and showing respect for the participants;

- the stages in the collaborative consultation process, i.e., problem identification, data collection and interpretation, incorporating strategies and methodologies for addressing problem areas, and evaluation of the intervention/process;
- collaborative models for the delivery of services that support classroom teachers in supporting students in their care, including consultee-centered consultation, team teaching, group problem solving and peer coaching.

Within the consultation literature, training methods have been divided into two broad categories, indirect didactic training and direct training procedures for example; modelling, role playing, rehearsal, and feedback (Moore, Sterling-Turner &Watson, 2002). Numerous studies have demonstrated the superiority of direct training procedures over didactic training procedures for enhancing skill development (Moore *et al*., 2002; Mueller *et al.,* 2003).

Rosenfield (2002) proposed a model for consultation training for school psychologists that included a number of stages that would progress as follows:

(a) development of an awareness and understanding of the necessary skills,

(b) the acquisition of skills via simulations,

(c) the applications of skills under careful supervision and,

(d) advanced skill development via continued professional development.

Combining Rosenfield's training model, with direct training procedures, this article describes a brief consultation-training programme for specialist teachers, and it will discuss the beneficial outcomes that emerge from such training.

Methodology

In investigating how to formulate specialised training programmes in consultancy skills for teachers, the researchers used an action research methodology (Lewin, 1946; 1951; Kemmis & McTaggart, 2000; McNiff & Whitehead, 2006) to design and develop a short training programme (described below) for primary school special education teachers (n = 16), selected from a range of both urban and rural schools in Ireland. Ultimately, six principal objectives for the training in the present study were considered, including:

- to raise awareness about what consultation is and is not;
- to develop participants knowledge and understanding of the basic stages of the consultation process;

- to distinguish between the stages/phases of consultation and the skills required to complete each stage/phase;
- to emphasise the process and relationship elements of consultation;
- to provide a range of sample templates to record consultation activity;
- to stimulate discussion and dialogue about consultation in relation to supporting students with SEN.

This project consisted of three parts:

- an assessment of teacher's training needs;
- the development of a training program based on their needs, and
- field testing the programme's practical utility and evaluating its outcome.

Participants

The participants for the needs assessment were drawn from the specialist staff in the range of primary schools in the author's service area located in rural Ireland. All participants had a specialist role (Learning Support/Resource Teacher) in their respective schools, and all were female. Letters explaining the study, questionnaires, and informed consent forms were delivered to each participating school, where they were then distributed to teachers. Participants completed the survey forms that were then collected from each school.

The pre-training questionnaire aimed to evaluate the needs and expectations of the training to obtain an idea of the level of awareness of consultation practice among participants: whether their school would be open to the changes implied in a consultation approach, and whether school staff would collaborate with them in a consultation process relating to children in their classrooms.

Teachers' Training Needs

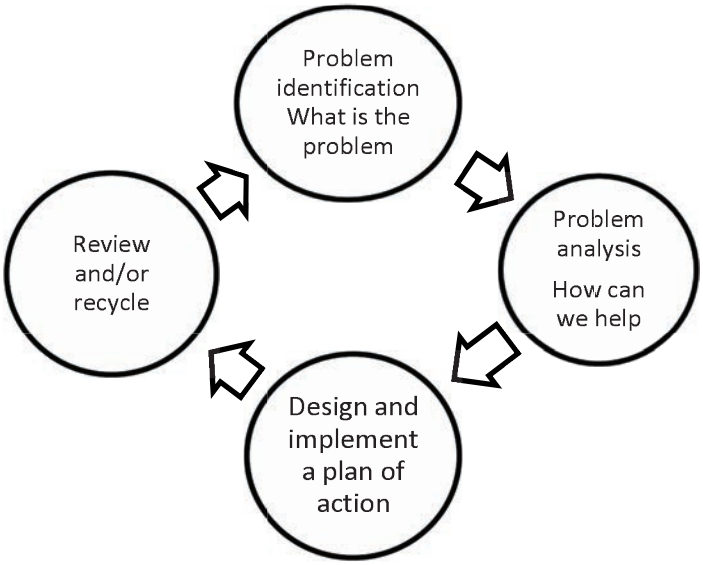
Of the 16 teachers who agreed to participate in the training programme, 10 (63%) returned completed pre-training questionnaires. In total 80% (n = 8) of participants indicated that they knew what consultation was in the context of special education. All participants indicated that they were interested in participating in the training programme proposed. All participants (n = 10) indicated that their school was ready for the changes implied in implementing a consultation model of service using the *Continuum of Support* documents as a framework and reference point. All participants indicated that their school management teams were supportive of the changes they would bring back to their respective systems. In total, 9 (90%) participants indicated that in their school, classroom teachers would collaborate with them in the problem-solving process. Asked how their school psychologist could support them in the implementation of the changes to service provision implied in a consultation

approach, a total of 80% (n = 8) of participants suggested whole staff presentations; 70% (n = 7) requested support in relation to support documents/templates; 60% (n = 6) requested support in relation to case studies; 80% (n = 8) requested ongoing support from the school psychologist.

The training programme

The training programme took place over a four-week period, from May to June 2012, with four individual weekly sessions of 120 minutes per session. Sessions were short to facilitate school release and staggered to allow for reflection, review and application of concepts between sessions. Each session was individually evaluated. The programme addressed the core characteristics of consultation in an educational context; set out the cyclical and process nature of consultation emphasising the core stages or phases of the process; addressed the skills required to engage in the process effectively, including and distinguishing between interpersonal, technical and consulting skills; emphasised the importance of the relationship in the process and the skills needed to develop and maintain relationships; addressed ways and means of recording the consultation process and defined who is responsible for doing so, and addressed how and why consultation is an effective way to support students with SEN.

Figure 1. The problem-solving process



During each session the discrete stages of the problem solving process were emphasised and reinforced (Figure 1, above).

Each session was structured to include time for didactic teaching of concepts (40%); small group discussion and feedback to the larger group (20%); small group activities that included activities relating to problem identification and problem analysis, case studies and role playing of scenarios (25%) and large group discussion and reflection (15%).

Materials provided.
Participants were provided with an individual consultation training pack that included a consultation manual, developed for the purpose of the training. Provision of a manual on consultation had proved effective in previous studies (Lloyd & Millenky, 2011). The pack also contained the following: an assessment protocol for schools, an individual education/behaviour plan template; an information sheet on the art and science of questioning, and an explanation of the function of various types of questions. The training programme was delivered, using a Power Point© presentation (80 slides) format as the guiding structure for the programme addressing the principal objectives of the training referred to above.

Following each of the first three training sessions participants were requested to complete a 5-item rating scale, reviewing both organisational and content aspects of the programme and whether their understanding of and skills in practicing consultation had increased. Results were aggregated and are summarised in Table 1 (below).

Overall ratings for the training sessions were positive, with participants agreeing that the workshops were well organised; were relevant to their concerns and needs, and that they developed their knowledge and skills in the practice of consultation to the extent that they could apply these skills to their practice. Overall, workshops were evaluated as being either excellent or very good. Suggestions made in these three session evaluations were incorporated into the following sessions, such as the inclusion of case studies; a comfort break in the middle of the session, and opportunity to progress a case study using the sample templates provided in the training pack.

A more detailed evaluation form was designed for the final evaluation of the series of training sessions that attempted to evaluate changes in practice among teachers following all four training sessions. The authors wanted participants to reflect on the training as a whole and how it had informed or changed their practice.

Table 1. Summary of participant's rating of aspects of the training programme

The workshops were well organised	**Strongly agree 5 4**		**Neutral 3**	**Strongly disagree 2 1**		
	n.	***n.***	***n.***	***n.***	***n.***	**Totals.**
Total	38	4	0	0	0	42
The content was relevant to my concerns and needs	**Strongly agree 5 4**		**Neutral 3**	**Strongly disagree 2 1**		
	n.	***n.***	***n.***	***n.***	***n.***	Totals
Total	35	7	0	0	0	42
My knowledge and skills have increased	**Strongly agree 5 4**		**Neutral 3**	**Strongly disagree 2 1**		
	n.	***n.***	***n.***	***n.***	***n.***	Totals
Total	29	9	3	1	0	42
I can apply this knowledge and skills in my work	**Strongly agree 5 4**		**Neutral 3**	**Strongly disagree 2 1**		
	n.	***n.***	***n.***	***n.***	***n.***	Totals
Total	26	14	2	0	0	42
Overall the workshops were	**Excellent/Very Good 5 4**		**Average 3**	**Fair 2**	**Poor 1**	
	n.	***n.***	***n.***	***n.***	***n.***	Totals
Total	24	17	1	0	0	42

A total of 13 final evaluation forms were returned. Results are summarised in Table 2 (opposite).

Table 2. Summary of findings from the final evaluations for the training

Has your practice changed since attending the training?		Yes *n.*	No *n.*	Missing *n.*
		10	2	1
What did you find most useful?		(*n* = 13)		**%**
1.	Case studies	6		46%
2.	Templates	5		38%
3.	Framework for consultation	3		21%
4.	Group activities	2		15%
5.	Rationale	1		7%
6.	Presentation hand-out	1		7%
Barriers to the implementation of consultation		(*n* = 11)		**%**
1.	Attitudes and commitment of teachers	6		55%
2.	Time factor	3		27%
3.	Promotion of consultation as a way of working	1		9%

Of those, all (*n* = 13) indicated that they understood the consultation process fully. Of those, 77% (*n* = 10) indicated that their practice had changed since attending the training, and cited the use of templates, provided as a means of recording the process, and allowing more time as the main changes in practice. The use of case studies in the process was cited as most helpful in the training process, while a supportive principal was cited as the factor most likely to influence the use of a consultation approach in their schools. Of the 16 participants in the training, 13 indicated that they would now be able to apply the knowledge and skills to their daily practice. Further themes emerged, including the need to provide on-going support to SEN teachers in developing the consultation approach and embedding the *Continuum of Support* (2007, 2009, 2010) framework in schools in general, and the need to support the process with a set of tools and resources that reinforces and sustains its practice. Teachers reported that the sample templates gave them confidence in implementing a consultation approach, and helped them keep track of the process.

In what ways has your practice changed?

Not all participants reported on how their practice had changed, but a total of 69% (n = 9) did offer a comment. Of those that did comment, 55% (n = 5) reported that they would use the templates or record forms to record their consultation activities. Comments included:

> *"Have access to the systems (e.g., Records, forms) necessary to carry out the process; I am more aware of my role and the role of other participants in the process"*
>
> *"Less impetuous to rush in – gather information more thoroughly at first"*
>
> *"I would feel more competent at using the consultancy forms for meetings"*

A number of participants (n = 5) commented on the fact that they felt more informed and confident about the process and included the following comments:

> *"Feel my confidence around it has been grown"*
>
> *"Will do more background work and collaboration"*

Participants acknowledged that the templates provided during the training would serve to record the consultation process more effectively. In recording the process of consultation it was hypothesised that participants would be more likely to adhere to the four/five stages of the problem solving process, thereby increasing the likelihood that the implementation plan would be executed and, most importantly, reviewed.

What did you find least useful?

This question was included to learn not only what participants found useful in the training sessions but also what they found least useful, in order to inform future training sessions. In total, four participants (31%) offered suggestions in response to this question. Analysis of the responses indicated that two participants found the background theory on consultation was "long-winded" and "heavy".

> *"Lead into it was long-winded"*
>
> *"The theory was quite heavy"*

Considering the complexity of the consultation process, it is difficult to condense the theory and rationale for consultation further, but perhaps this suggestion might be used to break up the theory section of the presentation further with a range of activities.

Do you understand the consultation process?
This question was included to check if participants understood the consultation process and what it involves following the training. All participants (n = 13) reported that they now understood the consultation process. As one of the main objectives of the training was to inform participants of the consultation process itself and its relevance to work in schools, particularly in respect of students with SEN, this represents an achievement of this objective.

What opportunities do you have to implement the approaches outlined in the workshops?
This question sought to identify the opportunities and possible barriers to implementing a consultation approach in the participant's schools. A number of participants' responses refer specifically to those factors mentioned above by West and Idol (1989) including management support for the consultation process and time constraints:

> *"Plenty, our principal is very supportive and always makes plenty of time for consultation to take place within school hours"*
>
> *"Good – lucky to have a good support network within school to allow me to implement these approaches"*
>
> *"Time constraints will be an issue but I feel it will be easier to tackle barriers to consultation after training"*

Teacher attitude is also mentioned as a facilitator for participants implementing a consultation approach in their schools:

> "*I can begin to use opportunities with the teachers and parents I am working with"*
>
> *"I hope to deliver information to staff and begin new practice"*

Using the consultation approach with parents is also cited as an opportunity for two participants to implement this way of working in their schools:

What further training could your school psychologist provide in order to help you operationalise a consultation approach in your school or practice?

Given the complexity of consultation practice, we anticipated that the training provided in the four workshop sessions would not be sufficient to ensure teachers' competence in applying a consultation approach to all aspects of their work. We wanted to help teachers begin to embed this model of practice in their schools and, in wanting this, we understood the need for further support.

All participants made suggestions in response to this question. Of those, 46% (n = 6) suggested cluster meetings, where participants come together in a group to

share experiences and resources, support each other in their work, while building a self-reflecting approach to their role. This suggestion lends itself to the concept of group consultation (Evans, 2005), an approach to supporting groups of teachers from smaller schools to develop their consultation practice. The group consultation approach was proposed and developed by Evans as a means of supporting small schools in a large geographical area that was sparsely populated. The development of this model of service delivery aimed to offer professional support and guidance to teachers. Evans attempted to achieve this by giving regular opportunities for teachers and school psychologists to meet in groups, to engage in problem-solving and sharing of skills and resources, with colleagues who had a range of experience, and who had experienced potentially similar problems. The model offered a clear and supportive framework that facilitated the application of psychology to problem situations. Evans (2005) also emphasised the principle of psychologists working in cooperation and partnership with teachers, and facilitating the development of co-operative working relationships between teachers. She considered this central to the development of the group consultation approach. She also reported that this model of service delivery provided opportunities for a small educational psychology team working in a rural area to deliver an effective and regular consultation service to schools.

A recurring theme throughout the feedback is that of whole school/staff presentations:

> *"I am conscious having done this training that another teacher may be moved to learning support next September, I will pass on the information, but I really feel that a summarised whole school training needs to take place for the mind-set to change".*
>
> *"School visit to help inform whole school further, review meetings".*

It is envisaged that this request will need to be considered, and provision of this further support developed. The need for this type of ongoing support will reduce as skills develop, with teachers having more confidence in their own skills and practices.

How does the Continuum of Support model fit with the process of consultation?
This question addressed whether teachers considered that the continuum model and the consultation process complemented one another. In total, seven participants (53%) responded to this question. Of those, 57% (n = 4) indicated that they fitted well together:

> *"Great to have a general framework for consultation that lends itself so well to BESD"*

One participant indicated that the documents made more sense following the training, commenting:

> *"Documents make more sense"*

That the training helped to operationalise the *Continuum of Support* (2009) is a bonus and points to the fact that the continuum approach and consultation are complementary processes.

Discussion and conclusions

A set of four training workshops on consultation skills development for SEN teachers was developed and implemented in order to inform and train participants in the theory and practice of consultation. We were unable to source an existing training programme for SEN teachers, in spite of the fact of having made enquiries about such a training pack. Neither was it possible to source a training pack on-line. We were therefore required to develop the training programme, without reference to examples of such programmes from other services or jurisdictions. The quality of the training programme can only be judged from the feedback received from participants.

The objectives of the training referred to above were in the main achieved. Evaluation of the training sessions revealed a number of recurring themes, including the need to provide on-going support to SEN teachers in developing the consultation approach and embedding the *Continuum of Support* (2009) framework in schools in general. This is clearly a role for the school psychologist. Participants suggested a number of ways in which support might be offered, including cluster meetings and having access to a school psychologist for advice and support as required.

A further theme emerging from the evaluation process is the need to support the process of consultation with a set of tools and resources that reinforce and sustain the practice of consultation in schools. Teachers reported that they found the sample templates provided during the training as very helpful, giving them confidence in implementing a consultation approach. Templates for recording practice can be used as a means of evaluating practice. Psychologists working in education services are familiar with the concepts of self-evaluation, self-review, reflective practice and supervision. School staffs are less familiar with these concepts. Until the introduction, in November 2012, of school self-evaluation (DES, 2012), the only evaluation of their practice was a school inspection or subject inspection carried out by the Department of Education and Skills (DES). The idea of action research and self-evaluation to inform practice is still quite novel for many teachers. However, with the introduction of self-evaluation in schools by DES, concepts referred to above will become commonplace.

On-going support from the school psychologist and other teachers in the form of cluster group meetings emerged as a strong theme, suggesting that teachers would welcome on-going support while implementing the consultation approach in their work. The idea of cluster group meetings lends itself to the concept of group consultation (Evans, 2005). This approach has proved very successful for rural schools whose allocated time from a psychological service is limited.

Furthermore, a strong theme emerging from the evaluation was the need for school staff to receive some form of in-service training or briefing about the consultation approach; the roles and responsibilities of the various parties involved, and expectations from the process. Participants were anxious that such a whole-school presentation be provided. While this suggestion is appropriate, we would support a joint presentation style with the trained participant and the school psychologist. The themes referred to above are frequently cited in the literature relating to the training of teachers in consultation and collaboration. Finally, this training programme was innovative, as no similar training programme was available in the Irish education system. The outcome from the training was positive, although whether it brings change remains to be seen.

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Peer Assessment: A Powerful and Liberating Learning Strategy

Joe Flynn, Grainne Barry, Anthony Doogan and Anne Marie Luby

Introduction

In this paper we consider the potential benefits of regular, in-class peer assessment, and consider how it differs fundamentally from the current practice of almost exclusively using a terminal examination (summative assessment) to gauge the progress of students. Summative assessment is declared by Strijbos and Sluijsmans (2010) as being generally restricted to an evaluation of cognitive ability at the end of the learning process. On the other hand, they propose that formative assessment engages students throughout the process of learning and broadens their understanding of what learning is, to include social, affective, cognitive and meta-cognitive learning. D. Wiliam (2011), however, agrees with Broadfoot *et al.* (1999) of the Assessment Reform Group, who insist that the term "formative assessment" has now been used in so many ways that it may be no longer helpful. He prefers the term *Assessment for Learning* (AfL) where the emphasis is on a quality of feedback from reviews by both teachers and peers, that instills confidence in the student's ability to improve, and ultimately involves a more honest and effective level of self-assessment.

The move to incorporating such a process in any system of education seems eminently desirable, especially if it develops our students' ability to communicate, to collaborate, to maintain motivation and to appraise their own efforts honestly. Although commentators (Topping, 2005; Kollar and Fischer, 2010; Strijbos and Sluijsmans, 2010) acknowledge the dearth of published research on the subject, all would agree that peer assessment contains the seeds of a potential revolution in learning and general classroom practice. Furthermore, as will be outlined in two instances below, this classroom revolution can undoubtedly benefit all ages and all levels of student ability. Acknowledging the need for a much greater body of evidence, those commentators suggest several productive areas in which to direct those currently in need of research topics.

Following a review of the available literature, there follows an account of two classroom interventions. The first one refers to a Second Year, mixed gender, English Literacy class (average to below-average range of ability), engaged in developing literacy through their discursive writing skills. The second is a more

elaborate exercise, involving more than one hundred Transition Year students, studying Higher Level English in four separate schools. The objective was to check some of the claims made by researchers and theorists in regard to using peer assessment.

Literature Review

Peer assessment is a comparatively new concept in education – and in secondary school education in particular. Since the 1980s, writers have focused on the role that peers might play in assisting students to learn. The terminology, however, varied as much as the practice and, in the end, little common ground existed for researchers to make direct comparisons. Published articles referred to peer-assisted learning, peer monitoring, peer feedback, peer tutoring, peer review, and so on; all had much in common, yet retained fundamental differences in their practice. K. J. Topping (2005), in his review of the developments in peer learning, focused on peer tutoring, cooperative learning and peer assessment over the previous twenty-five years. He found that schools that had opted for cooperative learning and peer tutoring systems were generally doing little more than "putting children together and hoping for the best" (p. 632). Even though students were seated in groups, they were actually working as individuals most of the time. While acknowledging the earlier weakness of a theoretical base for this promising development, he noted that one of the most important changes in recent years was a far greater focus on "implementation integrity", and he went on to identify a list of thirteen variables to consider when planning any system that involved peer learning in class.

The area identified by Topping as having seen most growth, both in widespread use and in building an evidence base, was peer assessment (PA); but this was predominantly in university education. He described it simply as "peers evaluating the products or outcomes of learning of others in the group" (p. 640). This somewhat belied its complexities and its potential for effecting successful learning experiences. Here, the interchangeability of the terms "assessment" and "evaluation" is common; such interchangeability is a common feature throughout the literature on the subject.

The present authors suggest that students should be introduced to the process of PA firstly by responding qualitatively, in anecdotal form, to the work of a classmate. Such a response would include some positive commentary in praise of the work done, while simultaneously providing some advice and assistance as to how it might possibly be improved (i.e., AfL – formative assessment). Having become accustomed to this task, class members could then be challenged to award a mark or a grade to the piece of work (i.e., assessment of learning (AoL) – summative assessment).

In order for students to feel comfortable in allocating an actual mark to the work of a peer, one must tread carefully. In some respects, PA places the student in the

position of the teacher. According to Topping (2003), a tendency exists for these marks to "bunch" in the centre of the range, thus rating most pieces as average. Such averaging is a possible indicator of some social discomfort on the part of the assessor. Steps can, nevertheless, be taken to transform this operation into a productive experience. The writers suggest that, initially, students should receive training and practice in responding to the works of others. They would do this individually and collaboratively. The responses would focus on providing qualitative feedback that is correctly regarded as being quite valuable and cognitively demanding of the respondents.

Having developed adequate competence in evaluating the works of others, the process of allocating marks and grades could be introduced. To begin by using authentic examination questions (or parts thereof), which have a clearly defined scheme of marking, is a helpful suggestion. Students may then be asked to perform an assessment individually, followed by discussions in collaborative groups to achieve consensus, and leading on to an open class discussion with the teacher in the role of moderator. Students quickly become attuned to identifying what is necessary to gain full marks. Birenbaum (2003) referred to this conceptual shift in the practice of assessment, from a teacher-directed perspective to one that involves students, as moving from a *testing* culture to an *assessment* culture.

The authors attest to the benefits of such an exercise, especially in regard to preparations for state examinations in their current format. Students become far more analytical in addressing multi-faceted questions, resulting in more complete answers. One of the many benefits of this is the acquisition of valuable skills necessary for self-assessment, especially when the student is studying and revising for examinations alone, at home in the evening or during holiday time. Although employing this process has obvious benefits in the current era of terminal examinations, the main focus of PA should be concerned with equipping students to provide formative and qualitative responses in anecdotal form, that are likely to be more socially comfortable, and that are of far greater use to both the assessor and the assessee than a simple mark or grade.

No standardized set of characteristics exists that could be said to represent the practice of PA. In an early review of the literature, Topping (1998) identified as many as 17 characteristics; testimony to the view that there is a high level of diversity, and a corresponding ambiguity that frustrates the presentation of a cohesive body of research results. Nonetheless, the work in establishing sound reasons for using PA in schools continues. Strijbos and Sluijsmans (2010) emphasized the necessity for a wide range of studies to be undertaken, in order to reveal systematically the elements that promote learning. Furthermore, they stress the importance of methodological, functional and conceptual developments in this quest.

In regard to the methodology thus far employed, most of the findings have been gleaned from students' self-reports. Although valuable in many ways, there is too much diversity in regard to key variables, so the findings do not yet provide the opportunity to generalise about the learning that can be produced from PA. Consequently, improvements in research design and instruments, and analytical techniques are sought.

The need for functional development relates to the fact that, heretofore, research in this area was primarily concerned with comparing peers' summative ratings with those of the teacher. Such classroom activities are valuable in certain contexts, as outlined above in regard to state examinations, especially when a high level of reliability between both is achieved. If the PA process is not connected to the instructional setting, however, the result is a lack of what Biggs (1996) refers to as "constructive alignment", i.e., not clearly establishing the purpose of a specific PA practice in relation to the anticipated learning outcomes.

Finally, a conceptual change is needed, the main reason for this being that PA has been regarded as a one-off occurrence, rather than an interactive, cyclical, ongoing, social process, in the realm of AfL – very much in line with Vygotsky's (1978) work, and with current collaborative learning theory in general.

This appeal for such new initiatives in researching the area has been answered in part. In the past decade, some very valuable studies of PA have been conducted and their findings published. They describe clearly the methods and conditions in regard to the various settings and, crucially, they are related to outcome variables. Five studies have been selected and an account of each is provided below.

Van Zundert, Sluijsmana and van Merrienboer (2010)

In the first of these, van Zundert, Sluijsmans and van Merrienboer (2010) reviewed a total of twenty-six studies, predominantly at university level, in which they focused on the relations, conditions and outcomes, in order to establish some key variables that are essential for effective PA, and by which various studies could be compared. Their work is regarded as a significant contribution to the methodological development of PA. Four variables that could be used as a basis for comparing the studies were identified: (1) psychometric qualities, (2) domain-specific skills, (3) peer assessment skills, and (4) student attitudes. The main question was, "under which specific circumstances are particular types of peer assessment beneficial for particular types of student learning?" According to the authors, it was the first review of any significance to investigate how PA conditions, methods and outcomes are related.

The findings for each category were quite diverse and expressed in a variety of ways, but well summarized by the team. In regard to psychometric qualities, the

results showed that when some training in the skills of PA was offered, and when students had gained experience in giving and receiving feedback, a high consensus between responses of peers emerged. The correlation was also deemed as satisfactorily close between peer and teacher assessments, but less so between PA and traditional examinations. Interestingly, it was noted that students tended to offer ratings that were lower than those provided by tutors.

In considering domain-specific (subject-area) skills, a direct, positive relationship was established between writing performance and allowing students to revise written work on the basis of peer feedback, especially if it was offered in a systematic, rubric-style format. Students identified as high executive thinkers (i.e., willing to follow instructional rules), as opposed to their more creative and independent classmates who were deemed to be low executive thinkers, were seen to benefit more from PA in terms of their written assignments. The latter group responded better to specific feedback, rather than to a general comment or overall score. In addition, the need for providing adequate time in a small-group setting for this task was preferable.

Training was found to affect peer assessment skills in a very positive way. Those who received training provided a more useful quality of feedback. Also, high executive thinkers were better at assessing the work of peers, and those in the higher academic achievement bracket were generally more critical and skilful than low achievers.

In almost all cases, students' attitudes to peer assessment were quite positively influenced by training and experience. Although many had reservations and little confidence prior to engaging in it, the experience was found to generate quite a contrasting attitude later. They indicated that they had learned well from peer assessment, and that they considered their peers' perspectives beneficial.

Finally and remarkably, the reviewers noted that almost none of the twenty-six studies that had been chosen differentiated between the effects of assessing and of being assessed by one's peers. Besides this omission, they listed several other deficiencies in content and methodology that warranted further examination, in order to develop the work of systematically determining the mechanisms within the process of PA that influence learning and performance. They cautioned that, because the list of quasi-experimental and truly experimental studies on the topic is so small, the findings of the reviewed studies must be interpreted with some caution. They concluded by pointing out that PA has many facets, particularly at secondary school level, that require investigation: for example, its psychometric qualities, the long-term effects and transfer of learning and, of course, the benefits of assessing as opposed to being assessed by a peer – echoing the familiar call for more advances in the functional and conceptual development of PA.

Van Gennip, Segers and Tillema (2010)

The functional and conceptual development of PA research was advanced by the work of van Gennip, Segers and Tillema (2010). They conducted a literature review of empirical studies that measured learning gains in PA settings from 1990-2007, but they identified only fifteen. In reviewing the nature of PA, they found that "it is an inherently social process in which students, by assessing each other, learn with and from each other as peers" (p. 281). In their view, it was due to the collaborative discussion of criteria and standards, and the provision of feedback, that learning took place. Surprisingly, hardly any other study had given consideration to this interpersonal context.

From a battery of studies on team learning over the previous decade, they identified four key interpersonal variables that had been found to influence team success:

1. psychological safety – a belief that the group environment is safe for risk-taking;
2. trust – confidence in their peers and themselves as assessors;
3. value diversity – differences in opinion about their objectives;
4. interdependence – regarding themselves as being linked to each other on a task.

They set out to answer two research questions. Firstly, they asked if participating in a PA intervention over time produced a change in students' perceptions of these interpersonal variables, in addition to their own conceptions of PA. Secondly, their aim was to explore how those four variables related to students' conceptions and opinions of PA and to their improved learning as perceived by the students themselves.

The results of the study helped to confirm a number of hypotheses. When compared to students in a traditional teacher-assessment setting, students in the PA setting demonstrated higher levels of psychological safety and much lower value diversity. Put simply, they felt more at ease and could collaborate, and depend on each other, to achieve unanimity on their various goals. Directly related to this were the students' increased perceptions of their own learning gains. Trust in their peers and themselves as assessors grew significantly as the project progressed, leading to much more positive conceptions of PA, and to significantly expanded notions of how much more they could learn in such a setting.

There are limitations on how far Segers and Tillema's findings can be generalized, mostly due to the fact that all the participants were male teenagers in a secondary school. Nevertheless, their study served to underline the

essentially social nature of PA. To date, there have not been many studies where PA is explored from a social perspective. The need to fill such a void is undeniable.

Kollar and Fischer (2010)

In acknowledging that research on PA "is currently in a stage of adolescence, grappling with the developmental tasks of identity formation and affiliation", Kollar and Fischer (2010, p. 344) affirm its importance as a component of a more participative learning environment. Their focus is also on functionally and conceptually developing the process. In regard to its identity formation, reference is made to the diversity in terminology noted above, and to the lack of agreement as to what overt processes actually constitute PA. It is argued that the solution to this crisis lies in the development of a shared language in regard to its key elements, and the evolving of a commonly-agreed and 'cognitively-toned' model. In regard to affiliation, they suggest that PA research should reflect more strongly its close relationship to areas such as collaborative learning, argumentation and help-seeking. Stronger links with research in the area of collaborative learning, however, would appear to provide the greatest reward. Their intention was to offer guidelines for research on the topic, in order to clarify an identity for PA and to enable the building of a theoretical base for it. Kollar and Fischer provide a list of four activities that typically occur in a PA session and each, in turn, is described in detail.

- The first activity is a *task performance*, usually by an individual, but sometimes by a group.
- Second is a form of *feedback provision* on the product of that task – and sometimes on the process by which it was produced.
- Third is *feedback reception*, the learning benefits of which can be enhanced by dialogue, in order to clarify, discuss, argue, and so on. This is to be highly recommended. The crucial issue here is that the feedback is taken up by the receiver.
- The fourth activity is normally *revision* that may be performed on an individual or collaborative basis, the latter seeming to offer more learning benefits.

By clearly identifying those four activities, and by describing the cognitive and discursive processes that should occur during each one, Kollar and Fischer provide a process-related model of PA which adds to its functional development. In addition, they invoke evidence from collaborative learning research that should serve to enhance its influence on providing successful learning outcomes, while simultaneously assisting with the effort to extend the conceptual development of PA.

Gielen, Peeters, Dochy, Onghena and Struyven (2010)
Gielen, Peeters, Dochy, Onghena and Struyven (2010) investigated the effects of constructive peer feedback on learning, in secondary education exclusively. They concentrated on the core characteristics of this type of qualitative commentary. They set out to provide answers to three questions:

1. Are the constructive feedback characteristics able to raise performance?
2. Do constructive feedback characteristics add to the effects of feedback accuracy?
3. Could an "a posteriori reply form", in which the assessee reflects on and replies to an assessor's comments, enhance performance?

The answers to the first two questions were positive. The student responses clearly affirmed that the characteristics of peer feedback content and the style of the response provided, particularly by explaining and discussing the reason for a specific piece of feedback (justification), can certainly help to improve learning in a PA exercise. The issue of feedback accuracy provided an interesting discussion. A student would not be expected to provide feedback as accurate as that of a teacher. Improvements in learning, nevertheless, were found to be far larger as a result of receiving peer feedback that included justification, than that from a teacher whose information was accurate, but often more negative.

As regards the use of the "a posteriori reply form" improving the quality of performance through being used by the assessee to reflect on the peer feedback and to guide revision, the effect seemed to be negligible in this short-term study. When used on a long-term basis, however, this instructional intervention produced superior results. The explanation for this may lie in the idea that students who use it regularly may over time become more reflective, self-regulated learners. As with most aspects of PA, more research into the short-term and long-term effects of such interventions is needed.

Lundstrom and Baker (2009)
Lundstrom and Baker (2009) discovered that very little work had been done in studying whether PA proved beneficial to second language learning or not. To address this deficit, they conducted an experiment to analyse the benefit of peer evaluation in second language writing. They further analysed the benefit to those receiving feedback, compared to those providing it. This was achieved by dividing the group into those who gave feedback only, and those who only received it. Ninety-one students were divided into nine classes. These were further divided into two levels of ability. Samples of all students' writing were taken before and after the process. Teachers analyzed this work and the progress of each student was noted. The average improvement for each group was also noted. The quality of work produced by both groups increased. Importantly, more improvement was noted in the written work of those who had given

feedback on the work of others, than of those who only received feedback on their own work. Furthermore, the students with lower levels of proficiency made more gains than those with higher levels. The results were presented, but the researchers did not offer explanations, or even speculate, as to why they were so. Without doubt, more work needs to be done on how to train pupils to give feedback, on how to form groups, on the types of activities that are suitable for peer evaluation and assessment, and on the methods to be used in order that pupils may become capable of critically evaluating their own work.

Two Classroom Interventions.

Preliminary Remarks

It is important that the group members are seated so that they can easily hear each other and see each other's faces, thus lowering noise levels. Individual accountability is encouraged by allocating three essential roles. At the beginning, each member adopts a letter A, B, C or D. The teacher then announces which letters will take on the roles of Chairperson and Secretary. The former will ensure that there is a contribution from each member of the group, while not allowing anyone to dominate, for that particular day. The Secretary will record the key decisions of the group. However, the identity of the Reporter will not be announced until the end of the deliberations, thus ensuring that all are playing a full part.

It is interesting that, when reviewing the experience with the students, one obvious reason for being attentive was that they did not wish 'to look foolish' in front of the whole class, but they also expressed a need to perform well for their team, a very desirable development. Time to reflect may be as useful for the teacher as it is for the students, and it has been proven several times to be vital for both their social and academic learning.

1. Literacy Teaching Using Peer Assessment

The first intervention concerns a group of 26 Second Year students making an early attempt to write a short essay. The class consisted of 17 boys and 9 girls. Literacy levels varied from 'average' to 'very low', with the girls being regarded as generally more able than their male peers. Having reached the point where everybody could identify and produce fairly well-structured sentences and short paragraphs, the students were presented with their first essay-writing task. The brief was to write a three-to-four-paragraph piece, entitled *Two Changes That I Would Make To This School*. It was to contain 100-200 words, with a brief introduction and conclusion.

The students were made aware that some scripts would be selected for copying, to be read and discussed by their classmates. Initially, there was some nervousness in regard to this. Accordingly, it was deemed only reasonable that some time should be given to explaining the object of the exercise, and how it could be of benefit to everyone. All agreed to take a chance and to subject their

work to the opinion of their classmates. In order to maintain anonymity, the young authors were requested to write on one side of the sheet only, using black ink for clarity, with their names on the reverse side. The exercise was completed in class and took approximately half an hour.

Later, when selecting those scripts that would be shared by all, one had to ensure that there were features evident which were clearly worthy of praise while, simultaneously, a number of areas for improvement could be found. Three scripts that met these criteria were identified and photocopied. The students were then required individually to read a script and to identify something that was very good about it. Secondly, they were asked to offer one important piece of advice to the author as to how it could be improved. Next, they were randomly set in groups of four to share their comments. They had to agree on the two most important positive features, and the single most important piece of advice.

In moving from group to group, but only intervening when requested, it was really interesting to witness how the students began to evolve a set of priorities where content and structural features, such as main ideas and paragraphing, superseded the more cosmetic ones, such as spelling, handwriting and grammar. They began to gain confidence from discovering all in their writings that could be worthy of praise. In the end, some asked if they could give a grade to the scripts. It soon emerged that there was almost complete agreement between the student grading and that of the teacher. This process continued as regular standard practice until Junior Certificate. Previously, more than half of the class would have taken the Foundation Level paper. In this particular case, however, only two candidates did so. All passed the examination.

Besides making a significant difference to the levels of literacy skills, an interactive classroom process such as PA can also provide for unexpected results of a social nature. The following account deals with what happened with one of the scripts used above. While the point of the exercise was to bring about some improvements in writing performance and literacy levels, there were far wider implications for the author and perceptions of him by his peers.

This first effort at writing an essay, while by no means perfect, was as follows:

> *There are many things I would change about this school. I would change some teachers, and I would change the food.*
>
> *I think they should change the lunches, so in the Winter the students don't have to walk down the town in the Freezing cold. Most student's really prefer the oxtail soup, and if the lunches change more people will stay in for lunch, for comfort and save money.*
>
> *The teachers I would get rid of is the moody ones who get mad for no reason, at first I'd cut their pay, and if they stop being moody I would put it back up, but*

if they didn't stop being moody I would fire them.

I hope the student council look into changing the lunches, and maybe fire some teachers (or give them a little chance to Improve.)"

The script adhered to the brief quite well, particularly in regard to content and structure. "Sean", the author, was a young individual with quite a difficult home life, and he had not enjoyed a very successful First Year. He had been 'On Report', suspended, on detention, and generally had been quite unhappy since his arrival more than a year previously. A few weeks into Second Year, there was little reason to expect that there would be much change. But things did change. As his peers read the essay, one asked aloud, "Sir, did one of the girls write this?" When asked the reason for such a question, the response was, "Because it's fair good!" This was underlining the common expectation that the girls' work would be generally better than that of the boys. Because of the promise of anonymity, as well as a slight shake of Sean's head, no-one was made any the wiser as to who the actual author was. The response, as intended, would be to the piece of writing rather than to the writer.

It was at the group stage, when the students began to share their opinions, that the discovery was made. A place mat was used by each group to record their comments. Someone suddenly exclaimed that it was Sean who had written the essay. An immediate response was, "No way!" The proof came in the form of Sean's comment on his section of the place mat: "This guy is amazing." Because of the speculation and the positive nature of the comments, Sean seemed very happy to claim ownership. A general feeling of celebration followed and, when it settled down, there was a profound change in how he was perceived by his classmates over the following days. It prompted quite a change in his general behavior as well. Furthermore, instead of erratically completing homework, he joined the after-school Homework Club and maintained a perfect record from there on. While Sean's experience was exceptional, it is only one of several happy outcomes that can occur when students are given the confidence and the opportunity to collaborate – and to take more responsibility for their own performance.

2. A Transition Year PA Research Project

There were three objectives in this study:

1. to establish the attitudes of students to the prospect of participating in an exercise that required them to evaluate and assess the work of their peers;
2. to gauge students' feelings in regard to having their own work subjected to this type of examination;
3. to find out if such an experience might effect any positive changes in attitude to PA and, crucially, to the students' approach to their own writing practice in general.

Sample groups were selected from each of the four researchers' secondary schools. A total of one hundred and nine students from classes in the pre-Leaving Certificate cohort (15-16 year-olds), who were studying English at Higher Level, took part. In the beginning, a questionnaire was presented to each participant to find out:

1. how they typically approached a writing task;
2. their attitudes and feelings about the prospect of evaluating and assessing work done by their classmates (and of being the subject of such scrutiny themselves);
3. their impressions of how useful all of this might be to them.

After the intervention, a follow-up questionnaire was used. All the students in the cohort were given a common creative writing exercise. The same instructions and conditions applied to all. They were asked to write a short story, of about 400 words in length, entitled "Tweet, Tweet". Their submission would be written on one side only of A4 paper with the author's name on the reverse. This would allow for a degree of anonymity when the scripts were being assessed by their peers, helping readers to focus on the script only. It was also intended to reduce the influence of social relationships between assessor and assessee. Black ink was preferred because of the improved quality of the scripts selected for photocopying. Depending on their current workload, students were given up to four days to complete the assignment. A PowerPoint presentation was designed and presented to all students on screen and in hard copy prior to writing, in order to remind them of the specific skills involved in short story writing.

Each teacher of English agreed to review their students' submissions, and present a range of scripts to a member of the research team who had wide experience in teaching English and assessing Leaving Certificate Higher Level papers. The researcher would then select three of these scripts and make multiple copies of them to use in a PA exercise with the students. Scripts with obviously positive or negative features, or both, were preferred.

Next, the qualities of the selected scripts were discussed by the researcher and the English teachers, and the final selection was made. Each of these was photocopied. Over the course of a double-class period (60-80 minutes) in each of the schools, the following procedure was followed:

(i) All students received and read a selected script in common.

(ii) Individually, they were asked to identify and comment upon one very positive feature of the short story.

(iii) Students were required to suggest a way in which some aspect of the piece might be improved. To assist with this, participants could use the

information from the earlier PowerPoint presentation. Comments in relation to structural and stylistic features were preferred to simple mechanical elements, such as spelling, grammar and so on.

(iv) Students were seated in groups of four to discuss their findings and collaboratively to develop a joint written response, as feedback for the anonymous author. (The Johnsons' principles for effective group work were invoked throughout).

(v) Having allocated a reasonable, but definite time for each stage, the teacher, sometimes with the researcher for guidance, now conducted a plenary session in which a reporter from each group openly shared their findings with the whole class.

(vi) Steps (i) – (v) were repeated twice, if possible, over the following two weeks by the English teacher.

(vii) The post-intervention questionnaire was administered.

The follow-up questionnaire was designed to:

1. determine whether the intervention had altered students' attitudes to engaging in PA, and to its potential usefulness for improving the quality of their own work;
2. discover if it had stimulated any changes in their approach to tackling written assignments.

Based on the results of both questionnaires and the evaluation of the students' latest work by their teachers post-experiment, the writers then formed some conclusions as to the value of using PA in classrooms. The team was interested in establishing whether the findings would be in line with the current research literature as reviewed above.

Sample Size

Transition Year Higher Level English students were selected as the target group for this study, as they were available across all four schools. Furthermore, they would have established relationships with their peers over a four-year period, and they were in a position to devote class time to such research work as this, because they were not doing a state examination at the end of the year. All schools involved were co-educational. Sample size was one hundred and nine. Due to absenteeism on the dates that the questionnaires were distributed, however, there is a slight variance in numbers between pre- and post-questionnaire responses. The fact that the questionnaires were completed in a classroom setting gave the researchers an opportunity to explain the purpose of the questionnaire, and to give clear instructions. These factors contributed to response rate of 100%.

Results of Survey and Discussion

The questions in the pre-intervention survey focus on the experience of each of the candidates up to that time in regard to PA, and on their willingness to use it as a learning tool. The post-intervention questions provide the students with the opportunity to revise their attitudes towards PA, following on from their experiences of two guided Peer Assessment sessions. The findings were as follows:

> In answer to the first question in the pre-intervention survey: *'Before doing a writing task, e.g., an essay, do you take some time to plan it before actually writing it?'* 9.8% of students responded by saying that they always plan their work.
>
> Post-intervention, this figure increased to 21.16%, by respondents indicating *Definitely more* to the question, *'Do you think that the peer assessment method encourages students to spend more time planning written assignments?'*.

This 12.08% increase in attention to quality before students submit their work to be peer-assessed, ties in with the study by Gielen *et al.* (2010) and Cho and MacArthur (2010). Their studies found that students tend to reflect more and to be much more careful with their work when it is being peer-assessed.

> In response to the second pre-intervention question: '*When you finish a piece of writing, do you check back over it carefully to make sure that it is free of mistakes*?' 13.12% of students indicated *'Always'*.
>
> Significantly, students responded to the post-intervention question, '*From now on, how often do you intend to check back over your written work to make sure that it is free of mistakes?*', with 32.3% selecting '*Always'*.

This 19.18% increase is again in line with the findings of Gielen *et al.* (2010) and Cho and MacArthur (2010), who found that students will engage in more complex and higher-order repairs when they know that their work is to be assessed by their peers.

> In response to, '*Do you ever give a piece of writing that you have done to another student to check, before handing it to your teacher*?', 2.2% of students selected 'Always'.
>
> Later, in the post-intervention survey, to the question, '*Do you intend to give your written work to another student to check for errors from now on?*', 6.6% of students responded by selecting '*Always*'.

This is also in line with the findings of Gielen *et al*. (2010), as they found that young writers are more willing to incorporate peer comments into their revision

than those from a teacher/subject-matter specialist. The findings from the responses to the fourth question also support this view as, initially, in answering:

> *'How would you feel about having a classmate read your written work before your teacher received it?'*, 7.8% of students felt that it would be, *'A great idea'*.
>
> After the PA exercise, 8.8% of students felt that it was a great idea. Furthermore, the majority of students indicated that they would be more attentive to checking their work, knowing that their class peers would be assessing it.

In a similar vein, before the PA exercise, in response to :

> 'Do you think that this would change your attention to checking your work when it is finished?', 16.15% answered, '*Definitely*'.
>
> In the later survey, that figure jumped to 29.27% in response to the question *'Does the fact that some others on your class are going to read your script make you more careful in checking it beforehand?*'

In the early stages, a student may be understandably wary of being assessed by a peer. On the other hand, Topping (2003) found that it was the peer assessor who initially experienced a certain 'social discomfort' at providing feedback on a peer's work, especially if obliged to award a mark or grade. In response to Question 6 of the questionnaire:

> '*How would you feel about having a classmate actually commenting on your written work?*', 9.9% of students selected, *'I'd love it'*.
>
> This increased to 10.9% afterwards, while a further 60.5% were '*okay*' about it.

Therefore, while students may not totally embrace the idea of being assessed by their peers, it would seem that they are quite open to it, taking note that assessors also experience discomfort in their role.

An increasingly positive attitude to PA is also reflected in the responses to Question 7:

> *'How would you feel about having to read the work of a classmate and to comment on it?'*. A total of 8.8% indicated *'I'd love it'*.
>
> In response to the corresponding question in the later survey, *'How do you feel about reading and making comments on the work of other students?*', 15.14% chose, *'I'd love it'*.

This jump may be explained by the educational benefits that assessors experience while reviewing their peers' work. This is consistent with the findings of Lundstrom and Baker (2009), who noted a significant improvement in the written work of assessors over those who had only received feedback on their own work.

> In the survey prior to the PA work, 17.6% ticked '*Very useful*' in answer to the question: *'What do you think the educational value would be of having a classmate read your work and comment on it?'*
>
> Post-task, 34.32% chose '*Very useful*' when asked: *'As regards educational value, how useful do you think it is to have classmates reading & commenting on each other's work?*

This is further supported by the responses to the final question:

> *'If this system of learning was to be used regularly in class, do you think that you would learn more as a writer whose work is being read and assessed by classmates, or as a commentator discussing and assessing the work of others?'* 18.17% believed that they would learn more as a *writer,* compared to 38.36% as a *commentator.*

This can certainly be regarded as good news because, in simple statistical terms, a student is at least ten times more likely to assess than to be assessed, whenever this particular PA technique is employed in classrooms.

In summary, this study investigated to a small degree the potential benefits to students of regular, on-going, in-class PA. Students were found to be generally quite positive in accepting it as a form of assessment for learning. Their positive attitude increased significantly, though having had only limited experience in using the strategy. While the researchers acknowledge that peers are not experts and cannot be expected to fulfil the role of teacher, there is ample evidence that PA can provide a rich learning experience for students, with additional benefits in the areas of social, teamwork, communication and critical thinking skills. The findings suggest that, in line with Webb & Mastergeorge (2003), there is a great need to scaffold training and experience in PA, and to provide guidance and control, in order to obtain these rewards in a respectful, supportive and encouraging atmosphere.

Conclusion

There is much yet to be learned about PA as a learning strategy. Equally, there is little doubt that it has wonderful potential for creating very effective and satisfying learning experiences for everybody. That said, it is always the case that, notwithstanding so much anecdotal evidence and all kinds of witness testimony, any innovative technique must be proven through research that will provide

empirical evidence of its efficacy. It is not easy to think of a more rewarding area to explore as an educational researcher than the employment of peer assessment as a learning strategy for all students. Hopefully this void will soon begin to fill.

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Planning School Transitions for Young People with Special Educational Needs and Disabilities: A Model of Practice

Alison Doyle

Abstract

Structured planning is a critical aspect of supporting the transition of young people with special educational needs or disabilities (SEND) to post-school settings. Person-centred assessment and goal identification is an integral part of such planning and should be initiated at the conclusion of the junior cycle of post-primary education. This article examines the role of interventions in supporting school transitions, and the benefits of collaboration between transition partners that include students, parents, and educational practitioners. Based on findings from a longitudinal research programme conducted within the School of Education, Trinity College Dublin, it proposes an informal Assessment for Learning model which captures individual strengths, challenges, needs and aspirations, and uses this information to construct an Individual Transition Plan.

Introduction

Beach (1999) categorises transitions across the lifespan as: (a) lateral: a movement between two historically related activities in a single direction, for example, primary to secondary school, post-primary to further education or employment; (b) collateral: simultaneous transitions between related activities, for example moving from one class to another within school, extra tuition outside of school hours; (c) encompassing: building new skills within an activity, which may be peer or mentor-assisted, such as engaging with assistive technology; and (d) mediational: scaffolded transitions which facilitate the ability to acquire important skills for future deployment, for example, mentoring, work experience or apprenticeships. Such transitions result in a change in knowledge, skills, performance and identity and are a normative part of human development, usually sharing a temporal commonality – for example, transition to early years education. However, the emotional and practical considerations attached to each transitional moment or event, will not be experienced by all pupils or all parents, in the same way (Lohaus, Elben, Ball, & Klein-Hessling, 2004; Wagner, Newman, Cameto, Garza, & Levine, 2005).

Critical factors associated with successful transitions from primary to post-primary education include: (a) developing parental trust and student self-confidence, (b) providing bridging activities that introduce new environments

and ways of learning, and (c) ensuring that students with special education needs and disabilities (SEND), and their parents, have access to a transition partner (Barnes-Holmes, Scanlon, Shevlin, & Vahey, 2013; Evangelou, Taggart, Sylva, Melhuish, Sammons, & Siraj-Blatchford, 2008; Smyth, McCoy, & Darmody, 2004). Similar strategies are necessary to prepare young people with SEND for post-secondary settings, and these should encompass development of key skills that equip them to be self-aware, self-determined and self-advocating. Research has consistently noted the need for specific planning programmes in this regard (Levinson & Palmer, 2005; Morningstar, 2011; Morningstar, Lombardi, Fowler, & Test, 2015; Newman, 2013; OECD, 2011).

National and International Context

Internationally, post-primary transition planning policies and guidelines emphasise the necessity for individualised, person-centred and multi-disciplinary programmes that focus upon post-secondary routes to Further Education (FE), Higher Education (HE) or employment. However, across European contexts, transition programmes are frequently localised, quasi-standardised and variable within and between countries (Hibbert, 2010; OECD, 2011, 2012; Rix, Sheehy, Fletcher-Campbell, Crisp, & Harper, 2013). Furthermore, young people with SEND typically do not have access to specialised careers guidance which focuses on exploring all available options (Doyle, 2015; Doyle, Mc Guckin & Shevlin, 2013; McGuckin, Shevlin, Bell, & Devecchi, 2013; Scanlon, Shevlin, & Mc Guckin, 2014). In addition, post-school education providers or employers rarely receive detailed information about individual achievements, progress, career aspirations and support needs (Ofsted, 2016). This contrasts sharply with transition planning for students with disabilities in the USA, which is a statutory obligation under the Individuals with Disabilities Education Act (2004, 2006). Sophisticated and comprehensive models of transition planning are widespread in the USA, and range from informal assessment of life skills and employment interests (Clark, 2007; Clark & Patton, 1997, 2004; Cronin & Patton, 1997, 2004) to more complex appraisal of academic engagement and cognitive function, learning processes, critical thinking, social skills, and transition knowledge (Morningstar 2011; Morningstar *et al*., 2015). Consequently, there is a plethora of transition assessment and planning resources developed to meet these requirements (e.g. Clark, 2007; Clark & Patton, 2007, 2014; Cline, Halverson, Petersen, & Rohrbach, 2005; Morningstar, 2011; NSTTAC, 2010).

In Ireland, *Guidelines on the Individual Education Plan Process* (NCSE, 2006) draw attention to section 15 of the Education of Persons with Special Education Needs Act 2004 (EPSEN), which refers to focused post-secondary transition planning to enable the student to progress to appropriate levels of further education or training. It acknowledges that long-term planning "should be seen as a process, not solely an isolated or annual event" (NCSE, 2006, p.50), and it states that a review should be conducted at least 12 months prior to school-leaving. However, whilst recommendation is made for co-operation between the SENO, the school and external agencies to "assist in developing a framework for good practice in transition planning" (p. 52), detailed guidance on how this might be achieved, is not provided.

Recent research in the UK established that: "The provision of specialist, impartial careers' guidance to learners with high needs was generally weak. The young people and their families…frequently stated that they had received insufficient information about the full range of opportunities available to them" (Ofsted, 2016, p.5). These experiences are replicated in findings from studies in Ireland (Doyle, 2015; Doyle, Mc Guckin & Shevlin, 2013; Mc Guckin, Shevlin, Bell, & Devecchi, 2013). Continued reductions in the provision of school-based guidance in Ireland compromise positive outcomes for vulnerable young people (Scanlon, Shevlin, & McGuckin, 2014), and there is a dearth of practical resources for implementing structured, progressional transition programmes within an Irish context.

Research Context

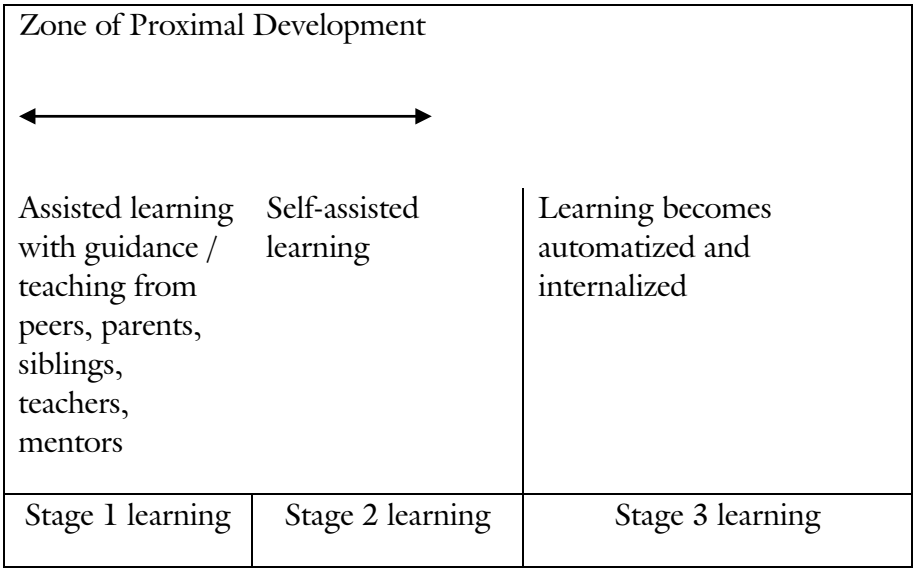
A longitudinal research programme was conducted between 2010 and 2015 within the School of Education, Trinity College Dublin as part of the Inclusion in Education and Society research strand. The programme consisted of three separate but concurrent studies investigating the transition arc of students with disabilities, as they move from post-primary to HE (Doyle, 2015). Study Three examined the efficacy of a suite of transition planning resources for use by students, parents, and practitioners supporting students with disabilities in their transition journey, which were created uniquely for the study. Over the research period, n = 8 students, n = 9 parents, and n = 32 professionals from schools, post-LC environments, disability support networks, and State departments such as the HSE, registered to use the transition planning tool. The largest user groups were students with SpLD (38.7%), AS/ASD (18.2%) and ADD/ADHD (14.3%), with particularly low rates of use by students with sensory and physical disabilities (9.1% combined). Users submitted positive comments describing it as "terrific" and "excellent" highlighting the holistic and linear structure of the resource. Google Analytics established that an additional n = 962 web visitors accessed the planning tool web pages without formally registering as users, with page downloads ranked in order of popularity as: Unit 1 Preparing myself for college, Unit 4 Applying to college, Unit 2 Independent living skills, Unit 3 Academic skills, and Unit 5 Using college supports.

Critical enablers and barriers to transition identified in the findings of the research programme included the need for developing self-awareness, self-determination, self-advocacy and independence. Recommendations suggested that a flexible planning instrument, which could easily be adapted to individual needs and contexts, would be useful as a modular portfolio spanning the senior cycle of education. Whilst post-secondary guidance publications for parents are available (NCSE, 2014, 2016; Wall, 2013), currently there are no task or goal-orientated planning frameworks for students with SEND in Ireland that can be adapted to individual need (Cosgrove, McKeown, Travers, Lysaght, Ní Bhroin, & Archer, 2014). Consequently, an extended model of the research prototype was developed as an informal Assessment for Learning toolkit. This model, *MyUniPlan*, is described in the following sections.

Theoretical Framework

Effective person-centred transition planning models are under-pinned by theoretical frameworks that support the development of young people by engaging with individual strengths and challenges. *MyUniPlan* is based on three distinct but complementary developmental theories, which acknowledge that individuals function in continuous states of transition, requiring support for management of personal and environmental junctures and for the changes that ensue from these events. Firstly, it recognises the need to work within the space between what a young person can do independently, and what they can do when guided towards independence with the assistance of a skilled partner (Vygotsky, 1978) in order to build personal and concrete skills (Figure 1).

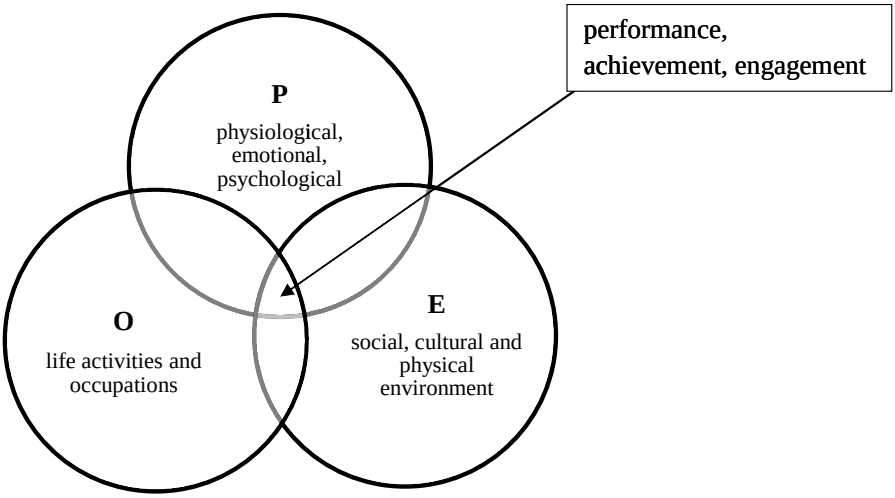
Figure 1. Zone of Proximal Development adapted from Vygotsky, 1978.



Secondly, *MyUniPlan* incorporates Dynamic Assessment (Feuerstein, 2000), an interactive approach that embeds intervention within the exploration and assessment of needs and skills, identifying impediments to learning and performance, and finding ways to remove or bypass them in order to facilitate the attainment of meaningful life activities (Haywood & Lidz, 2006). Thirdly, the process of transitioning from formal education to young adulthood involves highly complex occupations that take place in new and unfamiliar environments. *MyUniPlan* is structured upon the Person-Environment-Occupation-Performance (PEOP) model used within the Discipline of Occupational Therapy (Law, Cooper, Strong, Stewart, Rigby & Letts, 1996), providing a foundation for a

transition plan that takes into account: (a) the psychological, emotional, behavioural, cognitive and physiological attributes of the student, (b) the personal, social and physical environments within which the student functions, (c) the abilities, skills and aspirations that need to be deconstructed into tasks and actions to support achievement, and (d) the intrinsic and extrinsic barriers to goal achievement including degrees of engagement with tasks (Figure 2).

Figure 2. PEOP model adapted from Law *et al*, 1996.



Design and Structure

Transition planning benefits from flexible intervention mechanisms which focus on realistic, relevant and appropriate outcomes (Kasari & Smith, 2013). Successful transition outcomes are greatly enhanced by competency in soft skills – managing social relationships, communication, language, interpersonal interaction, self-awareness and self-advocacy, and proficient technical skills – computing and Internet technologies, ability to research and navigate information, time management and organisational strategies. Their acquisition is addressed within *MyUniPlan* in six complementary, stand-alone units which incorporate key skills identified in the National Council for Curriculum and Assessment Senior Cycle Framework (NCCA, 2009). Each unit includes: (a) transition assessment and planning worksheets, (b) transition goal lists, and (c) transition activity resources.

Unit 1, Planning and Preparing for Transition, provides the foundation for work on succeeding units, and is designed to begin in Transition Year. There are three sub-sections to the unit: (1.1) Self-awareness, (1.2) Self-determination, and

(1.3) Self-advocacy. These are identified as critical factors in determining action and choices in the senior cycle of education. The purpose of this unit is to ensure that students become confident in expressing wants, needs, strengths, challenges and choices. Competency in these skills is crucial to successful management of the first year of post-secondary settings.

Unit 2, Developing Learning Skills, assesses and explores preferred modes of learning, management of learning and study environments, organisation of study materials and work space, and time management. There are two sub-sections to this unit: (2.1) Learning How to Study Effectively and (2.2) Organising the Environment and Managing Time. The unit is designed to begin in Transition Year to ensure that the student develops study habits that form the baseline for managing academic tasks throughout the senior cycle, and which are transferable to post-secondary settings.

Unit 3, Exploring Post-Transition Options, assists the student in investigating interests and aspirations in a structured and purposeful manner. There are two sub-sections to this unit: (3.1) Gathering Information, and (3.2) Talking to People. It is envisaged that some career guidance may be available in the post-primary school, and that the student may already have developed an interest in specific pathways during Transition Year. However, the goals that are pre-identified in this unit ensure that the student explores and reviews choices regularly during 5th year, and acquires the necessary research skills and information management to do so. This includes building confidence in communicating with individuals and agencies outside of the school environment.

Unit 4, Using Technologies and Supports, is designed to encourage thinking about supports and reasonable accommodations in post-primary school, and to consider how these relate to continuing education and the workplace. There are two sub-sections to this unit: (4.1) Using Supports and Resources, and (4.2) Using Assistive Technologies to Support Learning. Content includes exploration of effective examination accommodations, assistive technology and personal assistance, important actions as post-school supports may be variable in complexity and availability.

Unit 5, Learning to be Independent, encompasses tasks and actions that will develop independent functioning in preparation for the transition from a structured school and home environment. This unit contains three sub-sections: (5.1) Daily Living Tasks, (5.2) Money and Housing, and (5.3) Health and Social Relationships. It is suggested that students engage with these tasks throughout post-primary education, revising and adding goals as post-secondary pathways are identified.

Unit 6, Managing the Transition Bridge, sets out the tasks and actions that must be completed during 6th year and immediately after the conclusion of Leaving Certificate examinations, in preparation for transfer to post-secondary opportunities. For students transitioning to FE / HE, there are specific deadlines to meet together with formal paperwork applications and submissions. There are

four sub-sections to this unit: (6.1) Applying to the Disability Access Route to Education scheme, (6.2) Managing Central Applications Office offers, (6.3) Communicating with FE/HE/Employment Supports and Services, and (6.4) Steps to Registering in College.

Assessment and Planning Procedure

MyUniPlan is designed to span the senior cycle of post-primary education, and focuses on layers of exploration and assessment that are continuously refined, resulting in an Individual Transition Plan that is person-centred (Sitlington, Neubert, Begun, Lombard, & Leconte, 2007). For this reason, tasks, actions and goals are not attached to highly specified timeframes or ordering of units, as young people with SEND may exhibit idiosyncratic patterns of development. The transition plan is constructed by the student and their parent or carer, and may include support from a transition partner (e.g. resource teacher, learning support teacher, SENO, Guidance Counsellor, external professional) using a cyclical process incorporating four steps: (1) assess, (2) plan (3) practice, and (4) review.

Step 1: Assess. The order and mix of units is determined collaboratively between transition partners, to suit the individual profile of the student. A Transition Assessment and Planning Worksheet for each unit is populated with a baseline of pre-determined transition goals, and performance on each of these is rated as Not Applicable (N/A), achieved (YES), incomplete (NO) or partially achieved / uncertain (DK) (Figure 3). Additional skill areas, tasks, actions or goals can be added by transition partners, to ensure that the transition plan is person-centred. Recording strengths and challenges in this way facilitates a 'mixing' of tasks and actions to create goals which are then used to populate the Individual Transition Plan.

Figure 3. Transition Assessment and Planning Worksheet detail

Unit 1 Building Personal Skills **My Goals**	**N/A**	**YES**	**NO**	**DK**
Self-awareness				
1. I know which subjects I am good at in school.				
2. I know which activities I am good at in school.				
3. I can describe and talk about these things to other people.				
4. I know how I learn best (listening, seeing, reading, doing).				
5. I know how to use these strategies at school.				

Step 2: Plan. Subsequently, transition partners – student, parent and/or practitioner – compare ratings and agree on the prioritization of goals at a transition planning meeting. Prioritized goals that require training and practice are transferred to an Individual Transition Plan, which also identifies the strategies, supports and resources required to practice goal achievement. A maximum of five goals for each unit at any one time is recommended, based on the premise that a smaller number of goals permits a greater focus and hence promotes achievability.

Step 3: Practice. Activities for practicing skills should include real-life experiences as well as home, classroom-based and community-based teaching, and provide opportunities for over-learning and reinforcement in multiple settings. Resources may include sample scripts, scenarios, case studies, and real world artefacts.

Step 4: Review. Progress along the Individual Transition Plan is reviewed, adapted or amended at least once in each school term; this date is agreed in advance and outcomes recorded. Prioritized goals are re-visited in the transition planning meeting, progress on each item is discussed between transition partners and identified as Achieved, In Progress at Home (Retain in Individual Transition Plan), In Progress at School (Retain in Individual Transition Plan) or Stalled (Requires additional input / resources). Goals that have been achieved can be replaced with outstanding tasks that require practice, as identified in the Transition Assessment and Planning Worksheet.

Conclusion

MyUniPlan is a comprehensive, informal Assessment for Learning model designed to meet the needs of students with SEND in post-primary schools in Ireland, their parents or carers, and practitioners supporting transitions to post-secondary settings. The design and structure of *MyUniPlan* has been informed by best practice models in the USA, together with findings from a longitudinal research programme in Ireland, and as such is an example of evidence based practice. It acknowledges and responds to recommendations in *IEP Guidelines* (NCSE, 2006) for provision of structured transition planning for post-primary students in Ireland, who require additional support in managing transitional contexts. The model provides for the development of the metacognitions that students require to achieve successful transition outcomes, including the acquisition of self-efficacy, management of mental and physical health needs, confidence in completing daily life activities, and enhanced social skills. As an informal transition planning programme, it requires neither experience nor qualification in the administration of psychometric tests, and is therefore accessible to post-primary students, families and practitioners.

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Emotions and Social Problem Solving: Using the Secret Agent Society Computer Game with a Pupil with an Autism Spectrum Disorder in an Irish Mainstream School Setting

Anna Marie Cullen

Introduction

This study is set within an action research framework and reflects the importance placed on research within educational psychology in Ireland, a practice strongly advocated by the NEPS Continuum of Support model (2010).

It is the author's experience that students with Autism Spectrum Disorders (ASD) can often experience challenging behaviours in mainstream school. These behaviours are commonly related to difficulties predicting change, and managing complex emotions such as anxiety and anger. A behaviour becomes particularly challenging when it is unexpected, or when it is difficult for supporting adults to establish observable triggers contributing to a pupil's behavioural responses.

Research on the management of emotional skills indicates that people with ASD need to learn to recognise and express complex emotions in order to cope more effectively with their diagnosed socialisation difficulties. Learning more about emotions and emotion management boosts a person's emotional resilience across the lifespan. *The Secret Agent Society Computer Game* (SAS) sets out to teach children with ASD to accurately identify and label emotions in themselves and in others. Aimed at pre-adolescents with High Functioning ASD, the SAS Computer Game is designed to assist the child to learn ways to manage challenging emotions, in order to cope more confidently with age-appropriate social dilemmas (e.g. making mistakes, teasing, bullying etc.).

This case study explores the impact that the SAS programme had on a pupil's social-emotional behaviour skills, at school and at home. The pupil who took part in this study has a diagnosis of Asperger Syndrome. The pupil was twelve years old at the time of intervention, has a High Average IQ, and presented with complex and challenging behaviour at school.

Challenges associated with teaching emotions and social-emotional problem solving for pupils with Autism Spectrum Disorders.

One's capacity for emotion regulation provides the basis for developing secure self-awareness (Walker, cited in Bombèr and Hughes, 2013). Emotion regulation involves the capacity:

(a) to know what you are feeling;
(b) to feel safe and grounded while feeling that emotion;
(c) for the emotion to be experienced at a level that is appropriate to the circumstance at hand, and
(d) for the emotion to be under the control of cognitive evaluation of the situation through reflection (Bombèr and Hughes, 2013:12).

When a student has a diagnosis of ASD, their learning needs are characterised by qualitative impairments in social skills, including difficulties in non-verbal and verbal-social communication (i.e. mediating eye contact, reading facial expressions and body language, and turn taking in conversation and play). Theory of Mind deficit continues to represent one of the more influential, evidence-based theories which explain how ASD impacts on social functioning. In essence the Theory of Mind deficit model proposes that social challenges emerge as a result of marked difficulties in understanding the feelings, thoughts and intentions of oneself and of others (Baron-Cohen, 1995). Interventions aimed at remediating the development of theory of mind through direct instruction continue to be explored, with more and more evidence emerging for its effectiveness (Beaumont and Sofronoff, 2008).

There is also increasing interest among researchers in how computer-aided instruction can assist pupils with complex needs in learning to decode social situations and more effectively solve social dilemmas (Hopkins *et al*., 2011). Computer-based interventions provide teachers with options for multi-sensory interactions, controlled and structured environments, the use of multi-level interactive functions and the ability to individualise instruction. These are all key variables in intervention design for people with ASD.

The *Secret Agent Society programme*, previously known as the *Junior Detective Program*, was created by Renae Beaumont (2008). It is designed to support the social-emotional skills development of children with ASD, aged eight to twelve years. In its full format the programme has a multi-modal design, consisting of an interactive computer game, weekly group sessions, parent training sessions and teacher tip sheets. The SAS programme materials use an espionage theme to motivate participants to decode or solve the mystery of social encounters. A randomised control trial, published in 2008, found significant parent-reported gains in social and emotional skills acquisition in 76% of children with Asperger

Syndrome who took part in the trial. Most notably, these findings were maintained at five-month follow up (Beaumont & Sofronoff, 2008). School-based research on SAS highlights similar positive findings for social emotional functioning and behaviour (Beaumont, Rotolone & Sofronoff, 2015).

Materials

In the *Secret Agent Society Computer Game*, the user assumes the role of a 'Junior Detective', training to be a mind reading specialist at the International SAS Headquarters. To graduate the user is required to complete four levels of training.

In Level 1, the user learns how to detect a suspect's feelings, using clues from the suspects facial expression, from their body language, and from their tone of voice.

In Level 2, the user focuses on his own feelings, thoughts and emotional behaviours. The user is trained to understand and regulate unhelpful and helpful feelings in order to effectively support decision making and optimise their social problem solving.

At Level 3, the user is required to combine skills developed from Levels 1 and 2 to complete four virtual reality missions. In these virtual missions, the user needs to detect how his own character is feeling and how he should manage his emotions. Users also have to plan how to respond to social challenges which arise as their characters progress through the mission – for example trying a new activity, engaging in group work, losing a game, and reacting to a bully (Beaumont & Sofronoff, 2013:178). As the virtual missions are user-led, the outcomes for their characters depend on the response choices that users make as they progress through this Level.

Short quizzes are included at the beginning and end of each game level to track the users learning outcomes. At all levels children are encouraged to attempt all challenges, revisit sections of the game or try alternative choices. The game is not built around the concept that 100% accuracy is required to move onto a new skill. Supporting adults can collate data on response details when the child completes each task. These data provide ample support for teacher-led coaching and discussion work that is aimed at generalising skills taught in computer sessions, to real examples in the pupil's life. Practice missions between sessions aim to motivate the pupil to explore target skills at home and in school, with virtual journal entries available for the pupil to communicate examples of solving problems using SAS principles. When users reach Level 4, they graduate.

What makes the *Secret Agent Society Computer Game* unique is the innovative way by which it aims to teach social problem solving, using an array of computer-

generated social dilemma vignettes. In the game, the pupil's solution finding is assisted by an assembly of Detective Gadgets and a virtual mentor, named Agent Ardon, who praises the players for good performance, gives hints or tips to the child, and explains the correct answer when needed (Beaumont & Sofronoff, 2013). These features allow for teacher support to be indirect. Support from the computer game is child-focused and child-led, and it is reinforced by concrete visual information which is unchanging, should the child make the same error again, or choose to revisit sections of the game to test Agent Ardon's hypotheses (Figure 1).

Figure 1: Image from the *Secret Agent Society Computer Game*

Intervention design and findings

This is an explorative case study which uses an action research model framework to examine outcomes for social-emotional skills development, namely the emotional regulation skills and social problem-solving skills outcomes emerging from an SAS Computer Game programme intervention. Outcome measures are both quantitative and qualitative, aiming to explore the participant's experiences of this intervention, as well as examining changes evident in the pupil's observed emotion regulation and social problem solving following intervention.

The intervention examined in this study took place during school time, in school. Sessions with the pupil were held once a week, with the exception of periods where the school was closed for midterm breaks. Each session was kept brief and included game play, followed by structured coaching with an adult (total time 30 minutes). Sessions continued until the game was completed and explored through coaching, discussion and practice mission work (10 weeks).

The Emotional Regulation and Social Skills Questionnaire (ERSSQ) was used here to measure pupil treatment outcomes for emotion regulation skills development.

The ERSSQ is available for Parent Report (ERSSQ-P) and for Teacher Report (ERSSQ-T). The ERSSQ provides a detailed assessment of emotion regulation, seen in design as a specific complex social skill that can interfere with an individual's enactment of other social behaviours and ultimately interfere with effective interpersonal communication and positive social interactions (Butterworth *et al.,* 2014: 1537). This measure has been shown to have good psychometric properties (Butterworth *et al.,* 2014).

Marked improvements were found in emotion-regulation skills rating both on Parent (ERSSQ-P) and Teacher Reports (ERSSQ-T). The ERSSQ has no clinical cut off. It is useful as a treatment outcome measure, highlighting overall skill gains, but also identifying patterns in skill deficits and potential targets for further intervention. Results emerging from this case study indicate that Teacher Reports for skill development increased from an overall score of 45 to 58 following intervention. Parent Reports highlighted a very similar pattern in skills, with scores of 45 pre intervention and 53 post intervention.

At school, the ERSSQ-Teacher scores highlighted improvements in social-emotional competence in the following areas:

- is able to correctly identify other people's feelings from their facial expression, tone of voice and/or body posture;
- is aware of his own thoughts and feelings;
- controls his anger effectively at school;
- controls his anxiety effectively at school;
- deals with social problems successfully;
- recognises when other people are bored by his conversation and changes the topics;
- invites others to play with him in a friendly way;
- is able to maintain a conversation with other children;
- recognises when other people are being sarcastic or teasing;
- copes well when he makes a mistake;
- apologises when he has done something wrong, or hurt someone's feelings.

In a qualitative exploration of the teacher's feedback interview following this intervention, emphasis was placed on the value of the SAS Teacher Tip Sheets on the teacher's confidence in detecting the early warning signs for anxiety in the pupil who took part in the intervention. At pre-intervention the pupil was commonly described as 'unpredictable', 'defiant' and 'aggressive'. The teacher noted in feedback that she had become more aware that 'when [the pupil] is

hyper in class' it usually meant he was worried or unsure. The teacher went on to say that understanding how the pupil was interpreting (or misinterpreting) other people's behaviour in the classroom, assisted the teacher in re-directing behaviour, or preventing the escalation of inappropriate behaviour. In general, the teacher commented that the intervention

> "*made us all a lot more aware of the pupil's emotional needs and his worries" and "highlighted new ways of managing and recognising problem behaviours [in the school community]".*

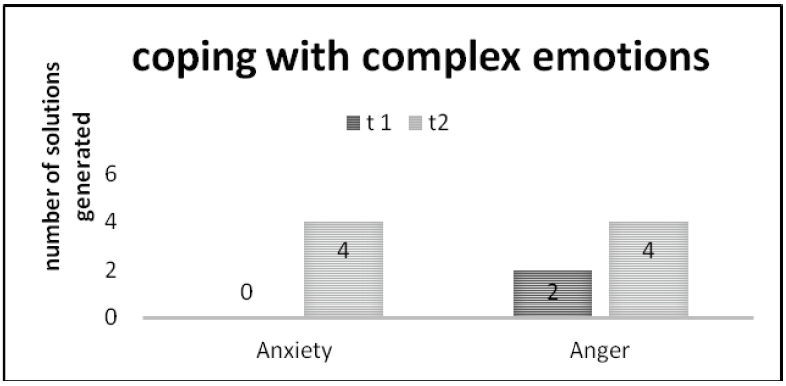
The ERSSQ-P, completed by parents, has 27 questions. The findings emerging from this study indicate that, post-intervention, the pupil's social-emotional skills were maintained or improved on 26 of the 27 skills examined. Improved competence is evident in the following behaviours at home:

- controls his anxiety effectively;
- considers the consequences of his behaviour before acting;
- chooses appropriate solutions to social problems;
- deals with social problems successfully;
- recognises when other people are bored by his conversation and changes the topic;
- is able to maintain a conversation with other children;
- copes effectively when he loses a game;
- asks for help when he needs it;
- tries new tasks or activities.

Pupil outcomes for effective coping in social-emotional problem solving are measured in this study using two social problem vignettes; *James and the Math Test* and *Dylan is Being Teased* (Attwood, 2004). Each story vignette was read aloud to the pupil, with one story reflecting a problem involving a pupil experiencing anxious feelings, while the other included references to pupil aggression or anger. The pupil was then asked, in each case, to offer suggestions as to how the character in the story might cope with the dilemma he was facing. Responses were transcribed by the educational psychologist and later scored, with one point given for each appropriate response.

Marked improvements were noted in appropriate responses provided by the child which demonstrated effective coping skills for social dilemmas, post SAS intervention (t2 in Figure 2), as measured by Attwood's social problem vignettes (2004). The number of hypothetical coping behaviours generated by the pupil for the character in each vignette increased, with particular regard to the pupil's capacity to generate solutions for managing anxiety (Figure 2).

Figure 2: Number of solutions generated by the pupil for social emotional problems



Data, recording the responses collated from the pupil participating in this study, indicates that the responses he provided in Level 1 of the SAS Computer Game's *Detection of Expression* tasks reflect a clear pattern in errors made in the pupil's interpretation of other people's emotional states. The pattern suggested that the pupil was making accurate assumptions about how others may be feeling when body language and tone of voice were required, but, despite having well developed IQ, the pupil found the interpretation of other people's facial expressions very challenging and his error rate was very high when he relied solely on other people's facial expressions to predict how they were feeling, or how they might behave.

When exploring the pupil's experience of the intervention, it was evident that the pupil displayed good recall for relaxation strategies highlighted in game play and in coaching sessions, and he displayed a new awareness of cognitive evaluation approaches to anxiety and anger management (i.e. identifying 'enemy thoughts' and using thought replacement strategies, described in the game as 'positive thought missiles'). The pupil reported:

> *'I think the enemy thought missiles was kinda a good idea. It was a good way to get inside people's heads. So you would know some thoughts are like a missile – destructive'.*

Conclusions

Pupil, teacher and parent outcome measures indicate improvements in emotion-regulation skills for the child involved in this study. The findings suggest that the pupil's capacity to generate solutions to social-emotional problems increased greatly, with particular regard to coping strategies for anxiety management in this case. Outcomes emerging for emotion regulation skills are of particular interest to the investigator given that, unlike social skill scores, emotion or affect skills are seen in the research as a more stable variable across home and school

environments (Murray *et al.,*2009). The pattern of improvements in emotion regulation and social-emotional problem-solving found here, seems to reflect a strong influence from the cognitive approaches which are included in the coping strategies taught in the SAS programme. The pupil in this study displayed stronger comprehension of the links between thoughts and feelings and between feelings and behaviour when materials were presented visually and controlled by the pupil himself, as opposed to talk-based social skills strategies dictated primarily by a supporting adult. This finding supports previous work completed on the influence that cognitive approaches have on children in middle to late childhood. This suggests that the older the child is, the more appropriate these types of strategies are in effectively managing social emotional problems, such as anxiety and anger (Bengtsson & Arvidsson, 2011).

While a pattern of falling scores was evident for skills associated with managing bullying behaviours at home and in school, the general improvement noted in generating solutions to age-appropriate social-emotional dilemmas is considered a positive outcome for the pupil involved in this study. In particular, his comprehension of more constructive, cognitive types of coping (i.e. generating varied solutions to a problem, cognitive restructuring and positive reappraisal of a stressor) is a satisfactory development. These skills are noted in research to be strongly associated with improvements in social competence and psychological adjustment in middle to late childhood (Bengtsson & Avidsson, 2011).

The *Secret Agent Society Computer Game* intervention represents a novel approach to engaging pupils with complex social-emotional needs. Unlike many social skills programmes available to Irish schools, the *Secret Agent Society Computer Game* is an indirect, child-led intervention which minimises the need for social language comprehension and maximises pupil engagement and recall through the use of visual, virtual lessons that can be closely monitored by a supporting adult. SAS Game play is designed to meet the key objectives identified as highly influential in building a child's emotion knowledge (i.e. recognising emotion clues, identifying the emotion and regulating an emotion). Comprehensively designed virtual missions, that are incorporated to improve a child's understanding of their own and other people's thoughts, feelings and behaviour, are found to have a positive impact on emotion regulation and social competence skills in a pupil with Asperger Syndrome. Additionally, the computer-game play is found to have had a positive impact on solution finding and practical emotion self-regulation skills that are needed to enhance social encounters in the pupil's everyday life. These include relaxation and mindfulness skills, cognitive skills and the pupil's capacity to generate solutions to social problems.

More may be learned about *The Secret Agent Society*, and footage from the computer game described in this study may be explored on *The Social Skills Training Institute's* website at www.sst-institute.net.

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Record of an Intervention Introduced to Support a Student with Persistent Behavioural Difficulties

John Cullinane

The writer is a Behaviour for Learning (BFL) Teacher in an inner-city, Band 1 DEIS school. This role involves working with colleagues and students to design and implement strategies that promote positive behaviour on a whole-school basis, under the Level 1 NBSS Model of Support (NBSS, 2012). There is also regular requirement for more intensive Level 2 support for some students in the school, which is offered in small groups. Individualised, intensive Level 3 support for students with very challenging difficulties is also sometimes needed (NBSS, 2012).

The school caters for students from the most disadvantaged areas in the city. The focus of this research is Student X, a first year student from the Travelling Community who has been exhibiting inappropriate and aggressive behaviour since starting in the school in September 2014. Student X is a prioritised student who requires Level 3 support within the school's behaviour support programme. Sugai & Horner (2002) estimate that approximately five percent of students require intensive, individualised support, which corresponds to the Level 3 NBSS Model of Support (NBSS 2012).

The writer has experience of working with students who exhibit such behaviours from his work as a BFL Teacher. He also has considerable experience of working with students from the Travelling Community, as twenty percent of the student cohort in the school are from this community (KCVS 2014).

Profile of student

Student X is a member of the Travelling Community whose parents live at some distance from the school, and who cannot be contacted by telephone. As a consequence, it is difficult to contact his parents on a regular basis to discuss Student X's behaviour.

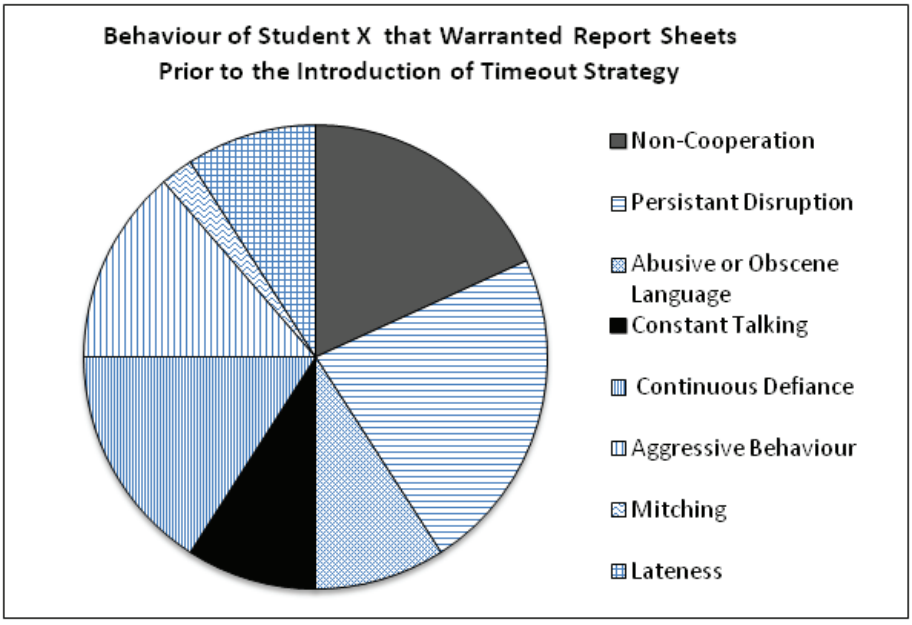
In an interview with Student X's parents, they described him as being interested in boxing, his horses and his Playstation. Student X's mother stated that she punishes him by taking the Playstation away when he misbehaves. Furthermore,

both parents described Student X as being very diligent when it comes to looking after his horse. They were unable to pinpoint any particular reason that causes Student X to become so aggressive, but they did accept that he has a problem with his anger. Both parents also expressed concern at Student X's deficits in literacy. They revealed that he has told them that he finds it difficult to get used to the fact that classes change every forty minutes in post-primary school. They were concerned that their son was in a class with a number of other Traveller students, as they felt this was also a contributory factor to his extreme behaviour. However, Student X's mother did note that her son "was delighted", when he had received a postcard home after he had gone a full week without receiving any Report Sheets.

Reason for selection

Student X was chosen for this intervention for a number of significant reasons. Firstly, he was exhibiting extremely disruptive behaviour in school. The types of behaviour causing the most concern in school were: persistent disruption; blatant continuous defiance; and aggressive behaviour (Figure 1). Student X is highly aggressive towards staff and students in the school. His behaviour is similar to that defined by Ellis and Tod (2009) as "higher level aggression, such as physical and verbal aggression, usually underpinned by anger" (Ellis and Tod 2011, p.204). If this pattern of behaviour were to continue, there was a possibility that it might worsen further over the following number of months.

Figure 1. Behaviour that warranted Report Sheets (Prior to 27th November 2014)



Student X is at a significant risk of early school leaving. This assessment is based on factors that were identified by the School Completion Programme (SCP) as contributing to early school leaving. Many of these factors apply to Student X such as:

- the fact he comes from a minority group;
- he has achieved low scores on screening tests on his arrival in the school;
- he is male;
- he is absent from school quite a lot because he has been suspended on four occasions;
- he is exhibiting behaviour which is extremely disruptive;
- he is living in an urban area.
  (Adapted from School Completion Programme 2007, p.10-11)

Table 1 gives an overview of Student X's attendance from the beginning of the academic year, and it identifies the reasons for absences. It is evident that suspensions were the primary cause of absences from school up to the beginning of this intervention, which was initiated during the week beginning 27 November 2014.

Table 1. Tracking of Student X's attendance prior to introduction of targets

Week		Number of days present	Reason for absence
1	(1st September - 5th September)	5	
2	(8th September - 12th September)	0	5 day suspension
3	(15th September - 19th September)	5	
4	(22nd September - 26th September)	3	2 day suspension
5	(29th September- 3rd October)	2	3 day suspension
6	(6th October- 10th October)	5	
7	(13th October - 17th October)	5	
8	(20th October- 24th October)	5	
9	(3rd November- 7th November)	2	3 day absence
10	(10th November – 14th November)	2	3 day suspension
11	(17th November- 21st November)	0	5 day suspension
12	(24th November- 28th November)	3	2 day absence

This behaviour became a source of concern for all school staff, as it clearly has a negative impact on Student X's education. Longa (2011) points out that this type of behaviour also has a significant negative impact on the education of a student's peers. Many of Student X's peers and teachers have complained of a significant reduction in the quality of teaching and learning when he is in class.

Special education history
Student X has no diagnosed SEN. However, he received Learning Support in primary school in the areas of literacy and numeracy. This has been clarified by his primary school. Further-more, his 6th Class Teacher informed Student X's Year Head that she noted a significant deterioration in his behaviour over the final six months of his time in primary school.

Overview of relevant assessment data
Student X completed screening assessments during his first month in the school (Table 2).

Table 2. Overview of assessment data for Student X

Assessment	Focus of Assessment	Result	Implications
Nfer Nelson	Reading	Reading Age: < 8.0 years	Student X is defined as being a "non-reader".
Maths Competency	Numeracy	3% ile	Significant Difficulties with basic computational concepts such as addition, subtraction, multiplication and division.
CAT 3	Cognitive Abilities	Student X did not engage with this assessment	The teacher conducting the assessment noted that Student X did not attempt any of this assessment.
Progress in Maths	Numeracy	Sten Score: 1	Indicates significant difficulties with numerical concepts

School-based diagnostic assessment
Student X had no diagnostic assessment of literacy or numeracy prior to this testing. The writer interviewed him at the beginning of this intervention. During the interview, Student X was unable to identify what was causing him to become so angry. He admitted to becoming angry, and was able to describe how he feels when he is angry: he clenches his fists, he feels his face getting warmer and he goes red in the face. He stated that he believes other students see him as a bully.

Present levels of performance
Strengths
Student X is very interested in sport, particularly boxing. He works well in a one-to-one setting and he reacts very positively to praise and recognition of his achievements. Significantly, Student X will leave the classroom when he feels that he is becoming angry and will walk around the school.

Learning Needs
Student X has significant learning needs in both literacy and numeracy, as the screening tests conducted by the school indicate. These difficulties are making it

problematic for him to access the curriculum, and he requires a lot of support to develop his basic numeracy and literacy skills. He also requires a lot of support in the area of social skills and behaviour management, as these learning needs are currently making it difficult for Student X to allow himself to receive support in literacy and numeracy.

Priority Learning Needs:
The priority learning need for Student X is to improve his behaviour. Student X specifically needs to develop strategies that will help him to manage his behaviour when he feels angry. He currently walks out of class when he becomes angry and, while this is positive as it indicates that he recognises his difficulty, he needs somewhere to be when he feels like that as he cannot remain on the corridors. He also needs to improve the amount of time he stays on task in class as, when he is not engaged in learning, he causes disruption in classes.

Rationale for selection of priority learning needs
These priority learning needs are based on discussions with Student X's Year Head, combined with observations that the writer has made of Student X. It was noted (see Figure 1) that this student X had received ten reports of disrupting classes and seven reports of blatant defiance prior to this intervention.

As part of this intervention, the writer observed Student X in mainstream classroom settings on two occasions. These observations identified frustration as a trigger for Student X's anger. Consistently, he appeared to become more aggressive when he was frustrated. Observation revealed that this frustration arose from the fact that he finds his schoolwork difficult. The writer noted that, significantly, he did not ask for any assistance from either of the two teachers in the room.

Intervention Programme

SMART Targets
The following targets were set for Student X:

1. That Student X would ask his teachers for assistance at least five times per week by 23 January 2015.
2. That Student X would have availed of a timeout in the LEAP room at least three times by 23 January 2015.

Target 1: That Student X would ask his teachers for assistance at least five times per week by the 23rd January 2015

Description of Intervention
This intervention derived from the writer's observations that, in the classroom, Student X becomes frustrated when he does not understand what he is supposed to do, or when he is unable to complete a task. Student X did not ask for assistance from either of his teachers and observation revealed that this frustration began to fuel his aggression. Therefore, the focus of this intervention

was to encourage Student X to ask teachers for assistance more often. As he did not ask for assistance, the target was that he would ask for assistance at least five times per week by the conclusion of the intervention.

Rationale for intervention

This intervention was important because, if successful, it might reduce the frustration that Student X was feeling and this, in turn, might support Target 2 by reducing the frequency of his aggressive behaviour. The specific target, to ask for assistance in the classroom in English and Maths classes, was set for Student X because he has severe numeracy and literacy difficulties. If he were able to ask for assistance in these classes, it might allow him to remain calm and, therefore, allow him to experience more success in completing tasks. It was hoped that this would assist Student X in becoming more motivated and staying on task in class, thus reducing the amount of disruption he was causing within the class.

Instructional approaches

One of the greatest challenges concerning this target was to design a way in which Student X could ask for assistance without highlighting his difficulties to the rest of the class. This challenge was made more difficult because many of the students in this class are also from the Travelling Community, and it was possible that Student X might be mocked by these peers for seeking his teacher's assistance. In order to overcome this difficulty, the writer discussed with Student X how he might actually ask for assistance.

The strategy we agreed upon was that Student X would raise his hand and ask his teacher one of the following two questions: 'What do you think of that?' or 'Could you have a look at this for me, please?' This was Student X's own idea. Using this strategy, the teacher would be able to view his work and could then see where he was having difficulty. Student X agreed that this strategy would allow him to ask for assistance from his teachers in a way that did not make him feel uncomfortable.

It would, it was hoped, be easier for Student X to ask for assistance in Maths and English classes than in other subject areas as there are two teachers present in both of these classes, so he would be able to seek the assistance of one teacher while the other teacher continued to work with the remainder of the class.

Implementation of programme – timescale, context, personnel involved

This target was designed to be in place for Student X for a period of six weeks. All of Student X's teachers were involved in monitoring and evaluating this target, as it was their assistance he would be requesting. However, the writer requested both Maths and English teachers in particular to co-monitor this target with him. All of the relevant teaching staff were informed about this target at the beginning of January. Student X was also to be involved in monitoring this target himself using a tracking booklet.

Collection of data- research diary, observations, testing
Student X's Tracking Booklet recorded how many times he asked for assistance in each class. This was verified with the relevant teacher to ensure validity. The writer's research diary also recorded the progress that Student X made.

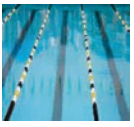
Target 2: That Student X would have availed of timeout in the LEAP room at least three times by the 23rd January 2015.

Description of intervention
This intervention followed the pro-active and preventative principles of the Positive Behaviour Support Model, as advocated by Westwood (2011). It was an intervention that was planned to allow Student X to tell the teacher when he was feeling angry and needed some time to cool off. It was expected that this would prevent an escalation in the aggression that Student X normally exhibited.

Student X was given a yellow laminated card, which was small enough to fit into his school diary. At any time that he began to feel himself getting frustrated or angry, he was simply to walk up to his teacher and open his diary on the page with the yellow card. This would be a signal to the teacher that he needed to take time to cool off. At that point he would be allowed to go to the LEAP room in the school. The LEAP room is the Behaviour Support classroom in the school and LEAP stands for Learn Enjoy Achieve Progress. Furthermore, if teachers felt that Student X needed time to cool off, then they could subtly show a yellow card that they had to Student X, and he would know that he had to go to the LEAP room.

To encourage Student X to use the card and avail of the timeout in the LEAP room a token economy was put in place for him (also see endnote).[1]

Figure 2. Student X's Token Economy

REWARDS					
Tokens Required	**4**	**8**	**12**	**16**	**20**

Rationale for intervention
The rationale for this intervention was that there was a serious health and safety risk in the classroom when Student X became angry as he was very aggressive. Therefore, he needed to be removed from the classroom in such circumstances. Student X already walked out of the classroom when he felt angry. However,

there was still a health and safety issue here as he was staying on the corridors and was not supervised.

The LEAP room was chosen as the timeout zone for two reasons. Firstly, only one other teacher and the writer were based in this room and Student X was familiar with both. Secondly, as one of these two teachers was in this room at all times, Student X would be supervised if he arrived there.

Instructional Approaches

At the beginning of this intervention, scaling activities and survey sheets were used to get detailed insight into Student X's opinions on his own behaviour (example in Figure 3).

Figure 3. An example of a survey sheet that was completed during an interview with Student X prior to the intervention

Name: Student X Class: 1st Year Date: 27/11/2014		
1. *Tell me a bit about yourself. How would you describe yourself to someone who didn't know you?*		
Boxing *Horses*	*Friendly (sometimes) - friends, cousins* *Not friendly to new students* *Funny (sometimes)*	
2. *Tell me about school. What do you like about it? What do you not like about it?*		
Good: *Taken out of classes* *Stop at 1 o'clock (more freedom)* *soccer*	*Dislike:* *hate Maths (difficult)* *hate English (difficult)*	
3. *Tell me about your best friend. What are they like? Why do you like them*?		
Name of Friend *- friendly*	*Hang out together* *Boxing together*	
4. *What do other people think of you? Do they like you? How would they describe you?*		
No *Give out to them* *Hit them*	*Bully - other people sneering about horses and dog*	*1st Year - 3 horses:* *Chantel (mare) 14* *Patch (stallion) 12* *Star (mare) 11*
5. Tell me about some of the good things about being you. What are you good at?		
Boxing, horses, soccer		
6. Tell me about some of the things that are not so good about being you.		
No response		
7. Tell me about some of the things you find difficult when talking to people.		
No		
8. Tell me about some of the things that you find difficult when making friends or keeping friends.		
Don't bother mixing		
9. Do you like talking to people? Do you find it easy to start up conversations or join in with discussions?		
Yes - like talking about anything		
10. Can you think of anything you'd like help with? Making friends? Feeling good about yourself? Understanding people? Being able to stand up for yourself?		
Maths - sitting - Ms_____'s religion boring, walk out *Fidget (like object in hand) wood work chair.*		

This was conducive to a solution focused approach (Metcalf, 2003). These surveys informed the planning for the entire intervention.

The writer worked with Student X on a one-to-one basis, first introducing the yellow card to him in this setting and discussing different times when he might use the yellow card to take a time-out. He agreed that he would use the card when he noticed that he was feeling a small bit angry. Student X was then given the opportunity to practice coming to the LEAP room from his different classrooms. His mother had noted that he had expressed a concern about remembering the layout of the school, so this preliminary practice was to ensure that he would find his way to the LEAP room when he needed to have timeout.

When practicing leaving the classroom and going to the LEAP room, social stories were used in order to prepare Student X for different scenarios that might occur when making his way towards the LEAP room. An example of one such scenario was if he were to meet the Principal, or any other member of staff, while making his way to the LEAP room. We agreed that, if this were to happen, he would simply tell the teacher that he was going for a timeout, and would show the yellow card which was in his diary. In order to ensure that this would work consistently for Student X, all staff were informed, including the caretaker, cleaners and the secretary, so that everybody would know exactly what was happening if Student X produced his yellow card.

The yellow card was introduced to Student X on a one-to-one basis. This was because he needed to be aware of how he could use this card, and when it when to be used. He also needed to be aware that any of his teachers could use the yellow card.

Implementation of programme

All staff in the school, including non-teaching staff, were aware of the yellow card and how it could be used both by Student X and by teachers. Staff were made aware of this at a staff meeting and they were informed that, whenever Student X used the Yellow Card in their class, it was to be recorded on a report sheet straight away and presented to this writer. This was for two purposes. Firstly it was a record that Student X had left a particular class, which allowed his movements to be tracked. Secondly, it required teachers to use an ABC analysis which might help to identify the antecedents that were causing Student X to become angry.

When Student X arrived in LEAP, the time was recorded and compared to the Report Sheet to ensure that Student X had gone directly from the class he was in to the LEAP room. If these matched up then Student X received three tokens as part of his token economy.

Collection of data-research diary, observations, testing

The collection of data for this intervention involved teachers reporting the occasions when Student X had used the yellow card in their class, or when they had to show him a yellow card. Student X also had a tracking booklet where he kept a record of his two primary targets. He ticked the box when he used the yellow card, while a teacher also recorded his behaviour on a Management Sheet. By comparing the Tracking Booklet and the Management Sheet it was very clear whether or not Student X should have used his yellow card. The Tracking Booklet was differentiated for Student X because of his literacy difficulties. As his struggles with literacy are severe, one photograph was placed beside each target so that this visual stimulus could help him to remember his target.

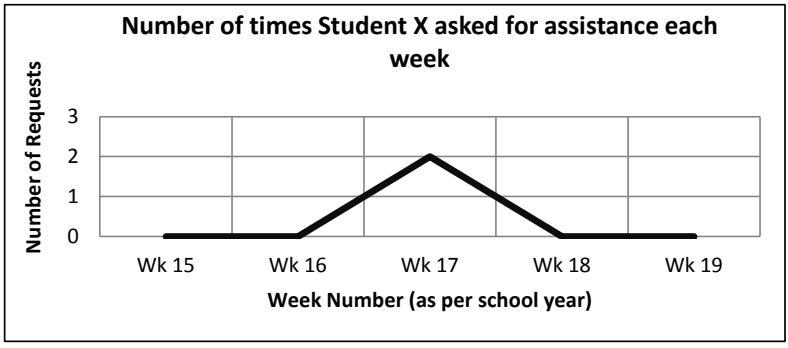
Presentation of Findings

The following are the key findings of the six week programme.

Findings in Relation to Target 1: That Student X will ask his teachers for assistance at least five times per week by the 23rd January 2015

Prior to the introduction of this target, all of Student X's teachers had noted how Student X never asked for assistance in class. This target was introduced at the beginning of week 15 (week beginning 15th December 2014). Figure 4 tracks the number of times per week that Student X asked for assistance during this 5 week period.

Figure 4. Number of times that Student X requested assistance from his teachers



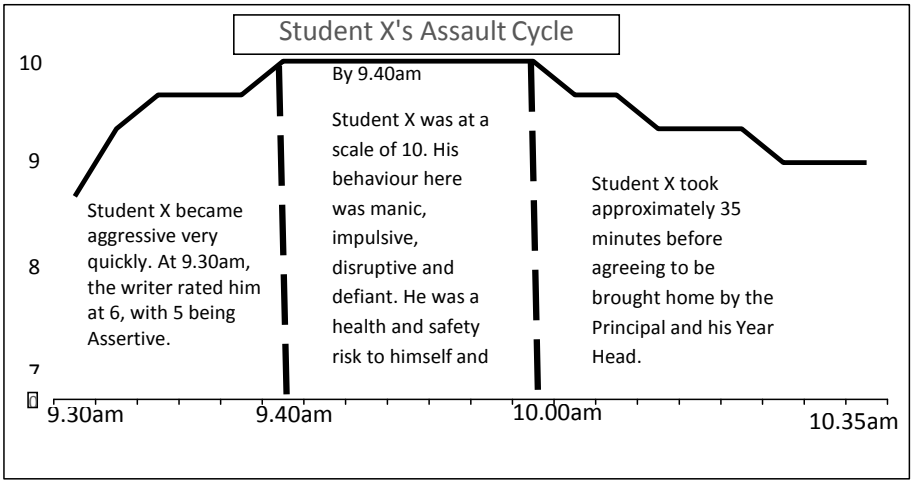
Student X recorded the number of times that he asked for assistance from a teacher in his tracking booklet. This showed that Student X did not achieve his target of asking for assistance five times per week by 23rd January 2015.

Findings in Relation to Target 2: That Student X will have availed of a timeout in the LEAP room at least three times by the 23rd January 2014

Student X did not avail of a timeout at any stage during this intervention. While this indicates that Student X did not achieve this target of availing of at least

three timeouts during this intervention, it is important to note that there was only one serious incident regarding Student X's behaviour. This occurred on 5 December and was recorded in the writer's diary (see Figure 5 and endnote).[2]

Figure 5. Student X's assault cycle which occurred on 5th December, 2014



Findings in relation to Student X's attendance

Prior to the introduction of both targets, Student X's attendance was very irregular. When one analyses his attendance, it is quite evident that suspensions as a result of inappropriate behaviour are a major factor for this. Table 3, below, analyses the reasons for Student X's attendance in detail, both prior to the intervention and throughout the intervention.

Figure 6. Tracking Student X's attendance before and during the intervention

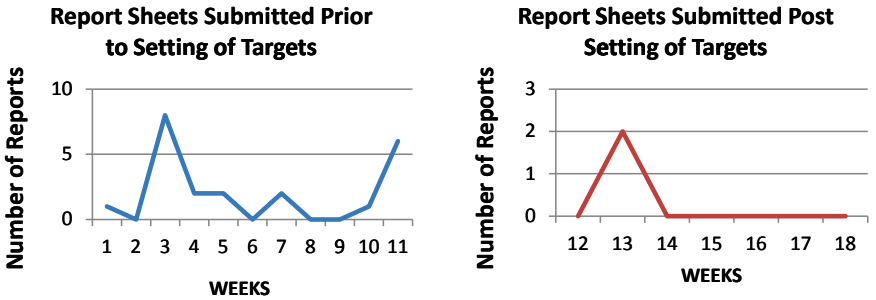


Figure 6, above, indicates that Student X's attendance stabilised after the introduction of his two targets. Prior to the beginning of this intervention, Student X's attendance was very irregular. When one analyses his attendance, it

is quite evident that suspensions as a result of inappropriate behaviour were a major factor in this. Table 3 analyses the reasons for Student X's attendance in detail, both prior to the intervention and after it.

While Student X was absent for a number of days during the intervention, it is quite clear that suspensions did not play a significant role in these absences, whereas prior to the introduction of the targets Student X was regularly suspended.

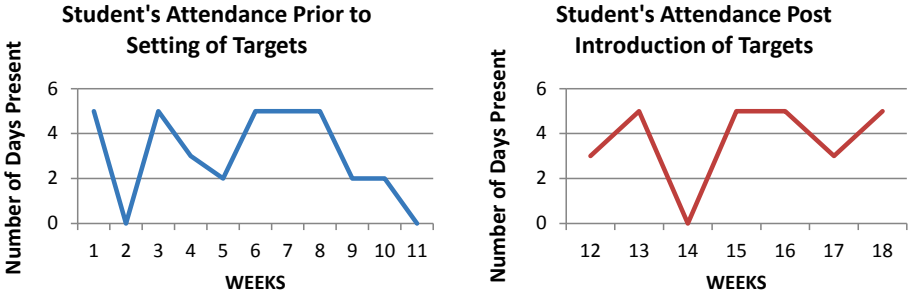
Table 3. Tracking of Student X's Attendance (prior to intervention and including intervention period)

Week	Number of days present	Reason for absence
1 (1st September - 5th September)	5	
2 (8th September - 12th September)	0	5 day suspension
3 (15th September - 19th September)	5	
4 (22nd September - 26th September)	3	2 day suspension
5 (29th September- 3rd October)	2	3 day suspension
6 (6th October- 10th October)	5	
7 (13th October - 17th October)	5	
8 (20th October- 24th October)	5	
9 (3rd November- 7th November)	2	3 day absence
10 (10th November - 14th November)	2	3 day suspension
11 (17th November- 21st November)	0	5 day suspension
12 (24th November- 28th November)	3	2 day absence
13 (1st December - 5th December)	5	
14 (8th December- 12th December)	0	5 day suspension
15 (15th December- 19th December)	5	
	0	5 day absence
17 (12th January- 16th January)	3	2 day absence
18 (19th January- 23rd January)	5	

Report Sheets

Report sheets were completed by teachers to notify Year Heads of any inappropriate behaviour in relation to any student. Figure 7, below, indicates that there was a very significant reduction in the number of Report Sheets that teachers wrote about Student X per week, from the time of the introduction of targets for Student X. Student X received only two report sheets after the introduction of the targets, compared to the twenty-two Report Sheets he had received in the eleven weeks prior to the introduction of both targets. Significantly, all staff including his Year Head, noted a significant improvement in Student X's behaviour. This reduction in Report Sheets was one of the criteria for success of the intervention.

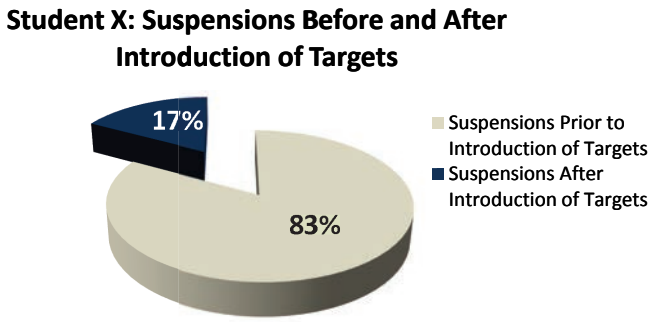
Figure 7. Reports submitted by teachers



Suspension

Student X received five suspensions prior to the introduction of his two targets. After the introduction of this target he was suspended once only. This represented a reduction from an average of 0.45 suspensions per week to 0.14 suspensions per week. This was highlighted as a significant factor in helping Student X to stabilise his attendance. This decrease in the number of suspensions was another of the criteria by which the success of the intervention was judged.

Figure 8. Analysis of Student X's Suspensions



Critical Analysis of Findings

Target 1: That Student X will ask his teachers for assistance at least five times per week by the 23rd January 2015

The greatest difficulty in assisting Student X lay in effectively supporting the development of his confidence to the point where he was able to ask for assistance from his teachers. While he did ask for assistance near to the conclusion of this intervention programme, he did not achieve the target of asking for assistance five times per week. Furthermore, it is worth noting that

the only teacher from whom he requested assistance was this writer. This only occurred when working on a one-to-one basis. The present writer considers himself to be to some extent responsible for Student X's failure to ask for help, as he underestimated Student X's lack of confidence, particularly in relation to literacy and numeracy. Student X was extremely conscious that his peers might notice his deficits in literacy and numeracy and, although there has been a significant improvement in his behaviour, he still is very reluctant to ask for assistance. Again, this is very similar to the findings of Pilson (2011) in relation to the embarrassment of members of the Travelling Community about their deficits in literacy.

It is also important to consider that Student X may have feared becoming the victim of bullying from his peers. In a preliminary interview, Student X stated that his peers already viewed him as a bully. Martin Henley (2010) reported that unpopular children are more likely to be victimised than others.

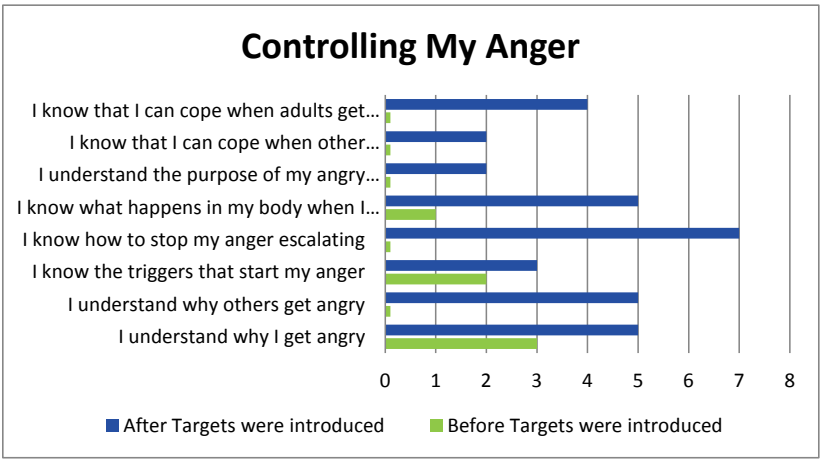
Target 2: That Student X would have availed of a timeout in the LEAP room at least three times by the 23rd January 2015

Although Target 2 required Student X to take time out when he felt angry, he did not avail of a timeout during the six weeks of the intervention. This reveals that the expectation that Student X would need to avail of timeouts was incorrect. This target was based on previous behaviour patterns, which indicated a lot of disruptions.

However it may be claimed that this target played a part in Student X's improvement. The reason for the significant reduction in the number of this student's Report Sheets and suspensions may be due to the fact that he became more aware of his anger through the process of preparation before the introduction of the target, and through the support that he received after the targets were introduced. Figure 8 shows the outcomes of an assessment activity about 'Controlling Anger' that Student X completed prior to the commencement of this intervention, and again at the conclusion of this intervention. This indicates that he was more aware of his anger after the intervention than he was prior to it.

Applied Behaviour Analysis (ABA), as outlined by Westwood (2011), allowed the writer to identify one of the key factors that had been causing Student X to become angry, which was frustration. By using Antecedent, Behaviour, Consequence (ABC) Analysis, as advocated by Kearney (2008), it allowed an identification of the function of much of Student X's behaviour. It was a process that allowed the student to avoid being identified by his peers as having literacy and numeracy difficulties.

Figure 9. Student X's self-assessment concerning anger management before and after the introduction of targets



The Assault Cycle, as outlined by Ellis and Todd (2009), was a very useful teaching tool when working with Student X. Figure 5 (above) is based on the writer's observation of Student X on 5th December 2014 when he became very aggressive. By combining Ellis and Todd's (2009) concept of the assault cycle together with Rae and Daly's (2009) concept of using scaling activities (where 10 is as highly aggressive as possible), Figure 5 shows how quickly Student X's aggression escalated on that morning. This teaching tool was extremely useful for helping Student X to understand his behaviour on that particular morning.

Overall evaluation of effectiveness of the Intervention Programme

In order to evaluate the effectiveness of this intervention programme, both the efficacy of the introduction of targets must be considered as well as Student X's current position within the school. The analysis of the intervention clearly demonstrates that Student X did not achieve either target. However, it has been shown that this programme has been successful. Figures 7 and 8 show that Student X reduced the number of Report Sheets and suspensions he received and thus stabilised his attendance from the beginning of this programme. His attendance has improved because he has reduced the number of suspensions he is receiving. All of these positive outcomes are due to the fact that Student X has improved his own awareness of his behaviour, partcularly in regard to anger management (see Figure 9 above).

Furthermore, Student X began to receive Learning Support from the second week of this intervention programme. This was as a result of observation of his activity and behaviour in mainstream classrooms which led to the identification of frustration due to literacy and numeracy deficits, as one of the major

antecedents to a breakdown in behaviour. This led him to behave inappropriately in order to escape from the classroom, so that he would not be identified as possessing these difficulties.

Student X is now also receiving in-school support from the NBSS, and will also avail of programmes such as *Why Try* and *ALERT* in the near future. Overall the intervention that was planned has supported Student X in improving his behaviour, even though he did not actually achieve either of his targets.

NOTES

1 **Token Economy:**
Student X chose a boxer, Mike Tyson, as an icon for his Token Economy. Student X's name was then put onto a picture of the boxer which was put into a transparent pocket. Tokens were put into this pocket as the student earned them. Each reward cost a certain number of tokens and, as he achieved a reward Student X received a voucher. For example, in order to win a voucher to play Connect 4, the student had to earn four tokens. Vouchers for other rewards required varying numbers of tokens (Figure 2).

2 **Writer's Diary Entry for 5th December, 2014:**
Student X was involved in a very serious incident in the school today. I was called by both the Principal and his Year Head onto the corridor where Student X was highly aggressive. He was verbally aggressive to all staff who went near him. He was running up and down the corridor and was unresponsive to all attempts by staff to communicate with him. It was clear to me at this point that he was not hearing anything that was being said to him. I would describe him as being at the Rage Stage of Ellis & Tod's (2009) Assault Cycle at that time.

Student X did not respond to any attempts of staff to calm him down. He ran off from the premises and eventually he agreed to allow the Principal and his Year Head to bring him home as his parents were not contactable. He has been suspended for all of next week, a five day suspension.

The antecedent for this incident is very unclear. Ten minutes prior to this incident, I had met Student X as he went to class and he seemed quite content. Apparently, he arrived to his Irish class late and had barged into the classroom. When his teacher politely asked him to step outside for a minute to attempt entering the classroom again he became quite agitated and the situation quickly escalated from there. One possibility is that he may have been upset or angry about something that is unrelated to school and, once corrected, he became explosively aggressive. Figure 5 helps to explain Student X's Assault Cycle.

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Implementing Peer and Self-assessment in Physical Education with Students of Low-achievement Grades: A Teacher's Perspective

Rosemary Keegan

Introduction

The National Council for Special Education (NCSE, 2011), found the prevalence of special educational needs (SEN) to be approximately 25% of the student body. For a physical education teacher this posed the question as to how to create the optimum teaching and learning environment for all students in school, including those with SEN, so that they may reach their potential. Central to this focus on understanding the teaching and learning process has been the drive towards personalised learning: the setting of suitable learning challenges, and the differentiation of assessment strategies to maximise opportunities for children with learning difficulties to demonstrate knowledge and understanding (Vickerman & Blundell, 2012). This paper reports on the impact of implementing a peer- and self-assessment strategy in physical education for students with low-achievement grades. The research was inspired by the need to improve the way in which physical education is taught and assessed, in order to maximise the experience of students who are considered low-achieving and to improve their skills, confidence and self-esteem in school.

Assessment in physical education

Assessment provides information to teachers, students and parents on how well the student is progressing; it informs the teacher on how well the teaching is progressing and it also guides teachers on further pupil learning (Assessment Reform Group (ARG), 2002; Organisation for Economic Co-operation and Development (OECD), 2005). Assessment must be on-going and requires deep involvement on the part of the learner in clarifying outcomes, monitoring on-going learning, collecting evidence and presenting evidence of learning to others (Davies, 2000). However, it is not the assessment *per se* that is important, but the subsequent feedback that is a powerful tool for enhancing learning (Brown, 2004; Crooks, 1988; Gibbs & Simpson, 2004; Hattie, 2009). This feedback is only powerful and successful when it is received and acted upon by the students (Hattie, 2009; Topping, 2009).

Assessment for learning (AfL) reflects recent advances in the knowledge of how learning takes place. Black and Wiliam (1998) stated that AfL can help all students and it can produce particularly good results for low-achievers, because it concentrates on specific areas of the students' work, giving them a clear understanding of what is wrong and setting achievable targets for putting it right. Crooks (1988) suggested that weaker students benefitted from the identification of more attainable intermediate goals, thus making it possible that patterns of repeated success could lead to improved self-efficacy.

Peer-assessment is an integral part of AfL. It is an arrangement for learners to consider and specify the level, value or quality of a 'product or performance' from an equal-status learner, providing feedback face-to-face which is often reciprocated amongst learners (Topping, 2009). Sebba, Deakin-Crick, Yu, Lawson and Harle (2008) found from their meta-analysis that it involved students in assessing each other's work, through reflection on the goals and what it means to achieve them. In self-assessment students collect information about their own performance or progress, compare it to explicit, stated criteria, goals or standards and revise their performances accordingly (Andrade & Valtcheva, 2009). Its purpose is to identify strengths and weaknesses in their own work in order to make improvements and promote learning (Black, Harrison, Lee Marshall & Wiliam (2003). Some of the benefits of this type of assessment include the immediacy, frequency and the individualised nature of feedback to the learner; the time on task for practice, with a greater sense of accountability and assessment of understanding in terms of cognitive gains; improved co-operative learning skills, and the improvement in the teacher's use of time in relation to planning and delivering of lessons with closer attention paid to their organisation (Topping, 2009). Macken and O' Leary (2010) found that AfL can be used to provide students with more focused feedback and may be used to promote positive learning experiences, even in a context where pupils may not be well disposed to it.

An important feature of this study was the direct involvement of students in the process. This started with the sharing of the learning intentions and assessment criteria at the start of the lesson; giving and sharing of feedback; developing an awareness of the potential of learning resources in themselves and other peers; the value of learning from one another, and developing a shared responsibility for learning. By giving students responsibility for their own learning they become much more aware of the process of how they learn. This develops greater knowledge and understanding of metacognition, which is an important skill for life-long learning. It is valuable, within the class, to allow students to take credit and develop confidence in their ability to give and receive feedback and to change practices, allowing discussions to develop and allowing greater levels of communication to take place between students.

Research Context

This study took place in a large co-educational school that offers the English curriculum in Kuwait. There are seven classes in Year 7. The classes are streamed, based on the students' entrance test results in Mathematics and English and subsequently by the results at the end of each year. Students have sixty-five to seventy minutes of physical education each week. Boys and girls are taught physical education separately.

Participants

Seventeen female students took part in this study in total, they were from the lowest three classes, academically, in their year group. The students would generally be considered bi-lingual. The students were aged eleven to twelve years. Two months prior to the start of the intervention, the students had undertaken a computer-adapted standardised test from Durham University called Middle Years Information systems (MidYis). It proposes to measure ability and aptitude for learning (Table 1).

Table 1. Pseudonyms and test scores for students

Student's Name	MidYis Standard Score
Zaina	76
Alia	83
Sara	83
Fatema	89
Reem	82
Muneera	79
Rana	90
Zain	90
Lina	90

The students were measured in mathematics, vocabulary, non-verbal skills, and skills in proof-reading, perceptual speed and accuracy. The results of these tests identified that nine of the students were at, or equal to the 25th percentile compared to a large international sampling. The NCSE reported that 25% of students could potentially be classified as having special educational needs. In light of this, I reviewed the data of the students in this small group and evaluated them as potentially having special educational needs. For the purposes of this research they are termed 'students with low-achievement grades'.

The students were given a presentation about the study and what it entailed, and both the students and the parents gave written consent to participate. They were advised of their right to withdraw from the study, but not the lesson, at any time. Each student was given a pseudonym to protect her identity and ensure confidentiality (Table 1).

Context and scope of the research

The physical education programme in this school is activity based. Over the duration of this study the students participated in athletics (two weeks), gymnastics (four weeks), volleyball (four weeks) and mini-games (two weeks), in this order. The study was designed to start with peer-assessment, and to change to self-assessment when it was perceived that the students had mastered the fundamentals of peer-assessment, and were adequately prepared to engage in self-assessment without confusion or information-overload. At the start of each lesson the focus of the lesson was discussed with the students (Learning Intention), and how it would be assessed (Assessment Criteria).

Figure 1. Learning intentions for lesson 2: Athletics – Relay changeovers

The Students will be able to:

1. Explain two reasons why the changeover is important in this race.
2. Demonstrate an effective changeover in the relay.

There were usually four points to the assessment criteria supplied to help focus the students. The maximum number of points was kept to four, so that they would be easy for the students to remember. The points were presented in order, working from the feet and up through the body. This followed the pattern of each lesson, in which the students start with the feet, as they form the foundation for most movements skills, and then work up the body to the positioning of the trunk, arms and head. These points were displayed during the lessons on a flip chart and referred back to regularly (Figure. 2).

Figure 2. Assessment criteria for relay change-over (week-2)

1. Feet and body facing forward, one foot in front of the other (one foot forward).
2. Trunk leading forward.
3. Arm out-stretched, behind, palm facing upwards (alternate arm out-stretched).
4. Head turned, looking down your arm, over your shoulder. Start to move off slowly when partner reaches blue cone.

Figure 3. Students' Weekly Log Book

What did you observe that was good about your partner's work?
Positive Feedback **PLUS**
1._____
2._____
3._____

What suggestions did you make that might make the performance even better? **Positive/constructive** Criticism
1._____ **MINUS**
2._____

What did you find interesting about what you observed in the lesson today? **INTERESTING**
1._____

What did you find difficult about this lesson?
1._____

What did you find easy?
2._____

Please circle the level you feel the person/people that you observed achieved.

Level 1
Below the level of the standard set in the criteria
(did not meet any of the points of focus fully/assessment criteria).
Level 2
Approaching the level expected in the criteria
(met 1-2 of the points of focus/assessment criteria)
Level 3
Meeting the standard set in criteria met
(met 3-4 of the points of focus/assessment criteria).
Level 4
Exceeded the standard set in the criteria
(Exceeded in all 4 points of focus/assessment criteria set).

At the end of the lesson the students completed a Student Weekly Log Book (SWLB) to record the content of the lesson and to act as a plenary. This included a 'Plus, Minus, Interesting' (PMI) focus as an aid to their learning. The last part of the SWLB was to complete a rubric about their partner's performance/

learning initially, and then about their own performance/learning (Figure 3 above).

Methodology

The methodology selected for this strategy, participatory action research, allowed for constant collection of data from a variety of sources. It also allowed for incremental changes to be implemented during the intervention, which were based on the lessons and how they were proceeding and also on the rate at which the students were learning. Kirk (1993) argued that action research has the potential to bring about educational reform. In this instance, the study incorporated a concern for more effective teaching and learning that would lead to a better form of physical education and that would be "more educationally worthwhile" (John Elliott, 2009, p. 28).

Data collection and analysis

Action research is qualitative research. Qualitative researchers tend to analyse their data inductively (Bogdan & Bilken, 1998; Braun & Clarke, 2006). Each item of data collected and patterns within the data were sought. Meanings were attached to this data, which was then sorted into themes or categories (Braun & Clarke, 2006; Cohen, Manion & Morrison, 2011). The different sources of data can provide different information, and using a variety of methods was useful as it helped to confirm findings, as well as provide a differing perspective that a single source of data might not (Freeman & Mathison, 2009). As Patton (2002) suggested, I used three main types of data collection:

(a) interviewing students in small groups before and after the intervention (two to six students)

(b) observations and field notes, that I recorded immediately after the lessons

(c) records and documents from the school, which included the data about the students baseline scores.

The study was also supported by video recordings taken during most lessons (340 minutes of videoing of regular class recording), and data from the *Students' Weekly Log Book* (SWLB) completed by the students at the end of each lesson (Log books were completed after lessons 1 to 9, and reflection was carried out as a group oral discussion after lessons 10 to 12). This comprised a series of questions on the lesson, and a rubric to assist the students to assess the success of the performance that they observed (see Figure 3 above).

Findings

This study supported many of the themes that were already identified in the literature from the group as a whole. The features were:

(a) enhanced planning by the teacher;

(b) sharing the learning intentions and assessment criteria with the students;

(c) lessons were more feedback-focused;

(d) lessons are now more reflective and critical and are used to direct future learning;

(e) students have a personal and a shared responsibility for learning;

(f) students developed a heightened awareness of learning from others;

(g) students developed a greater knowledge about learning and metacognition.

The impact of peer- and self-assessment on students with low-achievement grades

Additional themes emerged when I focused only on the data that impacted on students with low-achievement grades. In addition to the above themes, the following themes also emerged:

(a) the importance of the language used;

(b) the potential improvement in self-confidence and self-esteem from the use of assessment;

(c) the opportunity to learn from, and with others;

(d) preference for the method of learning;

(e) the reluctant contributor.

The students with low-achievement grades appeared to fall into two groups: those that embraced the spirit of the intervention, working through the process to the best of their ability and those who were not fully enthused by some of the requirements of the process.

<u>The importance of the language used.</u>

I found that it was important to allow time to explain concepts and terminology, using a word wall, pictures and demonstrations in the introduction to the lessons. I often worded the meaning in two ways to ensure understanding and clarity, and to be sure that there was no ambiguity. *'The students will be able to….'* and in brackets I wrote *'(learning intentions)'* and the *'Points of focus for the lessons are'* and in brackets I wrote *(assessment criteria)*. I used the word wall to build their vocabulary for words specific to each activity. The words for gymnastics included: movement static/dynamic, extending/stretching, flexing/bending, tuck/curl, tension/still/control, and balance/still/static. The students were able to understand these concepts and use them in questioning

and in providing feedback to a partner during the lesson. Following gymnastics, for example, Zaina wrote, 'I told her to *extend* her legs' and 'to have more *tension* in her balance'

The potential improvement in self-confidence and self-esteem from assessment.
Stiggins (2002) stated that teachers should use classroom assessment to build students' confidence in themselves as learners and to help them take responsibility for their own learning in laying the foundations for life-long learning. Many of the low-achieving students worked really hard within this study, and the growth of confidence was discernible in some students. In the post-lesson interview all students said that they had learned a lot about assessment in physical education.

Lina was confident and articulate in answering the questions and, when asked about providing feedback, she added, '*I did not mind my partner telling me how to improve'*. Zaina stated that she enjoyed the experience, but added, '*Sometimes I find it difficult when my partner tells me what to do*'. Zain agreed, '*Sometimes it was okay to talk (give feedback) to my partner, but sometimes it was difficult*'. But not all were growing in confidence. Alia, Reem, and Bibi did not appear confident in talking to a partner, and both stated that they found it difficult to tell their partner how to improve. Alia concurred: '*I didn't like to give feedback to my partner. She didn't do as I said*'.

This supports Davies (2006) who concluded that better students were more willing to criticise their peers than weaker students. It is possible that some students lack the confidence in both their own and their partners' abilities as assessors (Ballantyne *et al.* 2002). Similarly, Sara and Fatema, were not comfortable with the written task at the end of every lesson. The quality of their written work deteriorated fast, and they were less informative in completing the questions posed. Of the 8 students who achieved a C grade at the mid-year reporting cycle, 6 students improved their grade to a B grade by the end of year reporting cycle. This improvement in grades would help to enhance their self-esteem (Table 2 below).

Students as learning resources for one another
A sense awareness of how they could help one another was evident from the video recordings. Zaina in lesson 5 taught Huda (a student from a higher ability range) how to do a bridge (gymnastics element). It was obvious in the video that they were both very excited. In the post-intervention interview Lina stated, '*I learned how to observe and watching my partner I learned a lot and it helped my performance*', and Muneera also stated, '*My partner help me to get better*'. Zain similarly added, '*My performance did get better from watching others'*. In the student SWLB Reem said that she told her partner '*to point her toes and push herself up in the shoulder stand*' in the gymnastics module. This reflects an increased awareness that pupils seemed to have, not only of their own

achievements in PE, but also the achievements of their peers (Macken & O' Leary, 2010).

Table 2. Pre- and post-intervention outcomes for students with low-academic achievement

Name	Grade Pre-intervention	Satisfaction with PE grade Pre-intervention	Self-assessed grade for end of year	Actual grade for end of year
Zaina	C2	Dissatisfied	B2	B1
Alia	C2	Satisfied	B2	B2
Sara	C3	Dissatisfied	B1	B2
Fatema	B2	Satisfied	B1	B2
Reem	C2	Satisfied	B1	B2
Muneera	C2	Satisfied	C2	C2
Rana	C2	Dissatisfied	B1	B2
Zain	C2	Dissatisfied	C3	C2
Lina	C2	Dissatisfied	B2	B1

Preferred method for learning

In the interview after the study the students were asked which method of learning they found helped them to learn best. The answers were mixed, with two students from this group stating that they believed they learnt best when using peer-assessment; two others felt they learned best from using self-assessment while four stated they learnt best using a mix of peer- and self-assessment. It would be interesting to pose this question with a larger sample size to see whether low-achieving students have a type of learning method that suits them, or if this preference is as individual as the students themselves.

Dealing with reluctant contributors

Sara and Fatema were generally good participants in the practical aspects of the lesson, but they were consistently reluctant contributors in both verbal and written feedback throughout the study. Sara's annoyance with the interventions was noted in the post-intervention interviews when she stated, '*Miss, it's wasting time writing up things at the start of the lesson*'. Both students said, when asked about what they had learnt from the study: '*It's boring and a waste of time talking about PE*'. Both students also admitted to really liking physical education – they just wanted to be active. Osmond and Merry (1996) similarly found that some students treated the intervention in a cavalier manner and were skeptical. An interesting point also from the study was the fact that neither student ever asked to withdraw from the study, even though they had that option. Both Sara's

performance and effort improved over the term in relation to her skills-development, and Fatem's grade, although it did not improve, was already reasonably good (see Table 2 above for overall outcome in relation to summative assessment from the students with low-achievement grades in this study). Because the students showed a dislike for the time and effort it took to complete the SWLB at the end of every lesson, this was altered in week 10 of the intervention to a verbal question and answer session, during which were all the questions from the SWLB were discussed. This part of the lesson was videoed in order to continue to collect data. All the students stated that they preferred this format for data collection. It was less onerous on them.

Conclusions

The purpose of this study was to examine the impact of peer- and self-assessment as part of a teaching strategy in physical education, and to assess its impact on students with low-achievement grades. The study demonstrates that students with low-achievement grades were capable of using these strategies in class, and that many benefited from the experience (Black & Wiliam, 1998; Crooks, 1988). For this approach to be successful, it is important to take care to explain the process, to be careful with the language used in order to ensure that the participants understand the content in each lesson and what the teacher's expectations are (Stiggins, 2007).

It is possible that this intervention was not long enough to allow all students sufficient time to enhance their confidence and self-esteem, though clearly some did. Every opportunity should be taken by the teacher to enhance students' confidence and self-esteem by encouraging discussion and dialogue between themselves, and between student and teacher (Bostrom & Lassen, 2006; Stiggins, 2002). The students' awareness of the value of being learning resources for one another was highlighted by the intervention, and this boosted their self-confidence. However, teachers must be prepared to deal with reluctant participants in their class and to develop strategies to encourage their involvement in the process (Casey & Dyson, 2009), otherwise the benefits from the approach described here may not be fully realised.

The implementation of this intervention was time consuming and labour intensive, both in the preparation for each lesson and in reviewing and analysing the data collected. Coding the data, finding themes and classifying the data accordingly, was also very time consuming. Teachers who consider implementing this approach would need to be strongly committed, and also to have the time to implement a strategy of this depth. Such an approach requires an appreciable input on behalf of the students also. They need to be willing to handle the challenge of such an intervention, in which they are asked to contribute time, energy and effort. The reward, however, is enhanced teaching and learning. Furthermore, the initial expenditure of energy and time would probably only

need to be carried out the first occasion of introducing these new strategies, as many of the skills and resources developed could be easily adapted to other classes and situations thereafter.

It is hoped that this study may prompt further discussion on improving opportunities for learning in physical education through the introduction of teaching and learning strategies similar to those discussed here. Further investigation with a larger group over a longer period might reveal that, given more time, lower-achieving students might also gain in confidence.

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Using a project-based learning approach to develop the critical literacy of young students experiencing difficulties with EAL

Gina Potts

This article records the findings of a research study which used project-based learning approaches in a second language learning context within a DEIS (delivering equality of opportunity in schools) post-primary school in Dublin. This research is concerned with the development of students' spoken language. At a time when the assessment of spoken language in the post-primary school is a contentious issue (ASTI, 2016), difficulties are exacerbated for those who have SEN or EAL. Although a whole-school approach is advocated (DES, 2011:69; NCSE, 2014:5), there is nevertheless a lack of situated examples of good practice in an Irish context. Critical literacy is both a disposition and an approach which promotes the development of critical opinions towards texts utilising active analytic strategies. Participants in the study reported the benefits of the approach referring to the themes, 'community of learners,' 'informality', and 'support', both emotional and academic.

Literature Review

Literacy relates to the language needs of newcomer students in Ireland, as many migrate from non-English speaking countries, causing a barrier to education (Smyth, Darmody, McGinnty & Byrne, 2009). Fairclough (1999) highlights critical language awareness as an entitlement for citizens, especially for children developing towards citizenship within the education system. However, many teachers report difficulties in sourcing appropriate literacy books or resources for use in the post-primary context (Smyth *et al.*, 2009). A lack of access to translation and interpretation services is seen as a hindrance to school-parent communication.

Prior to the whole school approach model, Integrate Ireland Language and Training (IILT) (2003) produced English language proficiency benchmarks for use in a one-to-one capacity. It has been noted that evaluation of planning for literacy in DEIS post-primary schools is disappointing in terms of target setting, implementation of strategies and measurement of achievement (Inspectorate Department of Education and Skills, 2011). Reflecting on these factors together, learning situations for EAL students in the Irish urban context suggest a new approach. Teaching approaches have been found to have a direct effect on the

depth of student engagement (Council of Europe, 2003). A traditional approach is considered both outdated and too narrow in a plural society (with regard to the purposes, media, and material of textual meaning making), and for the inclusion of those with additional language needs.

We live in an environment that is increasingly visually-rich, particularly with the extensive demands of a multiplicity of media. Individuals need to be able to interpret this environment from a critical perspective; otherwise they may believe everything that they see and hear (McLaughlin, 2008). Consequently, this study investigated under-researched modes (verbal and visual) in a language learning context. These students already have a language base (albeit not in English) – in the Vygotskian sense, they have a socially and culturally derived and mediated 'cognitive tool' (Vygotsky, 1986). The study focused on visuals to elicit spoken language, to create awareness within participants of their strengths and resources and to promote reflection on the learning situation.

For individuals, language resonates with a sense of belonging, identification with others' and one's own identity. In this research, therefore, New Literacy Studies (NLS) and Critical Literacy (CL) perspectives were used. NLS rejects the autonomous approach to literacy which simply imposes "western conceptions of literacy on to other cultures". Research in NLS suggests that literacy varies from one context to another, and from one culture to another, and that therefore the effects of different literacies vary (Street, 2003: 77). Critical Literacy promotes an analytic approach to texts in order to reveal underlying purposes, motivations, assumptions, biases and so on. These two perspectives afford a broader semiotic repertoire, expanding possibilities for empowering outcomes where verbal, kinesthetic and visual modalities are employed. Spoken language takes place within contexts and situations (Lemke, 1995). Writing has often been treated as being similar to speech, because they are both expressive language forms (Luoma, 2004). As Vygotsky noted, however, speech differs greatly from writing in structure and in the way it functions. He emphasised the substantial lag – of as much as six to eight years – between the linguistic ability of young people in speaking and in writing. Vygotsky attributed this lag to the fact that writing is a highly abstract activity, "lacking the musical, expressive, intonational qualities of oral speech." Not only is writing highly abstract, lacking the sensory aspects of speech, sound, gesture and so on, but it also has no interlocutor, being addressed only to an absent or imaginary person or audience. It is in fact, according to Vygotsky, a separate and different linguistic function from oral speech (Vygotsky, 1986, pp. 180-181). The difficulties encountered by children in moving from spoken to written language may be expected to be mirrored, to some extent at least, in similar difficulties experienced by EAL students.

Methodology

This paper is from a predominantly interpretivist/constructivist approach within a mixed-methods research design. The goal was to understand the participants'

views of the study with the belief that there are many realities (Creswell, 2013). Qualitative data was the main source of information collected, with some quantitative data to give a snapshot of participants' progress. The data was collected during the eight-week intervention.

The qualitative data, which was gathered through interviews, was analysed using a framework (Chinman *et al.*, 1998). The assessment of speaking is not straightforward; it comprises non-verbal gestures and expressions as well, as tone and utterances in real time and context. "Teachers often focus narrowly on the development of grammatically accurate speech which may conflict with a learner's desire to communicate and be understood" (Luoma, 2004, p.ix). Spoken language was treated differently in this research, as with writing the producer has time to edit and develop grammatically accurate expressions. The *Analytic Descriptors of Spoken Language Scale* (Council of Europe, 2001) were utilised in the assessment of participants' spoken language. The spoken scale includes language behaviours or interaction, as well as range, accuracy, fluency and coherence. Evidence of empowerment was sought within participants' spoken words. Comments on how the learning made them feel were judged to be the best source of this information. Visual and spoken texts were used in a complementary way to study the experiences of the students in the project-based learning environment.

Participants

The students in the study comprised two boys and two girls from different social backgrounds and countries of origin; India, Lithuania, Palestine and Spain. The four participants' spoken language was analysed, using a multimodal analytical framework in the attempt to answer the question: "Are there benefits to using a multimodal project-based learning approach to develop the critical literacy of EAL learners?" On completion of the intervention, these four first-year participants from within the social category EAL were interviewed for their opinions surrounding their experience of the programme.

Intervention

The eight week teaching scheme was designed with reference to NLS (literacy as social practice), multimodal approaches (oral, kinesthetic and visual modes) and the Third Space model, which Bhabha (1994, p. 56) refers to as "the *inbetween* space that carries the burden of the meaning of culture". Elsewhere, Bhabha expands: "The Third Space is a challenge to the limits of the self in the act of reaching out to what is liminal... in the cultural representation of other peoples, times, language and texts" (Bhabha, H.K., 2009: xxiii). The first project carried out by the four students included self-portraiture and presentations of their portraits. The second project involved redesigning the book *This is Ireland* (Sasek, 1964), in a 2014 context. This children's book is one of a series of eighteen well-known, award winning books by the Czech artist, illustrator and author, Miroslav Sasek. It was chosen for this project as it illustrates Irish culture of the past.

Research Findings

The first round of data included drawings and recordings of students speaking about their self-portraits.

Self-Portraits

The self-portraits (texts) were expressed through drawing (a kinesthetic process), and read or viewed through the visual mode. The drawings were used as prompts within the participants' presentations and as an aid to student reflection on the learning experience. Interpretation utilised oral presentations, drawn texts, and consideration of teacher field notes.

The six levels on the *Analytic Descriptors of Spoken Language Scale* (Council of Europe, 2001) range from C2 (proficient) to A1 (basic). This scale contains descriptors of what an individual can do, and is therefore an appropriate measure of linguistic ability when considering participant empowerment in the educational setting (Table 1).

Table 1: Participants' levels of spoken language, assessed with reference to the framework Council of Europe, 2001)

Participant	Week 2	Week 8	Levels + -
S1	A1	A2	+ 1
S2	B1	B2	+ 1
S3	A2	B2	+ 2
S4	C1	C2	+ 1

The participants made presentations during weeks two and four of the intervention. Table 2 below is a snapshot of the number of positive or negative statements made during the speech event.

Table 2: Positive and negative statements during the two presentations

Participants	Positive Statements Week 2	Negative Statements Week 2	Positive Statements Week 4	Negative Statements Week 4
S1	0	2	4	0
S2	0	3	3	0
S3	0	2	4	0
S4	1	2	4	1

Photographic sources

Photographs were used both as data and as prompts to elicit participants' discussion during the interviews. The use of photography may have been empowering in itself. Participants were enabled, by multimodal processes and by the employment of the Third Space model (Bhabha, 1994), to bridge a gap between school and other contexts. A multimodal approach to literacy practice saw participants empowered with a choice of views or subjects to be photographed.

Figure 1. Female collage, from week 2 of the intervention

The Third Space model was referenced in the creation of the activity of collage, which engaged participants in the critical act of re-contextualising and classifying texts (male and female magazine images) for the purpose of generating a discussion. This discussion informed teacher field notes, suggesting that critical literacy skills needed to be developed in the young learners:

> *[Participants] presumed the models were smiling because they were happy and did not question or note that they were smiling to sell products. The girls said they liked the pictures of the women the best because they were more posed* (Field Notes, week 2 of the intervention, 04/03/14).

Photographs were taken by the participants on a trip to Dublin city centre where students were asked to photograph, "Interesting things you see in the city". Students were given time to choose from the photos and create a title on the back (requiring reflection). The researcher interpreted possible reasons why the participants chose particular content as being important.

Figure 2. Photograph of Liffey and Seagull by Student 2

> *…that's what I thought cos I really, like I waited for it to come down to take that cool photo cos I thought it like it's really cool and like you kind of like, I don't know I just liked that* (S2, Interview).

Book Design: redesigning 'This is Ireland'

Participants required vocabulary and scaffolding to support their spoken language. In addition to this basic requirement, opportunities were created using modalities from NLS, concepts from CL and particularly the Third Space model, to scaffold critical engagement and expression. Initial activities included speaking about the students' collages and discussing portraits from traditional and contemporary artists.

These initial opportunities gradually gave way to more challenging tasks, such as the activity of re-contextualising and discussing images from mass culture. Participants were then required to use critical language in redesigning one page of *This is Ireland,* for the book project. This required a type of cultural remixing akin to the Third Space model, which critically re-contextualises information in order to see anew. During the latter part of this process, the importance of treating participants as individuals became more noticeable. It was observed that participants all had different reasons and requirements for language learning. Giving participants agency, and valuing their critical views by arranging one-to-one reviews while other students worked around them, was the method used to achieve this within a classroom context. Each participant chose the page that they wanted to redesign. They were then interviewed individually and asked about their plan for their contribution to the book, the content they used, and whether or not it was being treated in a critical way. These feedback sessions focused the students on the process, and served to shift the responsibility for

learning to the students. They understood that they had to either categorise, justify, compare, contrast, classify or hypothesise, in order to succeed in their design. It was not sufficient to simply reproduce the page. One student, for example, chose a page from the book on the noises of Dublin city. In her own page design, she categorised different types of instruments as percussion, string and woodwind; then she compared instruments from Ireland with those of her home country.

Some participants unexpectedly decided to use animated text and graphics for added emphasis in their designs. The use of the modalities of timing and audiovisual was welcomed, with time allocated for the participants to contribute to whole class learning by presenting their pages to the rest of the class, to show and describe how they had created a particularly successful effect. This was an unexpected development, but the planning of the lesson was flexible enough to include this additional learning opportunity. The independent decision-making by the students suggested that engagement may increase when participants are empowered to make their own choices. The participants, although aware of being less able to engage at a high linguistic level in English, were able to achieve to a high level at the multimodal tasks, and felt empowered by this.

Social Bonds

The responses were positive overall in relation to learning in the project-based environment. Learning and fun (or informality) emerged as a theme in contrast to formal, traditional approaches to learning. The importance of social integration within a 'community of learners' (Cooper and Jacobs, 2011; Department of Children and Youth Affairs, 2012) strongly emerged from the students' spoken words. All of the participants observed that they learnt more language through the co-operative learning that was used throughout the intervention. One participant, with a competent (high) level of spoken English, stressed the importance of the learning situation in creating new social bonds:

> *Make (*names a peer*) less mean to me and also helped, well that's all* (S4, Interview).
>
> *... because I like projects, I like do projects. When we are doing projects, I learning … more English and now about the book of Ireland I learned about Ireland, and I learned English as well* (S1, Interview).
>
> *… the way like all of us worked together to renew the book of Ireland and, ah when we went to town it was really fun* (S2, Interview).
>
> *Well in Spain I usually learn just classes and here in extra English we did a lot of trips a lot of funny stuff and everything so I really like extra English and I think I learned more in extra English* (S3, Interview) .

Did students become more aware of their own language needs?
The participants all had different language needs and different levels of English at the beginning of the intervention. S3's words express succinctly how a person may feel as a newcomer to a strange education system in a foreign country. When asked whether the portrait from Week 2 told us anything about how he felt about learning English at the time, he replied:

> *It doesn't say nothing because was maybe I didn't know nothing I think, of Ireland or nothing even maybe I didn't know the symbol of our school so I didn't put nothing* (S3, Interview, discussing Portrait 1).

Increased language awareness is viewed as a necessity for student empowerment in this context. For bilingual learners this may be facilitated in the language teaching classroom where a student comes to 'see his language as one particular system among many, to view its phenomena under more general categories, [which] leads to awareness of his linguistic operations' (Vygotsky, 1986, p.196).

> *I've been here for three years in Ireland, I thought like you don't need to know a lot of things, any more. But when I learned these things like self-portrait I didn't know what it was, and a lot of things in the book of Ireland I didn't know what it was, so when I learned them I thought my English I need to, like I need to learn more in English and like not all I know. I know a lot of things but I need to learn more* (S2: Interview).

Participants were challenged by the project-based learning to be critical thinkers. S4 wanted to copy and paste from the Internet, as he stated it was already done for him. It was explained that he needed to be critical, and to use his own words to fulfil the task. From S4's comments, in reference to what was requested of him, he found this both difficult and unfamiliar in the educational setting (Field notes, 31/03/14).

Most students were already aware of their language needs, but the formality of the traditional post-primary learning situation did not allow them sufficient time, space and support to discuss or address these needs. Participants referred to the fact that they had learned more English through a multi-modal problem-based learning (PBL) approach. In focusing on a locally produced third object, it is surmised that this allowed learning to become more relevant and, consequently, the learner more engaged and empowered.

Did students feel empowered or otherwise?
The findings suggest a strong link between increased language competence and confidence as the students were perceived to increase in self-confidence in relation to one another. Three of the four students reported feeling empowered by the intervention, one said it was hard to say, but it helped him in many ways (S4, Interview).

The following statements are very different, even though the two portraits drawn by the student are very similar in this participant's case:

> "*Ah well, then [portrait 1] I was not, I not knew very good English and when I speaking, speak, spoke it was difficult a little bit*" (S1, Interview, speaking about portrait 1).
>
> S1: "*Well on the second picture it was more good my English and I understand everything and that's it.* (laugh)"
>
> T: "*Thank you, and how did that make you feel; that you were understanding a bit more?*"
>
> S1: "*I feel good because I understanding now what people talking and I can talk with them as well*" (S1, Interview dialogue).

References to the visual elements in the interviews revealed that the students expressed a more positive representation of themselves in relation to their drawings and learning the English language in week eight:

> *"I think I will learn more and I will spoke, speak* (laughs) *more and better*" (S1, Interview).
>
> "*…more powerful because of the… I don't really know like the self-portrait*" (S2, Interview).

Discussion

Teacher awareness, and differentiation in relation to individual participants' expectations in learning English were linked to learner empowerment. The approach taken was effective in generating learner-centred, spoken language, that supported the development of critical literacy and facilitated the formation of social bonds.

According to research, critical language awareness has the capacity to help both teachers and students to break away from old restrictive ways of thinking about language towards new ways of thinking about power and language (Hornberger & McKay, 2010). Did the intervention allow participants to show a significant development in language awareness within an eight-week timeframe? Both teacher and students felt that it did, although it is difficult to demonstrate this precisely. For the teacher, the evidence unfolded within the process of teaching, learning, discussion, reflection and study. The voices of the student participants, reflecting on their experience of the intervention, were valued and reported as valid evidence, both of their development as language learners and of their empowerment by the process of the intervention. How did a project-based learning approach develop the critical literacy of the post primary students? The focus of critical literacy is one of transformation, not reproduction. PBL served to pose a problem, in this instance page design, that focused on the development of critical literacy.

Active participation
Although a teacher is not solely responsible for an individual's education they have the power to set the conditions (Jansen, 2007). Dialogue created an increasing awareness of participant language needs, putting them in a position of power to effect positive steps to overcoming obstacles.

Awareness of the surrounding world
Trips outside the traditional educational setting were an important aspect of the intervention. This linked to the adolescent empowerment framework (Chinman, 1998).

The importance of the teacher as learner
It was a humbling experience to realise that notions of literacy as product, had been internalised by the teacher at the outset of this research. Over time the researcher began to increasingly value the significance of teacher/student exchanges within the learning context, noting learners' perspectives, and learning from this.

> "One boy sounded frustrated and questioned, '*How is this English*?' today, when the class was in the middle of a drawing task (his tone was both critical of me and my approach). I felt put on the spot, and stuck for words. Suddenly I didn't feel like the expert" (Field Notes: 06/03/14).

Having become open to considering the value of students' questioning, it has now become possible to consider this questioning as evidence of critical engagement.

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An Effective Spelling Intervention Programme

Eileen O'Sullivan

This article describes a Spelling Intervention Programme for students in senior Primary classes. It explores issues such as the assessment of spelling, effective teaching strategies and the opinions and attitudes of teachers and students on the development of spelling ability. It also critically examines relevant literature.

This study arose from the frustrations of teachers regarding the discrepancies between the standard of spelling produced by students in their end-of-week spelling tests, compared with the spellings they produced in their free writing. Teachers expressed concern and a sense of helplessness regarding a small but significant cohort of students, identifiable in each primary-school year group, who struggle with spellings throughout primary school, although they have had formal instruction in spelling from first class.

To help these students who continue to struggle with spelling in senior Primary school classes, the writer created a twenty-four-lesson Spelling Intervention Programme, designed on a skills-based teaching approach. The programme consists of four distinct stages, with each stage developing some aspect of spelling ability in an engaging, relevant and proactive way.

Introduction

Prior to beginning this study, the writer discussed the issue of spelling and the possibility of exploring the development of spelling skills with several colleagues. These teachers were in agreement that this is a neglected topic, despite the significant emphasis put on it both by the school community and by parents. There is little focused discussion about the issue, and development of spelling skills presents as one of the most under-researched, misunderstood areas of the Irish curriculum. Owing to a lack of guidance or continuous professional development on the topic, many teachers are depending on traditional teaching methods to teach students to spell. These often rational, systematic approaches to the teaching of spelling appear to serve the main cohort of students successfully, and most students develop an ability to spell while in primary school, that will serve them well in post-primary and beyond. However, in every primary-level class there is a group of students who fail to develop adequate spelling skills, and who arrive into senior primary school classes with significant spelling difficulties. It may be only a small group of students in each year, however, for these students the assessment of spelling and free-writing is a continuous source of anxiety and embarrassment.

One of the challenges the writer experienced while teaching senior primary classes was supporting students who, only nine months away from leaving the primary school education system, had developed an ability to spell that was insufficient to adequately meet their writing needs presently or in the future. Each class had a small cohort of students who struggled to spell even medium/high frequency words with adequate automaticity. This significantly affected their confidence and the standard of written work they produced. Unfortunately, students often equate spelling difficulties with poor overall ability and consequently students with these difficulties often experience stress and anxiety.

It is important that educators consider the continuing necessity of an ability to spell well in the 21st century. In an age of rapidly-developing technology, has the skill of being able to spell efficiently died, along with the demise of the typewriter? Research has shown that improvements in modern technology have not reduced the need to acquire spelling skills (Viadero, 2002 cited in Vahey, 2013). People tweet, email, text, and communicate through Facebook with each other, using acronym-adorned messages decorated with hash tags – a method of communication that would have been unrecognisable even fifteen years ago. However these methods of communication, which have revolutionised the way we communicate with each other, are all text/word based. Perhaps never in the history of human existence has the written word been more important in the way we communicate. Face-to-face, 'realtime' communication appears to be almost a luxury, as peoples' lives become busier and busier. Even applications for employment have become digitalised, with applications required to be submitted online on electronic forms. The majority of advertised jobs require applicants to provide both a curriculum vitae and a cover-letter. Correct spelling is particularly essential in these, as few employers overlook poor spelling in a job application. Although many communication media incorporate some system of spell-check, they have been proven to be ineffective and inconsistent. McArthur (1996) asserts that spell-check systems fail to identify twenty-five percent of all errors, because the misspelled forms are the correct spelling of other words. No spelling errors, for example, are identified by spell check in the following sentence: 'Spell cheque will not fined words witch are miss used butt spelled rite'. In 2012, the Presidential candidate in America, Mitt Romney, was made very aware of the unreliable nature of spell-checks. Romney was left red-faced when he created an app which misspelled the word 'America' and instead exclaimed, 'A Better Amercia'.

Immediate Problem Context

Why are a significant amount of students under-performing in spelling compared with their English reading assessments year after year? The writer compared the 2014 Drumcondra Primary Reading Test (DPRT) and Drumcondra Primary Spelling Test (DPST) results of 3rd class. Of the fifteen students in the class, twelve underachieved in the DPST compared with their

DPRT results. In nine cases, the discrepancy between the two results was large enough to be of significant concern. Further examination revealed that their below-average scoring in the DPST was also reflected in their free-writing. Discussion of this issue with colleagues from a number of different schools, showed that this discrepancy is not an isolated or a recent phenomenon. Why is it that even though students formally begin to learn spellings from 1st class, some students continue to struggle with the acquisition of spellings in senior classes? What can learning support teachers do to ameliorate the difficulties of some senior class pupils who struggle with spelling?

The Development of Spelling Skills in the Irish context

> *"Spelling..while I feel it's very important.. I have been teaching it the same way since I began my teaching career. Sometimes I am successful, sometimes I am not"* (Interview with colleague, 15/01/15)

The attitude of this colleague is representative of popular opinion amongst the teachers interviewed by the writer. Several colleagues admitted that they resorted to traditional teaching methods such as rote learning and memorisation, because it is such a neglected area in terms of opportunities for professional development (Interview with colleagues, 15/01/15). The 1999 Revised Curriculum, reveals the lack of value placed on the development of spelling. For the first time in Irish Primary Education, the 1999 Revised Curriculum acknowledged that it is necessary to teach spelling, as it is not a skill that is picked up incidentally (Culligan, 2009). However, while the document states that spelling should be 'taught systematically' and that 'progress takes place when children experience a consistent and systematic approach' (NCCA, 1999), it offers no detailed guidelines or explanations of research-based strategies. It is, furthermore, worth noting that none of the teachers in this writer's own school have received (or have been offered) any Continuous Professional Development (CPD) in the area of spelling development.

A common method for teaching spelling outlined by the writer's colleagues is the assigning of de-contextualised words from a spelling wordbook, typically based on sound patterns (although sometimes they may be themed according to the content of the accompanying story), as spellings to be learned nightly at home. These spellings are then assessed orally each day, with a weekly written spelling test of individual words on Friday. Success in the end-of-week test is equated with success in spelling. These traditional teaching methods are successful for a significant percentage of students, who reach the 'Independent Spellers' stage eventually. Students who have progressed to the Independent Spelling stage are aware of the many patterns and rules that are characteristic of the English Spelling system, and when spelling a new word they use a multi-strategy approach (Rees, D., Rivalland, J. and Education Department Western Australia, 1997). However there is a cohort of students who are not successful

with the approach that uses traditional methods, and these students continue to struggle with spelling throughout primary and post-primary school education.

The lack of guidance and on-going CPD for the teaching of spelling suggests that the Department of Education and Skills (DES) does not consider the development of effective spelling skills important. This is, however, in contrast to the scrupulous approach of the DES toward the accommodation of students who struggle with spelling whilst sitting state examinations. This is outlined in the document *Reasonable Accommodations in Certificate Examinations*, which is a publication of the State Examinations Commission (SEC, 2016). The purpose of Reasonable Accommodations in Certificate Examinations (RACE) is to remove, as far as possible, the impact of disability on the candidate's performance in examinations, and to enable them to demonstrate their full level of attainment in the language elements of the examination. Accommodations for students sitting State Examinations are provided under the terms of Circulars S40/94, S11/10 and S24/12 (DES 1994, 2010 & 2012), which state:

> *...the existence of a specific learning difficulty does not automatically entitle a candidate to special arrangements in examinations. Even though candidates may have a specific difficulty with reading, writing or spelling, they may not require the provision of any special facilities provided they can read the question papers of the required level and write legibly. Each case is considered on its merits* (SEC, 2016, p.4).

The criteria for qualifying for a spelling and grammar waiver because of difficulties in spelling are stringent. All of the following are required:

1. evidence of a Specific Learning Disability;
2. a standard score of 85 or less on a recommended spelling test;
3. a spelling/grammar/punctuation error rate of 8% or more in written samples (p.8).

The Examinations Board expect that no more than six candidates for every one hundred students sitting an exam would receive Reasonable Accommodations. This is on the basis of prevalence rates of approximately 6.5 to 8% referred to in the Dyslexia Task Force Report (SEC, 2016, p.4). The SEC warn that the granting of RACE for Junior Certificate does not mean that such an accommodation will be granted for Leaving Certificate examinations (p.2).

These facts are relatively unknown to many parents and students, many of whom believe that spending time to address students' challenges with spelling is unnecessary, as they will be automaticatically granted a spelling waiver for State Examinations. Of more concern possibly, to parents and students alike, is the fact that candidates who are successful in their application for a waiver from the assessment of spelling in language subjects, will have the grades obtained accompanied by an explanatory note on their certificates, which will read: '*all*

parts of the examination in this subject were assessed except spelling and written punctuation elements' (SEC, 2016. p.12). The implications of this should be considered by parents, students and teachers before applying for the waiver.

Stages of Spelling Development

In assessing a pupil's spelling, it may be useful to refer to the stages of spelling development so that the level of the learner and the corresponding implications for teaching spelling can be considered. The *Spelling Developmental Continuum: First Steps* (Rees *et al.,* 1997) outlines this continuum. Teachers may identify a student's stage of development by observing that the child is exhibiting the key indicators of that phase. The stages of spelling development are:

Phase 1 Preliminary Spelling: Students become aware that print carries a message. Their writing is not readable by others, as understanding of sound-symbol relationships has yet to develop.

Phase 2 Semi-Phonetic Spelling: Students show developing understanding of sound-symbol relationships. They may represent a whole word with one, two or three letters.

Phase 3 Phonetic Spelling: Students show an almost perfect match between letters and sounds. Letters are chosen on the basis of sound, often without regard for conventional letter patterns. Spelling attempts are meaningful and are becoming more like standard spelling.

Phase 4 Transitional Spelling: Students are moving away from heavy reliance on the phonetic strategy towards the use of visual and meaning based strategies. They may still have difficulty recognising if a word 'looks right', but should be able to proof their known bank of words.

Phase 5 Independent Spellers: Students have become aware of many patterns and rules that are characteristic of the English spelling system. When spelling a new word they use a multi-strategy approach. They have the ability to recognise when a word does not look right and to think of substitute spellings (Rees *et al.,*1997).

It is clear that in order to become successful spellers, children should be supported in a way appropriate to each stage when they are at each of the different stages. It may be that lack of support at any of these stages begins to create difficulties for the pupil. The reasons for spelling difficulties may be varied, because they may begin at any one of the different stages. The writer proposes the following as the most important causes of spelling failure:

- poor phonological awareness;
- lack of knowledge of letter names and sounds;

- poor visual perception;
- low confidence and/or self esteem;
- poor short-term memory and/or reduced ability to advance spellings from short-term to long-term memory
- inadequate teaching – i.e., words being assigned from a spelling workbook without spellings approaches and strategies being taught explicitly
- choice of spellings without due care and attention being paid to words that may be useful/relevant to the students

Just one of these causes may be sufficient for a student to experience persistent difficulties with spelling, if the reason for the difficulty is not recognised and addressed. With students who find the acquisition of spelling very challenging, a number of the reasons listed above may be contributory factors for failure.

The Assessment of Spelling Ability

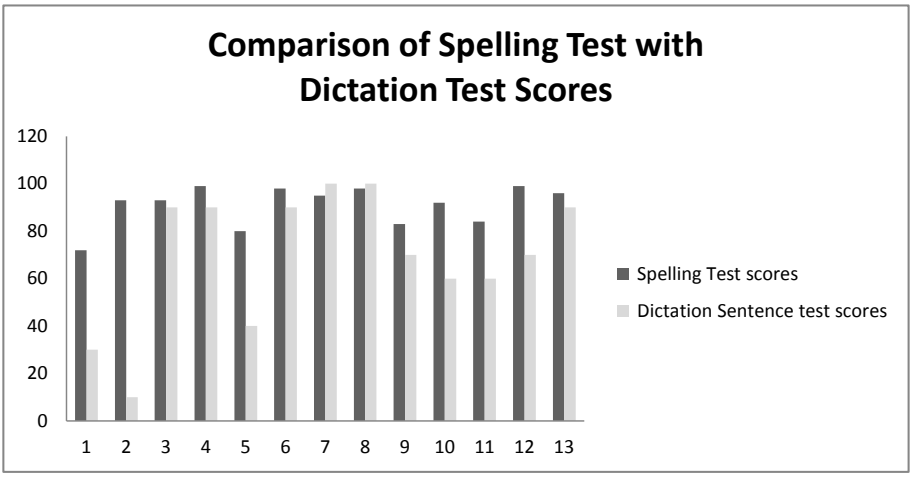
During the writer's dicussions with colleagues, all but one teacher identified the end-of-week, written, isolated-word test and daily oral examination of spelling as their main approaches to the assessment of spelling**.** Pupils identified the 'Friday test' as a source of considerable stress for parents and students alike (Focus group interview, 20/01/15). The Drumcondra Primary Spelling Test was identified as a method of assessing "overall spelling ability" (Interview with colleagues, 15/01/15). Two colleagues included the examination of students' written work as a method of assessing students spelling, however one teacher stated that she finds it "frustrating" as students often get words wrong in their written work that they learned in their spelling workbook. Reference is made frequently in the literature to the issue of spellers producing spellings accurately in spelling tests, only for them to be forgotten or reproduced incorrectly in written contexts (Culligan, 2009; Fresch, 2007; Chase-Lockwood and Masino, 2002). A positive result in the end of week spelling test is too often equated with success in spelling, which can have detrimental effect on the development of students' spelling ability when writing. A very important aspect of failure in spelling was also mentioned by several colleagues; that is, that children who feel in control of the spelling of only a few words may limit their writing to what they think they can spell (Reason and Boote, 1997).

Spelling Intervention

Prior to beginning this study, the correlation between the results of 4th class students in weekly spelling tests and their ability to spell those words when writing was checked. This was carried out through a dictation exercise that comprised three sentences containing ten words that the students had learned from their spelling workbook eight weeks previously. The percentage result of their weekly spelling test was then compared with the percentage of the same

words correctly written in the dictated sentences. Of the thirteen students, eleven of them underachieved in their dictation sentence test compared to their spelling test result. Of those eleven, six of them had failed to spell a significant amount of the words correctly only weeks after learning them. This simple piece of research suggests that weekly spelling tests do not effectively represent students' ability to spell when writing.

Figure 1. Percentage score in spelling test compared with percentage gained in dictation



It was clear, from the difference in the two sets of results, that these students had experienced difficulties, either in the original processing of the spelling information or in the retrieval of that information from the long term memory. If there are short-term memory (STM) deficits, these have an impact on long-term memory, as material that is to be learnt or remembered in the long term must be retained in the STM while long-term representations are established in the long-term memory. Vance and Mitchell (2006) compare STM to "a post box, with the size of the posting slot reflecting the individual's STM capacity. Information for the STM is 'posted' into the STM. If it's too big to fit through the 'slot' (over-size for current capacity), it cannot get through to long-term memory" (p. 147). These writers note that repeated presentation of the same material, or rehearsal, may not be enough for a full or efficient transfer from STM to long-term memory for children with language or literacy difficulties. Memory processing, or working memory, has "four major components: the audio memory, the visual memory, movement or procedural memory, and the semantic memory (storage of the meanings of words)" (Mortimer and Dupree, 2008, p. 25). Mortimer and Dupree note that a weakness in any of these channels puts pressure on the others.

Model of support to achieve the most positive learning outcomes

Once students have been identified as struggling with spelling, is a short, intensive intervention programme with daily, targeted support less or more effective than longer term provision of support? Brooks (2009) believes that highly structured schemes work best for children struggling with spelling. He concludes from his research, based on the Welsh education system, that children with spelling problems need schemes tailored to their preferred ways of learning, and delivered systematically 'little and often'. Contrary to this recommendation of 'little and often' is Singleton (2009), who suggests that the rate of gain may decrease quite rapidly for intensive interventions after the first 12 hours of intervention. These findings suggest that an intensive intervention programme may deliver effective remediation within a relatively short time span. The National Educational Psychological Service concurs with this theory and concludes that short, intensive bursts of intervention, with daily, targeted support, appear to be more effective than longer term interventions. Therefore teachers may need to think of planning their work in half-term or blocks of six to eight weeks (NEPS, 2012).

The Spelling Intervention Programme

After considering the teaching approaches outlined above, the writer designed a balanced, informed Spelling Intervention Programme. The programme was delivered over 24 lessons (6 weeks of 4 weekly lessons), each utilising a proven approach to improve students' spelling ability. The programme consists of four distinct stages:

Stage 1: Learning high frequency words (10 Minutes)
Learning high frequency words using dictation sentences based on Brendan Culligan's (1997) approach outlined in his book *Improving Children's Spelling*. Each student has an individual spelling record to record words they have misspelled. These words are taught using a variety of teaching strategies e.g. Look, Cover, Say, Write, and Check and the use of mnemonics. These spellings are reviewed at home at night and each student is given the opportunity at the end of the week to clear his or her list by writing the words correctly in a dictation sentence.

Stage 2: Letter string families (5 minutes)
A new letter string family is introduced every day. The extensive study of letter string families is recommended by Culligan (1997). Through a process of collaboration, a list of words containing the letter string is developed and the students revise these lists each night. Letter strings include, for example, "tion", "ough", "ph", "ea".

Stage 3: A spelling rule (10 minutes)
A new spelling rule is introduced every 2/3 days (depending on the difficulty level of the rule). Rules include plurals, homophones, prefixes, suffixes and so on.

Stage 4: Revision of the lesson using WordShark 4 CDROM (5 Minutes)
One aspect of the lesson is chosen for revision using interaction, fun games using the Wordshark 4 CDROM. The students work individually or in pairs. This time can also be used for reading out dictation sentences so that individual students may clear their spelling records, while other students work on Wordshark 4 independently.

Both quantitative and qualitative results showed that the Spelling Intervention Programme had a positive impact on each student's ability to spell. The average increase in Percentile Rank of participants of the target group over the six-week period was 9 points. The positive impact of the Spelling Intervention Programme was also evident in the students' spelling ability during free-writing activities, as each participating student reduced his/her percentage of spelling errors. Improvements in the students' ability to spell high frequency words and a significant increase in their attempts to try unknown words, coupled with a marked improvement in the fluency and rate of their writing were all evidence of the success of the programme. Increased confidence levels were also discernible in the participating students.

Conclusion

From discussions with colleagues and students, it is clear that considerable importance is attached to competent spelling, therefore it is imperative that due care and attention is given to the development of spelling skills. Spelling is caught by certain "favoured" children and "less favoured" children need to be taught rationally and systematically (Peters, 1985). This rational and systematic approach should begin with effective classroom teaching, with the teacher using individualised spelling programmes and word lists as much as possible. It is important to employ, to as great an extent as possible, the four components of memory processing listed by Mortimer and Dupree (2008). This intervention employed methods that engaged the audio and visual memories, as well as movement or procedural memory in the playing of games and the use of dictation (instead of oral or decontextualised spellings) and the semantic memory in the teaching of words with prefixes, suffixes, plural rules and so on, that had specific meanings.

The early detection of students who are struggling is paramount to helping these students overcome the difficulties they are experiencing. Individual diagnosis allows for the profiling of the student's strengths and weaknesses, thus enabling identification of the stage of spelling development achieved and where the spelling process is breaking down (Culligan, 2009). As evident from this study, students who continue to experience difficulties with spelling benefit from participation in a short-term, intense spelling intervention programme. From the research conducted, the 4-stage programme produced from this study has the potential to produce significant learning outcomes. These include improvements in students' spelling of high frequency words and in their attempts to spell

unknown words, an enhancement in the fluency and rate of their writing, as well as an increase in their confidence levels regarding their spelling ability.

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