

# Children with Development Coordination Disorder: Setting the Scene

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Over the last decade special educational needs (SEN) has seen an acceleration in the interest and provision that is continuing to emerge in schools in England, Scotland, Wales and Ireland. With a much greater awareness in schools of conditions like dyslexia, dyspraxia and autism, and the effects they have in the context of the educational curriculum, schools are becoming better placed to help children access a curriculum that takes account of the diverse needs of its learners. It has been predicted that as we move through the early years of this millennium mainstream schools will witness significant changes in their practice. 'Inclusion will certainly happen increasingly over the first part of the new century... The desegregation and anti-discriminatory political environment is now international and it seems impossible that its direction will be reversed' (Thomas, 1997, p. 106). Procedures for the identification and assessment of needs have been specified in the Special Educational Needs Code of Practice (SENCOP 2001), while the right to equal opportunities is made clear in the Special Educational Needs and Disability Act (SENDA) 2001.

For children with a developmental coordination disorder (DCD) and other conditions the effectiveness of provision is bound up with a school's ability to optimize learning for all pupils. As Ainscow (1999) points out, the necessary focus for these children is one of whole-school improvement in which teachers are encouraged to reflect critically on establishing procedures for ensuring the educational progress of all students. This approach suggests 'all teachers are teachers of pupils with special educational needs and that teaching these pupils is a whole school responsibility, requiring a whole school approach' (SENCOP 2001). This process engages teachers in providing a differentiated curriculum that gives opportunities for all learners. However, a problem arises where teachers do not have the necessary skills to understand the variety of learning styles in the teaching process, the range of skills children bring with them to the classroom and the types of difficulties they may encounter. The Teacher Training Agency SEN Subject Specialist Standards predicts that 'more teachers in mainstream school will need to acquire the necessary understanding and skills to work effectively with pupils.' The aim of this book is to equip the reader with some of the fundamental skills that are needed to cater for children with DCD. It also seeks to direct professionals working with children to key resources which can help develop teacher competency.

## Developmental coordination disorder

As early as 1900 the idea that there might be a discrete childhood syndrome which has 'clumsiness' of movement as its defining symptom began to emerge. In fact, doctors and teachers have been aware of movement difficulties as a significant problem in child development since the beginning of the twentieth century (Henderson and Sugden, 1992, p. ix). Case histories of children who appear physically and intellectually normal yet lack the motor competence necessary to cope with the demands of everyday living are catalogued in the literature (e.g. Brenner and Gillman, 1967; Gubbay, 1975; Henderson and Hall, 1982).

Gubbay (1975) in a comprehensive study used the term 'clumsiness', viewing it as a general condition of impaired ability to perform skilled purposive movements by children who otherwise are mentally normal and without bodily deformity. Gubbay defines clumsiness using the medical terms apraxic and agnostic ataxia. Praxis involves the planning of movements, whereas gnosis is making meaning of sensory input. Ataxia, which is when steady or uncoordinated movement is added, displays itself when a 'clumsy' child may not understand what needs to be done and may not be able to plan, leading to uncontrolled or uncoordinated movement. This book seeks to deepen the understanding of and unlock teacher empathy for the conditions these children present with and find solutions to curriculum accessibility.

## Terminology

Many terms including 'clumsy' have been used to describe the condition. These include motor coordination problems, motor impairment, movement difficulties, developmental dyspraxia, minimal brain dysfunction and congenital maladroitness (see Henderson and Barnett, 1998). Most recently the term 'developmental coordination disorder' (DCD) has become influential in highlighting this area, with leading researchers using the term (e.g. Henderson and Sugden, 1992; Wright and Sugden, 1995, 1996). The term DCD appears in both the American Psychiatric Association's (APA) Manual for Mental Disorders (DSM IV), (APA, 1994) and the World Health Organisation (WHO) Classification of Diseases and Related Health Problems (ICD-10) (WHO, 1992).

The essential feature of developmental coordination disorder is described as 'a marked impairment in the development of motor co-ordination (criterion A). The diagnosis is made only if this impairment significantly interferes with academic achievement or activities of daily living (criterion B).'

## Prevalence

The prevalence of DCD has been estimated as high as 6 per cent for children in the age range of 5–11 years (APA, 1994). Other studies include Gubbay (1975), Henderson and Hall (1982), Iloeje (1987), Godfrey (1994), Marks (1994) and Portwood (1996), and all

indicate a prevalence of between 5–6 per cent. The problem affects more boys than girls in a ratio of 3–4 : 1 (Gordon and McKinlay, 1980). These figures suggest that in every school class there is potentially at least one child with DCD. However, as Wright (1997) points out, there are problems in assessing its prevalence and nature, especially since no assessment procedure has been clearly established, indicating that different tests might identify different groups of children

## Diagnosis

There is also a lack of agreement on what is necessary for a child to be categorized as having DCD, and to what extent the condition coexists alongside other ‘specific’ learning difficulties. Kaplan et al. (1998), who challenge the view of focusing on the symptoms (skill deficits) rather than syndromes, consider the issue of co-morbidity. Kaplan et al.’s research goes on to suggest that there are no pure diagnosis categories of developmental disorders, but rather semi-random clusters of symptoms related to motor coordination, autism, learning and so on. Out of a study measuring 162 children for DCD, reading difficulties and attention deficit hyperactivity disorder (ADHD), 53 children obtained scores which classified them as ‘pure’ cases, 47 children did not meet the criteria for any of the three conditions and 62 were classified as ‘co-morbid’ cases. Kaplan et al. suggest co-morbidity is the rule rather than the exception. Schools might then focus on the skills deficit or barriers to learning and how these affect performance and function in the education environment as a way forward for managing groups of children with coordination difficulties.

The idea of focusing on characteristics rather than conditions is explored in Chapter 2, which considers the wider context of a child with specific learning difficulties. The major consideration is that certain aspects of a child’s specific difficulties (dyslexia, DCD, dyscalculia) may be presented more prominently at certain times during their school career.

## Identification and assessment issues

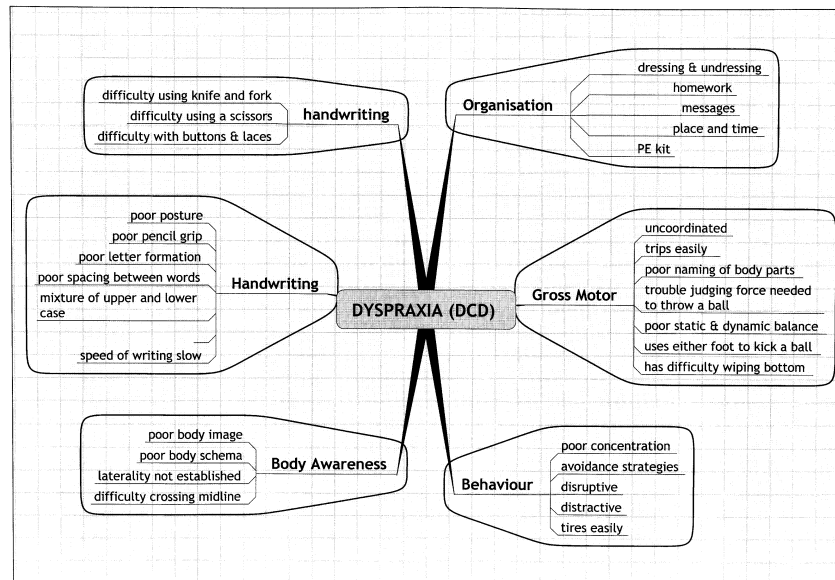
Structured, formal assessment is a key feature of the National Curriculum, providing an integral part of the educational process and continually providing feedback as well as informing future planning. The Special Educational Needs Code of Practice (SENCOP 2001) outlines how to identify and assess children with special needs and stipulates that the needs of all pupils who have SEN during their school career have to be addressed. The definition of a special need is having a significantly greater difficulty in learning than the majority of children of the same age. However, in the area of assessing children’s motor development, there is very little attention received compared to that of the cognitive domain. This problem is cited with the much broader issue concerning the emphasis on the academic disciplines that currently dominate the National Curriculum despite other developments in learning. These include Gardner’s Multiple Intelligence Theory (1999), which considers logical, musical, spatial and interpersonal dimensions equally within the learning environment.

## DEVELOPING SCHOOL PROVISION FOR CHILDREN WITH DYSPRAXIA

Therefore, without any formal motor assessment, it is unlikely that children, particularly those at the less severe end of the continuum, ever reach 'School Action' as prescribed by the Code of Practice (2001). With greater awareness of the important benefits of identifying pupils' difficulties early, it is even more crucial that formal assessment procedures are developed. Such tests should provide baseline information on pupil performance and monitor progress in order that resource allocations within the local authority can be distributed equally for the whole of the specific learning difficulty spectrum. This book will identify some of the tests available that can be used by specially trained teachers.

## Children's main difficulties in the education environment

Children with DCD are likely to lack movement skills that the majority of their peers gain automatically (see Fig. 1.1). The movement problems facing children with DCD are well documented (Morris and Whiting, 1971; Stott, Moyes and Henderson, 1984; Van Dellen and Geuze, 1988) and describe the children as being relatively slow and inaccurate in all sorts of perceptual motor skills. They suggest that these children would have difficulty in acquiring such skills as 'constructing models, writing, hopping, cycling and throwing or catching a ball' (p. 489). Dare and Gordon (1970) argue that such children are unable to learn tasks like fastening buttons or tying laces at the appropriate age. Children are rarely good at ball games, and as Sugden and Wright (1996) point out, they may be considered clumsy in either or both fine and gross motor skills.



**Figure 1.1** An outline of children's main difficulties in the education environment

Studies of children with DCD have also revealed that there is a strong correlation between their poor motor coordination and social and emotional problems. Children's perception of their lack of physical competencies, especially when exhibited among their peers, often

results in an unwillingness to participate in a number of activities. Children's lack of confidence in their physical competence can also influence the performance of other activities. Schoemaker and Kalverboer (1994) found that children with movement problems judged themselves to be less competent socially and were more introverted and anxious than their well-coordinated peers. Small-scale teacher research projects in Bridgend County Borough Council reflect that low-level intervention significantly increases self-esteem and has the secondary effect of improving classroom performance (Jones, 2002).

At the other end of the age spectrum it has also been found that teenagers with motor problems are very conscious of their physical difficulties and that this has significant implications for their social and emotional well being (Cantell et al., 1994). Often these problems in motor coordination increase as children are withdrawn or excluded from activities that they are unable to participate in. Support to help pupils take control of their own learning should be considered, particularly with regard to the changes they need to make to participate or to adapting the activity appropriately.

### **Intervention in school**

As long ago as 1975 Gubbay suggested that it was not so important *what* was being done as long as *something* was being done to help these children. The overwhelming conclusion drawn from reviewing the literature on intervention studies for individuals with DCD is that most intervention appears to work but that no specific approach is clearly superior, although the literature supports the need for further research programmes (Peters and Wright, 1999). As Sugden and Sugden (1991) suggest, after parents, teachers are in the best position to provide remediation on a large scale. One form of helping children with motor difficulties is to implement a 'motor programme'. This form of intervention has been emerging across England, Scotland and Wales for pupils with coordination difficulties. Often programmes are administered on a ten-minute daily basis and can be delivered by trained teachers or teaching assistants. In the first instance an assessment is administered to establish a baseline and then a programme is implemented for anything up to 12 weeks. The general outcome of the motor programmes has shown that giving support for the development of motor skills is beneficial, and with minimal training it is possible to deliver an effective intervention, albeit in a discreet, segregated group setting. Motor programmes are explored later in this book to provide ideas on how schools can develop this type of intervention in their local setting.

But to really embed structures that will firmly establish and help design appropriate curriculum opportunities for the diverse needs of pupils with coordination difficulties, schools will need to provide appropriate adaptations as well as the support and training that teaching and support staff will require to deliver a curriculum for all. Two areas that are frequently identified as giving teachers most cause for concern are those of physical education and children's handwriting. These two aspects of the curriculum are considered in more detail along with some of the key issues that schools will need to address in order to provide an all-inclusive environment.



## **Working in collaboration**

SENCOP 2001 emphasizes the important role of external agencies in helping schools identify, assess and make provision for pupils with special needs. Certainly for children with developmental coordination disorder the school doctor, paediatric physiotherapist, occupational therapist and speech and language therapist can play a crucial role in the development of school services for these children. Law et al. (2001) carried out a study looking at how health and education can develop the process of collaboration. The study suggested that to achieve effective collaboration it is vital to have structures in place which enable the setting of common goals. The implication is that a team of people can achieve more together than as individuals. Losen and Losen (1985) use the term 'synergy' to summarize the process.

With the National Service Framework (NSF) for Children and Young People in place this has meant there is great potential for ensuring better quality and more integrated services. For children with DCD, professionals are required to evaluate the way they collaborate, commission and deliver children's services to the optimum benefit. In some local authorities multi-agency assessments are now taking place, with joint training for health and education staff as well as joined-up strategies for intervention. As part of the training for achieving standards outlined in the NSF, exemplar materials are now available and include a series of 'patients' journeys (see the DfES TeacherNet website: [Teachernet.gov.uk](http://Teachernet.gov.uk)). The idea is that they provide a benchmark for multi-agency working, giving practical examples of how joined-up working can be achieved effectively. In line with this thinking, transdisciplinary models of working are considered in Chapter 8. This involves sharing or transferring information and skills across traditional disciplinary boundaries to enable one or two team members to be the primary workers supported by others working as consultants. Thus an occupational therapist, for example, working in the traditional, more front-line manner, would devote more time to work in conjunction with the schools advisory service in order to support teachers and assistants. This model has the benefits of influencing more people and indirectly meeting the needs of more children given that recent research indicates that paediatric occupational health waiting lists average around 46 weeks (NAPOT, 2003).

## **Teacher training**

Governments across the UK are committed to develop more inclusive educational systems. In England and Wales these are outlined in the statutory framework for SEN provided by the Education Act 1996 and the SENDA 2001. Further afield the United Nations Education, Scientific and Cultural Organisation (UNESCO) Salamanca Statement defines the principle of inclusive schooling as 'one which should respond to the diverse needs of students accommodating both different styles of curricular, organisational arrangements and teaching strategies' (UNESCO, 1994, p.11). This backdrop has provided us with the necessary legislative framework through which to embed good practice

for children with DCD into our schools. Exemplary classroom practices now need to reflect quantitative and qualitative data demonstrating pupil achievement that has been suggested throughout this book.

If, as Thomas (1997) predicts, the third millennium is witness to significant changes in the practice of including all pupils in their local school, it would appear that inclusion will continue to increase. The challenge in education lies in enabling classroom practitioners to identify children with DCD, to gather baseline and assessment information and then be able to put in place an appropriate curriculum that will cater for their needs. The chapters that follow are designed to help teachers consider and reflect on ways in which they can enhance their own individual pedagogy. This process can be carried out in conjunction with meeting targets as part of a teacher's continuous professional development rolling programme. The overall effects of developing the skills and knowledge of the classroom practitioner are the inevitable consequences of increasing the opportunities for all learners, including those with DCD.

### **Listening to the voice of the child**

One area of the Code of Practice which has received less attention is that of the pupil's own direct involvement in the assessment and learning process, in particular considering pupils' views in identifying their difficulties, setting goals and agreeing a developmental strategy (SENCOP 2001). The final two chapters of this book are devoted to accounts drawn from parents as well as the children themselves who have coordination difficulties. Without a doubt, no amount of careful planning and research or carefully designed models of intervention can really be effective if we are not listening to those young people who have first-hand experience. Their accounts help to provide the reader with empathy for their plight and in doing so provide curriculum coordinators with the anecdotal evidence that will help shape the educational environment that these children are expected to participate in.

This book is ultimately about how we can provide better scaffolding and support systems for pupils with DCD and make the reasonable adjustments necessary for them to access the curriculum. There is still much work to do but the commitment of professionals, parents and children to find solutions together is at the heart of school improvement, an establishment which seeks to unlock the true potential for all of our future generation.