How do teachers in Ireland and England conceptualise dyslexia?

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This paper presents the findings of a comparative study using data from questionnaire surveys carried out in England (n = 57) and Ireland (n = 72). The researchers examine how teachers and teaching assistants who are currently teaching pupils with dyslexia in primary schools describe dyslexia and what may have influenced their conceptualisation. The paper examines teachers’ responses both in terms of how they view their pupils presenting difficulties in the classroom, and how far they link these to underlying differences in cognitive processing. The researchers suggest ways in which this might influence their teaching in terms of methodology. Findings have been mapped to the Morton and Frith causal modelling framework. The implications of these findings for the training and support of teachers are discussed in the light of recent national initiatives to improve the teaching of dyslexic pupils in both countries.

In recent years there has been a growing international body of research and information on the identification and education of children with dyslexia, or specific learning difficulty (Miles, 2006; Reid & Fawcett, 2004). In the light of this, in both England and Ireland there has been concern over how to conceptualise this barrier to learning and what may be the most important and useful model to understand dyslexia. This debate sits within the wider context of inclusion for pupils with a wide variety of special educational needs.

This paper describes a comparative study of identification and intervention for primary pupils with dyslexia in Ireland and England, linking teachers’ responses to theoretical frameworks and discussing how this might influence their teaching in practice. The focus of this article is on teachers’ understanding of dyslexia in both countries. Two separate surveys are described, reporting findings from samples of teachers in England and in Ireland. This is followed by a discussion of the overall findings relating to both countries.
The researchers were interested in teachers’ ideas and knowledge about dyslexia. There has been a recent move in Ireland towards inclusive education of all pupils (EPSEN Act; Government of Ireland, 2004) which will naturally affect the organisation of support for the dyslexic learner (DES, 2005c). Because of the contrast between the two systems and the current interest in training of specialist teachers in England (Rose, 2009), the researchers were interested to compare teachers’ conceptualisation of dyslexia in both countries.

The working definition proposed by educational psychologists (BPS, 1999) has shifted the emphasis from causation to assessment and intervention. The notion of a ‘continuum’ of reading difficulty from mild to severe also signifies a change from a categorical model of reading disability and is now widely accepted in the literature both in England and Ireland (British Dyslexia Association [BDA], 2007; DES, 2002; Rose, 2009).

There seems to be a tension between the categorical, within-child notion of special educational need, which identifies the dyslexic child as being qualitatively different to the poor or struggling reader, and the notion of inclusive support for all learners with literacy difficulties (Duffield, Brown & Riddell, 1995). The discrepancy between cognitive ability and attainment has been central to this debate and is one of the key issues in relation to the identification of dyslexia. However, the concept of intelligence, central to the discrepancy notion in conceptualising dyslexia, is problematic (Stanovich & Siegel, 1998). Children with below average reading ability, described as ‘garden variety’ poor readers, may not be qualitatively different to dyslexic readers who are identified according to discrepancy criteria (Gough & Tunmer, 1986).

More recent research into reading disability suggests that it is the cognitive processes involved in reading and not general intelligence which actually differentiate the dyslexic reader from the poor reader. There is now evidence that processing skills such as phonological awareness skills, pseudoword decoding and rapid word naming are better predictors of success in reading than is general intelligence (Vellutino, Fletcher, Snowling & Scanlon, 2004). However, the double-deficit hypothesis which linked the separate difficulties of phonological processing and naming speed but suggested that these could be seen separately in some forms of dyslexia (Wolf & Bowers, 1999) is still under investigation and has not yet been fully explored (Vukovic, Wilson & Nash, 2004). Phonological processing skills are certainly considered to be a significant component of reading skill and a predictor of later success in reading (Bradley & Bryant, 1983; Snowling, 2000; Stanovich, 1988). This is significant insofar as phonological processing skills are considered to be a core deficit of the dyslexic learner and are independent of general intelligence (Shaywitz, 2003). This approach is more relevant for the teacher as it transfers the focus away from causation and discrepancy to intervention and support. Teachers need to be informed of the current research evidence to develop their understanding of dyslexia in order to assist those children and young people who have reading, spelling and related difficulties.

All teacher education in both countries has evolved over the years. Teachers developing a career in dyslexia support in 2009 will have a significantly different training to that of serving specialist teachers of long experience. This change has come about in part because the understanding of all aspects of dyslexia has developed in the light of research. The evolution of new technologies for neurological imaging, along with research and development and the refinement of theories, teaching methodologies and programmes have accelerated our knowledge and understanding about how literacy skills are acquired (Blakemore & Frith, 2005; Miles, 2006). Established expectations of age-
related literacy attainment have been mapped out in detail and enshrined in the national curricula of both Ireland and England (DES/NCCA, 1999; DfES, 2006).

The researchers addressed the question of how these developments affect the teaching and learning of dyslexic children in the 21st century. The study sought to discover those ideas and knowledge about dyslexia, which underpinned teacher–child interaction in the classroom. One would expect that teachers’ assessment of a child’s needs to inform a learning programme would relate directly to how they understand the nature of the child’s strengths and weaknesses in the acquisition of literacy skills. This understanding is also likely to be influenced by policy, both local and national, and the media. Teachers may link their analysis of a child’s needs to accepted methodologies and to programmes of materials, which may be promoted both by government and local advisers or marketed by the publishing companies. Continuous professional development in the form of conferences and in-service training may also have an influence, as will the setting and structure of their teaching and learning environment. The research team investigated teachers’ understanding and conceptualisation of dyslexia and in this paper draw conclusions about how this might affect and influence specialist dyslexia support.

Current definitions of dyslexia proposed by the British Psychological Society (1999), British Dyslexia Association (BDA) (Peer, 2000) and the Irish Task Force on Dyslexia (DES, 2002) all agree that dyslexia manifests itself as difficulties in reading and spelling at word level. The difficulty has been in conceptualising dyslexia as qualitatively different to the difficulties of ‘garden variety’ poor readers (Stanovich, 1988). There is agreement that dyslexia implies specific difficulties along a continuum and that for some students these difficulties are not consistent with ability in other areas of the curriculum. A categorical notion of dyslexia has relied on a within-child deficit notion of disability and several studies have failed to support the validity of this construct (Torgesen, 2002; Vaughn & Fuchs, 2003). Although a discrepancy definition of dyslexia has been discredited as being educationally unsound (Pumfrey & Reason, 1991), this conceptualisation may continue to influence teachers in Ireland insofar as it provides access to additional resources for the student. The working definition of dyslexia proposed by the British Psychological Society (1999), in contrast, suggests a movement away from using a categorical model of dyslexia and recommends a closer link between assessment and teaching.

The causal modelling framework (Frith, 1995), which was used to map the findings of this study, provides a structure within which to explore the contribution of the neuroscientists, psychologists and dyslexia practitioners in elucidating what we currently know about the nature of dyslexia. The advantage of this framework is that different theories of dyslexia can be embraced through three different levels of description: biological, cognitive and behavioural. The model also recognises that cultural and environmental factors interact with a range of theories and causal definitions at each level.

The model has been further developed by Frith (2002) to illustrate various theories by showing interaction and links across each of the three levels. This contributes to a fuller understanding of dyslexia and one can also see in the work of Shaywitz (2003) and Temple et al. (2003) how such a framework can be useful in exploring possible causes of persistent impairments. Identification of dyslexia is complex and in a sense the framework represents a useful model to explain the outcome of the interaction of many factors (Figure 1).

The biological basis for dyslexia has been underpinned by research linked to recent developments in neuroscience and genetics. Post mortem studies have shown that
dyslexic brains have mild neuropathological abnormalities (Galaburda, Sherman, Rosen, Aboitiz & Geschwind, 1985) and, to date, four gene markers for dyslexia have been identified with the two genes sited in Chromosome 6 implicated in replicated findings linking them to dyslexia (Schumacher et al., 2006).

Modern technology such as magnetic resonance imaging and positron emission topography has enabled researchers to build a link between behavioural and biological findings (Shaywitz et al., 2004). Brain imaging studies have begun to show us the neural pathways involved in reading (Pammer et al., 2004; Shaywitz, 2003) and studies of brain activation patterns suggest that the brains of dyslexic learners can be altered after effective instruction (Temple et al., 2003). Although currently debated, there may be critical (or highly sensitive) periods in cortical development (Huttenlocher, 2003). A developing understanding of the genetic basis for dyslexia, together with studies of risk factors in families, could offer the prospect of screening, monitoring and early intervention for children at risk of dyslexia (Lyytinen et al., 2001; Snowling, Gallagher & Frith, 2003).

Other significant parallel areas of research include the work of Fawcett and Nicholson (2004) who have investigated the role of the cerebellum in affecting language as well as movement and balance. Stein and Walsh (1997) examined the role of the visual magnocellular system in reading and have more recently postulated links between developmental dyslexia and the visual and auditory magnocellular system suggesting a connection between this system and the cerebellum, implicated in coordination and automaticity. Research in this area is still ongoing, and not yet sufficiently developed to be applied in an educational context. Along with current research in the field of neuroscience, caution is urged regarding the interpretation of these findings.

Within the cognitive dimension, it has become clearer that it is the processes underpinning literacy skills that are significant in understanding the developmental nature of dyslexia and that it is not just about impaired reading and spelling abilities alone. It seemed likely that teachers would show evidence of an understanding of dyslexia at this level because it would enable them to plan an individualised teaching programme. Magnetic resonance imaging has demonstrated that people with dyslexia seem to process
language information in a different area of the brain to those who do not have dyslexia. Intervention and training in phonological processing among dyslexic students resulted in changes of neuronal activity of brain regions that are otherwise under-activated in dyslexic children and adults (Eden et al., 2004; Shaywitz et al., 2004). As phonological processing remains the predominant causal theory of dyslexia, development of phonological competences and short-term and working memory skills would be expected to be a significant element of any support or teaching programme for learners with dyslexia.

The study sought to identify what sort of behaviours teachers observed in dyslexic learners. Letter sound knowledge and phonemic awareness are regarded as the clearest predictors of early literacy progress (Snowling et al., 2003) and this understanding is embedded both in the revised Irish curriculum (DES/NCCA, 1999) and in the new conceptual framework for teaching reading in England (DfES, 2006). Rose states that ‘children should have every opportunity to acquire rapidly the necessary phonic knowledge and skills to read independently’ (Rose, 2006, p. 28). The Primary School Curriculum in Ireland (DES/NCCA, 1999), on the other hand, advocates that teachers use a range of approaches to reading instruction including instruction in phonic skills. This model of reading incorporates a balanced interactive approach (Rummelhart, 2004) with an emphasis on both skills and meaning. Teachers are encouraged to develop a variety of ‘cueing strategies’ among early readers, including phonic and context cues. This resonates with the ‘searchlights’ model of a previous English curriculum (DfEE, 1998), which has currently been replaced with a ‘simple view’ of reading (Gough & Tunmer, 1986). Alongside reading and writing behaviours, the development of oral language skills has been a key principle within the English language curriculum in Ireland (DES/NCCA, 1999) and is increasingly acknowledged in England (DfES, 2006). The integration of oral language, reading and writing skills is one of the hallmarks of this revised curriculum.

Shifting our paradigm to a broader perspective, which views the child within his or her family, social and cultural context we can take all factors pertaining to the child into account. An ecological model which was put forward by Bronfenbrenner (1979) was adapted by Poole (2003) to examine the environment in relation to the child with dyslexia. The ecological perspective views the child at the centre of this system. Poole (2003) recognises that learners who may have cognitive processing difficulties should not be defined solely by their dyslexia, and argues that their learning is also affected by a wider web of learning environments and relationships both within and outside school. This would also have an influence on teachers’ understanding of how dyslexia manifests itself. Did the teachers in this survey consider the role of the child’s environment as having an impact on their dyslexia? It is also possible that intervention at one level will not be sufficient to address the child’s needs. In other words individualised teaching alone may not be sufficient support in the absence of support from home and family. Intervention at the environmental level, such as supportive peers and a responsive teacher, may compensate the learner for the difficulties caused at a cognitive or behavioural level (Riddick, 1996). While the link between cognitive processing and literacy is becoming clearer, the interplay of biology, cognition and behaviour in developmental dyslexia continues to be a matter of debate. It is clear that at all levels the nature and extent of difficulties can vary depending on the context and the task. Therefore teachers’ conceptualisation of dyslexia is likely to impact on classroom practice and how they interpret and meet the individual needs of the student.
Method

Irish data collection

This investigation was based on an original study which took place in Ireland and investigated the effectiveness of the special educational support provided for children with dyslexia (McPhillips & Shevlin, 2009). The findings reported in this paper are based on the results of part of a postal questionnaire completed by a purposive sample of specialist and mainstream teachers (Appendix A). These teachers were supporting children with dyslexia in both special and mainstream settings (Table 1).

Special settings include special schools and special classes within a mainstream school. There are four special schools in the country known as ‘reading schools’, which cater for a total of 250 pupils. There are 23 special classes known as ‘reading units’ attached to ordinary primary schools.

Children who are assessed as having dyslexia can be enrolled for 2 years full time in a reading school or reading unit. The main focus in both special settings is on improving literacy skills through small group and individual instruction with specialist teachers. Pupils follow the Primary School Curriculum (DES/NCCA, 1999), which is differentiated according to the individual needs of the pupil.

In mainstream schools children with dyslexia are identified on the basis of a staged process of assessment (DES, 2000, 2003). They may then be allocated support from a learning support or resource teacher.

Teachers from five different settings responded to questionnaires.

Irish respondents: teaching position

A total of 72 completed questionnaires were returned (61% response rate). Questions explored the teachers’ understanding and views about dyslexia and the difficulties faced by their pupils. Data from the questionnaires were entered into an Access database. Responses from specialist and mainstream teachers were analysed across special and mainstream settings. These responses were categorised and grouped for analysis.

Table 1. Irish respondents: teaching position.

<table>
<thead>
<tr>
<th>Mainstream schools</th>
<th>Number of teachers</th>
<th>Specialist schools</th>
<th>Number of teachers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learning support teacher(^1)</td>
<td>17</td>
<td>Reading school teacher</td>
<td>16</td>
</tr>
<tr>
<td>Resource teacher(^2)</td>
<td>18</td>
<td>Reading unit teacher</td>
<td>7</td>
</tr>
<tr>
<td>Mainstream class teacher</td>
<td>14</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\(^1\)Learning support teachers provide additional support to all children with literacy difficulties including children with dyslexia.

\(^2\)Resource teachers provide special support in mainstream schools to children with special education needs, including severe dyslexia.

English data collection. In England, provision for learners with dyslexia is organised, typically, in mainstream schools, with intervention taking place through a graduated process of assessment and intervention according to the Code of Practice (DfES, 2001). To match with the Irish data collection, this study surveyed teachers from infant (aged 4–7), junior (aged 7–11) and primary schools (aged 4–11), in the English Midlands region.
The data in this study were gathered from responses to part of a postal questionnaire, which was developed from the original Irish survey, making it pertinent to the English context (Appendix A). Covering letters were addressed to the head teachers in a purposive sample of schools (n = 399) generating 57 responses, a return of 14%. They were asked to pass the questionnaires on to staff who coordinate, teach and/or support students with specific learning difficulties/dyslexia (Figures 2 and 3).

Most of the teachers responding to this survey (n = 53) were Special Educational Needs Co-ordinators (SENCOs), who have responsibility for managing the support of children including those with dyslexia, in mainstream schools. SENCOs do not necessarily have any specialist training in dyslexia (McPhillips, Bell & Doveston, 2009) (Figure 4).

A small number of teaching assistants also replied to the questionnaires. Teaching assistants work with teachers to provide in-class, small group or one-to-one support.

The English study employed both quantitative and qualitative methods. Quantitative information was collected and entered into an Excel database. From this, tables were created which illustrated the range and frequency of teaching methodologies, materials and programmes used by teachers. Qualitative data were collated from the open questions within...
the survey, which allowed teachers to expand upon and share their experiences and opinions. Responses were analysed by coding and categorisation.

Analysis of data

For the purposes of this study, the Irish data were re-examined concurrently to the English data set. The search for themes and patterns followed the procedures outlined by Braun and Clarke (2006) for thematic analysis: familiarising oneself with data; generating initial codes: searching for themes; defining and naming themes. A theme was chosen because of its prevalence, its importance to the research question or its significance to the research study. All questionnaires were carefully scrutinised and emerging themes in the responses to open questions were noted. The questionnaires were then scrutinised again and responses, or in some cases sections of responses, were coded. In this way themes and categories emerged that elucidated and summarised the data. In addition, this careful sifting led to a detailed familiarity with the data, which resulted in identification of key words used.

Joint discussion and regular meetings between the research teams took place throughout this process. This communication helped to identify commonalities between the two sets of data. As a result of these deliberations, these data were subsequently mapped to the causal modelling framework (Frith, 1995), which matched well to the range of responses teachers gave to the questions requiring them to describe their own conceptualisation of dyslexia. The following sections will refer to this framework in analysing the teachers’ understanding of dyslexia.

Results

Irish results

The definitions and descriptions reported by teachers in this study were categorised according to a causal modelling framework outlined above (Frith, 1995). A minority of teachers, five specialist and two mainstream (n = 72), described difficulties at a biological or neurological level. Dyslexia was described as a ‘neurological dysfunction in the brain which affects more boys than girls’; a mental impairment which causes the brain to decode symbols incorrectly as letters may impede the pupils reading development’.

Figure 4. English respondents: teaching position.
It can be difficult to separate the contribution of genetic versus environmental factors on reading behaviour (Snowling, 2008). The respondents may have been aware of the heritability of dyslexia (Pennington & Olson, 2005) and this background knowledge would support the identification of early literacy difficulties among learners.

Sixteen of the Irish respondents (n = 72) referred to a discrepancy between the child’s intellectual ability and his or her literacy skills. Teachers in both special and mainstream reported this type of description, for example: ‘A pattern of learning difficulties related to the acquisition of literacy skills which is unexpected given a child’s general ability’. Another respondent described dyslexia as ‘a specific difficulty in learning to read and spell and write, affecting some people. It often runs in families. The pupils may have good intellectual ability but difficulty with processing symbols’.

In Ireland, the identification of dyslexia and subsequent provision of special support continues to rely on a discrepancy and exclusionary model of dyslexia (DES, 1993), despite recent recommendations of the Task Force Report on Dyslexia (DES, 2002), which suggests that a ‘continuum’ of difficulty arising from dyslexia is a more appropriate educational model. Government policy has also introduced a staged model of identification and support, which recognises how well the child responds to additional interventions (DES, 2000, 2003). Nevertheless, the teachers’ conceptualisation of dyslexia as a distinct category may provide a gateway to accessing additional resources for the child with dyslexia (DES, 2003).

Ten of the mainstream teachers (n = 14) noticed a gap in the child’s ability such as ‘poor writing skills, letter reversals, recognising standalone words, reading fluency’. Reading difficulties and/or dyslexia were described in terms of outcomes in class and a discrepancy in attainment in certain areas of the curriculum. Mainstream teachers described dyslexia at the ‘word’ level from a behavioural perspective. The importance of teacher observation and pupil knowledge must not be underestimated in identifying literacy difficulties. All teachers must be aware of the possibility that some children may have dyslexia (Rose, 2009). The child’s response to a literacy intervention is a good indicator of the persistence and severity of a literacy difficulty, and is a critical indicator of the need for additional support (Fuchs & Fuchs, 2006; Torgesen, 2000).

In terms of the Frith causal modelling framework (1995), 39 Irish respondents (n = 72) described dyslexia at a behavioural level linked to literacy or learning difficulties, for example ‘making very little progress at reading and spelling’. The teachers referred to difficulties, which could be readily observed, for example ‘Someone who has difficulty with reading, decoding, spelling and writing’. There was evidence that the specialist teachers were more aware of the underlying difficulties associated with dyslexia and their responses conceptualised dyslexia in terms of cognitive processing (see Table 2).

Even though a ‘behavioural’ definition was the predominant one among the mainstream teachers, five of the learning support teachers (n = 17) described dyslexia as a cognitive difficulty and referred to the underlying causes, for example ‘children who find word recognition difficult, poor memory work, poor sequencing skills, poor retrieval of vocabulary, poor phonics awareness’. Considerable knowledge and pedagogical expertise is required to help children overcome dyslexic and literacy difficulties (Rose, 2009). These teachers provide additional support at the second level in a staged process of assessment and support (DES, 2000, 2003). At this level it would be expected that the teacher providing support is a more experienced literacy teacher and has the training to put specific interventions in place (Rose, 2009).

Specialist teachers, however, who worked in reading units, reading schools and resource posts (n = 41) referred to the underlying difficulties of cognitive processing
more frequently than mainstream teachers \( (n = 31) \). This could be explained as these teachers have access to each pupil’s psychological report and may be more familiar with the profile of a dyslexic learner; these teachers also have more overall teaching experience. Nine of the resource teachers \( (n = 18) \) referred to the cognitive aspects of dyslexia: ‘A condition that interferes with the ability to acquire and process linguistic information and sometimes arithmetic information. Problems with sequencing, short-term memory, auditory and visual perception’. Information gleaned from the child’s psychological report may inform the teacher on the cognitive aspects of dyslexia and can also be used to plan an individual educational programme for the child (DES, 2000).

When asked their views on the underlying difficulties of their pupils with dyslexia, 30 of the total number of Irish respondents \( (n = 72) \) considered memory difficulties to be the main underlying reason for the child’s difficulties (Figure 5). There was no significant difference between respondents in special and mainstream on this issue.

Difficulties with short-term (working) memory and long-term memory have proved to be correlated with later progress in school (Reid, 2003; Westwood, 2003). Eight Irish respondents also reported sequencing difficulties, four of these linking this to memory and concentration difficulties. One respondent described children ‘who find word recognition difficult, poor memory work, poor sequencing skills, poor retrieval of verbal vocabulary, poor phonics awareness’. Weak short-term memory is frequently associated with difficulties of a dyslexic type (Mackay, 2009; Reid, 2003). Verbal memory and verbal processing speed along with phonological awareness have also been shown to be

<table>
<thead>
<tr>
<th>Current teaching position</th>
<th>N</th>
<th>Definitions of dyslexia*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Behavioural</td>
</tr>
<tr>
<td>Mainstream class teacher</td>
<td>14</td>
<td>10</td>
</tr>
<tr>
<td>Learning support teacher</td>
<td>17</td>
<td>10</td>
</tr>
<tr>
<td>Resource teacher</td>
<td>18</td>
<td>7</td>
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<tr>
<td>Reading school teacher</td>
<td>16</td>
<td>9</td>
</tr>
<tr>
<td>Reading unit teacher</td>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>72</td>
<td>39</td>
</tr>
</tbody>
</table>

*Definitions of dyslexia mapped to the causal modelling framework (Morton & Frith, 1995).

Figure 5. Irish responses to question: ‘What is the main underlying reason for your pupils’ difficulty?’

<table>
<thead>
<tr>
<th>Cognitive difficulty reported</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of teachers</td>
</tr>
<tr>
<td>memory difficulties</td>
</tr>
<tr>
<td>co-existing difficulty</td>
</tr>
<tr>
<td>processing difficulties</td>
</tr>
<tr>
<td>concentration/attention difficulties</td>
</tr>
<tr>
<td>social/emotional difficulties</td>
</tr>
<tr>
<td>None</td>
</tr>
</tbody>
</table>
reliable markers of dyslexia (Vellutino et al., 2004). Eleven of the total group of respondents referred to ‘coexisting difficulties’ as an underlying reason for their pupils’ difficulty. Teachers in the reading units reported that their students were also likely to have attention deficit/hyperactivity disorder, dyspraxia, speech and language impairment or Asperger’s syndrome. This is in line with a previous survey of children enrolled in reading units in Ireland (Nugent, 2007). The existence of overlapping difficulties has been recognised in the dyslexia research (Snowling, 2000). A further 10 respondents reported attention and concentration problems in comments such as ‘Dyslexia also affects a child’s concentration [and] memory recall, hinders pupils learning in the area of literacy acquisition; attention and concentration on subjects can also be a problem’. The mainstream teachers reported concentration and attention difficulties to be an underlying factor in their pupils’ learning difficulty. It was not considered to be such a significant problem in the special settings due perhaps to a more favourable pupil to teacher ratio.

Phonological processing difficulties were acknowledged by 10 respondents and this was reported as an underlying difficulty for their students. A focus on a phonological deficit has been widely accepted in the dyslexia literature (BPS, 1999; Reason, 2002). Teachers reported a range of phonological processing difficulties such as ‘difficulties in recognising, manipulating and learning phonemes and how they correspond to letters and letter patterns in printed text. This affects their ability to identify words and their meanings’. They also referred to the rapid auditory processing deficit whereby children with dyslexia take longer to process sounds which change rapidly (Tallal, 1993). Differentiating between sounds when presented close together frequently presents problems with phonological processing. Seven of the respondents linked this to auditory processing difficulties by reporting ‘aural problems, difficulty with following instructions, poor auditory discrimination problems, auditory sequencing’.

Quantitative data were collected from the responses to a question where teachers were asked to identify the most important areas of difficulty affecting their current learners with dyslexia from a list of possibilities, and to rank these in order. Figure 6 illustrates that 33 of the Irish teachers (n = 72) considered reading accuracy to be a primary and persistent area of difficulty for their pupils with dyslexia. Difficulties were described at a word level, for example ‘difficulty in recognising, deciphering, decoding’.

Twenty-four of this group also identified spelling difficulties among pupils, this is not surprising as spelling difficulties invariably accompany reading difficulties (Doyle, 2002). There is general consensus now that the process of writing words and the process of reading words draw on the same underlying basis of word knowledge (Ehri, 1993; Templeton & Morris, 1999). Some respondents recognised the link between reading and spelling as follows: ‘dyslexia can be a difficulty with reading or spelling or both’.

**English results**

In the English survey teachers were also asked to describe dyslexia or specific learning difficulties. Only three teachers from the English sample referred to the biological basis of dyslexia (n = 57). This is in line with the Irish findings. While there may not be a direct link between the biological level and teaching methodologies, for example, teachers need to appreciate the implications of heritability in relation to the early identification and support of children at risk of having dyslexia; family history should be considered an ‘at risk’ factor (Crombie & Reid, 2009). They also need to be aware of the
possible coexistence of dyslexia with other specific learning difficulties such as dyspraxia (Kaplan, Crawford, Cantell, Kooistra & Dewey, 2006). This was a contrast between England and Ireland. In the Irish findings, teachers working in special settings were shown to be particularly aware of comorbidity issues. There was evidence that teachers \( (n = 21) \) recognised that there were underlying difficulties to explain observable dyslexic traits. Most of this group conceptualised dyslexia in terms of cognitive processing \( (n = 21) \) and linked this with observable literacy difficulties: ‘Difficulty with language processing affecting children in reading, spelling and writing and a difference in cognitive style which affects learning, memory and organisation’.

However, it is of concern that more than half the sample \( (n = 33) \) made no reference to specific underlying difficulties when describing dyslexia. While this cannot be interpreted as proof that these respondents are unaware of the existence of underlying difficulties as a causal explanation, it indicates that this may not be a priority in their conceptualisation of dyslexia. This highlights the importance of quality training programmes for those providing support for learners with dyslexia so that appropriate assessment and intervention may be carried out; a need highlighted in the recommendations of Rose’s (2009) report. In Ireland, teachers working in special settings seemed more likely to be aware of underlying difficulties (Figure 7).

Processing difficulties were acknowledged \( (n = 10) \) as a significant underlying difficulty, but only two respondents referred to phonological processing specifically: ‘The inability to decode and “unscramble” words in the head, which also therefore affects understanding of content’. The Revised Primary Strategy (DfES, 2006), while emphasising the importance of speaking and listening skills, makes little explicit reference to the concept of phonological processing, which is nevertheless acknowledged to be one of the key deficits implicated in dyslexia (Snowling, 2000). This is something that one would hope all specialist teachers would be keenly aware of.

Speed of processing was only mentioned by two respondents \( (n = 57) \); perhaps there is such a focus on word-level difficulties at the primary stage of literacy development that this may be overlooked. ‘Verbal processing speed’ is included in Rose’s working

Figure 6. Irish respondents: main areas affected by learners with dyslexia.
definition of dyslexia (Rose, 2009, p. 29) and is a key skill in keeping up with the
demands of the curriculum, especially at primary level when so much is conveyed orally
by teachers. Again, specialist teachers in Ireland demonstrated more awareness of this.

Teachers (n = 7) commented on the visual aspects of cognitive processing, for example
describing learners as being ‘unable to visualise patterns and words’ and ‘words moving on
the page’. It is important that specialist teachers are aware of the necessity to assess learners
in this area, as visual difficulties can affect reading performance (Singleton & Henderson,
2007). As in Ireland, memory difficulties were the most frequently reported difficulty.
Twelve out of 57 English respondents referred to memory difficulties; two of these
respondents linked this with observable difficulties in the classroom, for example ‘Affecting
memory/learning of new words’ and ‘Difficulties remembering information, instructions or
sequence’. Recent research has emphasised the significance of working memory as a barrier
to acquiring literacy skills (Gathercole, Alloway, Willis & Adams, 2006). It is important that
primary teachers recognise this as an important part of the dyslexic profile.

Difficulties with sequencing are often experienced by the dyslexic learner and respondents
in both countries recognised this in their responses. Three responses from the survey (n = 57)
identified sequencing difficulties as an underlying problem, one response linking this with
spelling: ‘Inability to sequence letters, to form recognisable words – sequencing is difficult’.

In contrast to the Irish results, only seven of the English respondents (n = 57) defined
dyslexia in terms of a discrepancy model, for example describing this as ‘a significant
difficulty in the acquisition of reading, writing or spelling skills in relation to the child’s
potential ability’. However, it is of concern that this model is still embraced by specialists
given that it has been challenged in research (Siegel, 1990; Stanovich, 1996). Rose’s recent
definition confirms that dyslexia ‘occurs across a range of intellectual abilities’ (Rose, 2009,
p. 29). Provision of support in England is not linked to a discrepancy model, so this definition
should have less influence in the English education system. A small number of respondents
(n = 3) used the word ‘difference’ which is now often used as a more positive label to
acknowledge dyslexia as a learning style or preference rather than a disability (Mackay,
2009; Reid, 2005).

It was evident from the data that teachers are focusing on how dyslexia presents in the
classroom and how it affects learning in all aspects of the curriculum. One respondent
described this as follows: ‘[Dyslexia] can affect pupils at word level, sentence level and text
level i.e. not just phonological difficulties’. This reflects the English system where currently SENCOs are often also class teachers and therefore likely to have a clear knowledge of the effect dyslexia has on all areas of the school curriculum. Quantitative data were collected from the responses to a question where teachers were asked to identify the three most important areas of difficulty affecting their current learners with specific learning difficulties/dyslexia from a list of possibilities, and to rank these in order. Figure 8 illustrates the behavioural aspects of dyslexia identified by the English respondents. Forty-two of the English sample (n = 57) identified reading as a key area of difficulty for learners with dyslexia. However, 12 of these respondents (n = 57) added a note that learners had a range or ‘spectrum’ of difficulties. A typical comment was ‘I have ticked the three most important ones, but the others often go hand in hand’.

Where respondents described the nature of reading difficulties, these were defined at a word level, for example ‘under developed phonic recognition. Poor awareness of grapheme/phoneme match’. This may show the influence of the Revised Framework (DfES, 2006) with its emphasis on phonics in the first two years of school. However, many learners with dyslexia are already very challenged by reading comprehension even in these primary years and reading at word level should never be divorced from the development of text-level skills (Adams, 1990).

Twenty-four respondents identified spelling difficulties. This is not surprising given the age of the learners covered in the survey, where phonetic spelling is an emerging skill. Some respondents recognised the link between reading and spelling as follows: ‘dyslexia can be a difficulty with reading or spelling or both’. This also mirrors the Irish findings.

**Discussion**

The findings of this study have highlighted Anglo–Irish contrasts in the conceptualisation of dyslexia in teachers who are managing and delivering dyslexia support, and have brought a number of contemporary issues around dyslexia into sharp focus.

The discrepancy model of dyslexia, where the disability rests within the learner, has persisted, and has been widely used in special education to organise access to resources,
including access to special provision for the dyslexic student (Mercer, Jordan, Allsop & Mercer, 1996). In Ireland, this is still the case. Despite this model no longer being officially supported, and in contrast to the English findings in this survey, Rose (2009) maintains that more teachers reported using some kind of discrepancy to identify pupils as dyslexic than any other category or criterion.

An over-reliance on this approach risks missing other important variables such as the learning environment, that is, teacher, the classroom, the whole school and the community. These protective factors can support and compensate for the deficits at a cognitive level. This study shows that the discrepancy model still has credence, in particular in relation to provision and this should be challenged to ensure that all children with difficulties can access appropriate support.

Although Ireland has some special units and schools for dyslexic learners it remains true that most children in both England and Ireland are taught in mainstream settings with a highly variable level of individual support (McPhillips et al., 2009). The implication of this inclusive practice is that all teachers, particularly during the primary school years where the basics of literacy are learned, need to understand how to make the curriculum accessible to every child. However, there is a conflict here, as children with dyslexia require a highly individualised approach (Everatt & Reid, 2009). They may need help to build up basic underlying skills such as processing sounds and sequencing. In addition, where skills are not acquired because there are intractable underlying difficulties, the curriculum must be adapted to make it accessible and they must be given ample opportunity to develop reading and writing strategies. Both the causal model of dyslexia and the ecological model show that teachers need a clearer understanding of the relationship between the pupil’s individual profile, the task and the environment.

Many of the dyslexic children referred to in this research were receiving some form of individual or small group tuition (McPhillips et al., 2009). Studies have shown that individual tuition by a specialist teacher is not always an essential requirement (Brooks, 2007; Rose, 2009; Torgesen, 2002) and that small group instruction, one-to-one teaching or a mix of both can be equally effective. The quality of the teaching, however, is the key factor. It is vitally important that dyslexia practitioners should have the training and experience to carry out detailed and meticulous individual assessment in order to respond to a child’s needs, using tools such as miscue analyses and tests of phonological processing (Frederickson, Frith & Reason, 1997).

Despite the current emphasis on speech and language acquisition in the curricula of both countries, language development in terms of phonological awareness was not prioritised, although many teachers referred to memory difficulties, which could include phonological processing. While a large body of research demonstrates that phonological awareness is a prerequisite to reading development (Stuart, 2005), there was no evidence in either country of a widespread understanding of the persistence of phonological processing difficulties in pupils with dyslexia and their continuing impact on reading and spelling development. This should be prioritised as an element of initial teacher training and continual professional development. Although formal and informal language lessons are recommended daily instruction in the early years of school in both countries (DES/NCCA, 1999; DfES, 2006), there is need for a stronger emphasis on the regular assessment of children’s oral language skills in both countries, both in terms of language development and phonological awareness, and teachers should have the opportunity to learn how to administer and interpret tests that can aid this.
In Ireland, this study showed that teachers in special settings, whether by dint of long experience or training and qualifications, did indeed have a much clearer understanding of the nature of dyslexia, which would enable them to carry out individualised assessments. In England, and also in mainstream schools in Ireland, a large proportion of the sample appeared to conceptualise dyslexia in terms of behaviour rather than underlying difficulties. This could mean that these teachers are not sufficiently informed to plan appropriate assessments for dyslexic learners.

As in any profession, specialists are needed who are given a chance to build up knowledge and expertise in a particular area by having the opportunity to support children in one-to-one provision and small groups, as appropriate. This is demonstrated in this study where a contrast is seen between the conceptualisation of specialist teachers in Ireland and mainstream teachers. Training courses and a supply of up-to-date information may be of little use if teachers are not given enough time to practise their skills with learners. Teachers who do have the appropriate skills and qualifications risk frustration and disappointment if they are not allowed enough time to support learners in an appropriate manner. The allocation of funding for training should take this into account.

Some teachers are highly intuitive, but to ensure that all teachers have the skills and knowledge to respond to individual needs, it is necessary that teachers maintain their skills through continuing professional development. Further research is needed to ascertain who exactly is providing support and whether they have had appropriate training. There are implications for the training of both specialist and non-specialist teachers, an issue which is currently under the spotlight through government initiatives in England (Rose, 2009; Inclusion Development Project, DfES, 2007). Rose’s recommendations for the training of specialist teachers and for raising dyslexia awareness are a welcome contribution to this, and the English government is now responding by providing additional financial resources for training.

In this scenario, training could be envisaged as a continuum: beginning with raising the awareness of all teachers of the underlying difficulties of a dyslexic nature; moving on to developing inclusive classroom practice for all teachers; and finally, a third level of professional development that would provide specialist teaching where needed (Rose, 2009). At the third level, the specialist teacher also monitors the work of the support teachers while evaluating the programmes and interventions. Continuing professional development is a feature of each stage of the continuum.

In Ireland in recent years the emphasis on literacy improvement has been on school-based initiatives specifically targeting the disadvantaged learner (DES, 2005b). However the research would suggest that investing in the professional development of teachers is more effective in the long run as gaps and weaknesses in the teaching of literacy among teachers in Irish schools have already been identified (DES, 2005a; Eivers, Shiel & Shortt, 2004).

Dyslexia can be conceptualised at a biological, cognitive and behavioural level. It is now recognised that problems faced by learners with dyslexia are far wider than just reading difficulties and that cultural and environmental factors interact at each of these levels. Teachers need to be proactive in offering learning experiences and environments where all learners can be included. Understanding the unique strengths and needs of the dyslexic student means that assessment must be individualised. Teaching adaptations, whether in class, individual or group support, need to be carefully adapted. An ‘ecological’ framework has the potential to help support an understanding of the dynamics between home, school and community.
The teaching of pupils with dyslexia is highly dependent on how teachers understand the nature of their learning needs and scrutinising this has indicated important issues of interest to the educational community. We believe there needs to be an objective means of communicating recent research as part of teacher professional development, in the language of a shared understanding of teaching and learning. In order to bridge the gulf between neuroscience and education, a designated communicator from the research community may be best placed to interpret ongoing research from the perspective of and in the language of educators (Goswami, 2006). Research evidence continues to challenge our concept of dyslexia. A shared framework may present a way forward, a means to bridge the divide between research and classroom practice.

The causal modelling framework (Frith, 1995) may suggest that the causes and difficulties associated with dyslexia lie for the most part within the child. In fact, it can be seen that the research is building on the knowledge of the importance of the environment and how it impacts on the child with dyslexia (Bronfenbrenner, 1979; Poole, 2003). The learner may have cognitive processing difficulties but the environment can compensate and be a protective factor for the child. The effect of the environment and how this interacts at each level of understanding must be acknowledged.

Understanding a theoretical framework can provide a model for teachers to develop professionalism in their teaching and support. Teachers should be provided with the tools to evaluate critically new methodologies, programmes and resources. They need to have a firm grasp of a conceptual framework in which to assimilate the research evidence from the academic community. Teachers can then question the implications for classroom practice with this particular group of learners. Dyslexia may present serious barriers to a child accessing the whole school curriculum. Good teaching and timely intervention, based on teachers’ clear and informed conceptualisation of dyslexia, will help all children reach their potential in a world dominated by literacy.

References


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**Appendix A**

**Questionnaires used in survey**

These both formed part of longer questionnaires.

**Questionnaire for teachers (Ireland)**

**Section 1: About your school**

This section asks questions about your school, age group you teach and teaching experience

**Q.1** How many pupils in your school?

**Q.2** Please describe your current teaching position

⇒ Learning Support Teacher
⇒ Mainstream class teacher
⇒ Resource teacher
⇒ Teacher in Reading Unit
⇒ Teacher in Reading School
⇒ Other (please specify)

**Section 2**

**Description of dyslexia and identification of students’ difficulties**

**Q.4** How would you describe dyslexia/specific learning disability?

**Section 3**

**Information on your students’ learning difficulty**

**Q.5** What do you consider to be your students’ primary difficulty? Please rank in order the following areas as they affect your group of students this year.

Difficulties with:

⇒ Reading accuracy
⇒ Reading fluency

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Appendix A. Continued

⇒ Reading comprehension
⇒ Spelling
⇒ Handwriting
⇒ Mathematics
⇒ Speaking and listening skills
⇒ Attention/concentration
⇒ Other (please specify)

Comments:
Q.6 In your professional view, what do you consider to be the main underlying reason for this difficulty?
⇒ Memory difficulties
⇒ Concentration/attention problems
⇒ Social/emotional/self-esteem problem
⇒ Presence of another coexisting disability
⇒ Another reason (specify)

Comments:

Questionnaire for teachers (England)

SECTION 1

Your school

Q.1 How many learners are in your school (approximately)?
Q.2 Please describe your current teaching position
  ◆ Class teacher
  ◆ SENCO
  ◆ Teaching assistant
  ◆ Higher level teaching assistant
  ◆ Specialist Teaching assistant (STA)
  ◆ Other – please specify
Q.3 Stages of learners with SpLD/dyslexia you teach
  ● Foundation
  ● Key Stage 1
  ● Key Stage 2
Q.4 How is your teaching of SpLD/dyslexic learners organised? Please tick box:
  ● One to one
  ● Small group
  ● In class
What is the length of a session?
What is the frequency of the session?

SECTION 2

Your definitions
This section asks for information about your description of SpLD/dyslexia.

Q.6 How would you define literacy?
Q.7 How would you describe dyslexia/specific learning disability?

SECTION 3

Learners
This section asks for information about your learners.

Q.8 Please identify the 3 most important areas as they generally affect your current learners with SpLD/ dyslexia or literacy difficulties and rank these in order.
  ● Reading accuracy
  ● Reading fluency
  ● Reading comprehension
  ● Spelling difficulties
  ● Difficulties with handwriting
Appendix A. Continued

- Difficulties with mathematics/number
- Difficulty understanding oral language
- Attention/concentration difficulties
- Memory difficulties and sequencing

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