CHAPTER 4

CREATING THE ‘DYSPRAXIC IDEAL’

INTRODUCTION

The ‘dyspraxic ideal’ presented here is the creation of a text which explores the ways in which dyspraxia is identified and defined in medical and educational discourses. Here I aim to identify and clarify the relevant terms for this research, explore the range of definitions for dyspraxia by considering the ‘dyspraxic ideal’ as it is produced by a reading (and writing) of the literature. ‘Ideal’, in this context, relates to a set of concepts that exist only in the form of an idea. Tangible, lived-experiences, offering concrete representations of this ideal will be discussed in the narrative case studies presented in the narrative case studies.

Further to this and relevant to this chapter are the processes of normalisation (Foucault, 1991) created by medical and educational systems of acculturation and, within this, the production of the ‘abnormal’ and the ‘docile body’. The dyspraxic ideal, I argue here is created by both discourses, and this Foucauldian framework for discussion, introduced in Chapter 3, provides part of the theoretical underpinning for this chapter.

This chapter has been structured around the exploration of a number of key themes:

- the definition, incidence and characteristics of dyspraxia;
- clinical studies related to this field with a focus on visual and sensory processing
- the intersection of art and design as a subject in education and texts relating to dyspraxia
- the relationship between drawing and handwriting
- literature based on the voices of experience of people with dyspraxia

This literature review has proved demanding in that the majority of the literature included appears to reinforce notions of individual difficulty and deficit that are counter to the theoretical concepts underpinning this research. More specifically, the majority of the literature reviewed here is suggestive of a model of disability derived from a concept of individual deficit rather than a culturally created phenomenon exacerbated by societal demands that require a child’s development to adhere to a specific set of age related norms.

It is possible to discuss each of these themes in relation to Foucault’s ideas regarding the role ‘complex social functions’ play in processes of normalisation (Foucault, 1991). The definition of dyspraxia against a concept of ‘normal’ physical and cognitive attributes, the use of a medical discourse to identify and situate difference within the individual and provide ‘scientific’ evidence of a learner pathology, the interconnectedness between medical and educational discourses, and the role of the family in the identification and management of such differences are evident in a range of literature. The occlusion and subjugation of particular types of experience by authorities invested in particular ways of knowing is evidenced in a range of texts reviewed in this chapter. Reid (in Jones, 2005) offers a useful exemplification of some of these ideas, here for example discussing the essential need for the identification of individual difference:

> It is crucial therefore that the specific characteristics – and how these characteristics may provide a barrier to the child completing a specific task within the curriculum – are identified. This means that the task, curriculum and environmental considerations will be key elements in an intervention programme. (Reid, 2005:15)

Such discourses locate the difficulty as being *within* the child, where there is a sense of urgency that these characteristics are identified. The child is established as 'problem', with their personal characteristics pathologised. Interventions now have to be created that mark the child out as remarkable, different and 'other' than the norm. Here the need to identify difference is 'crucial' in order that adaptations can be made for that scrutinised individual, yet the particular 'meducational' systems at work are made invisible by the specific adaptations that are made in response a claim for individual 'need'. This critical review aims to make these hidden discourses visible through my reading and re-writing of such texts.

A key factor in investigating this topic comes from a substantial gap in the literature at the intersection of art and design education and dyspraxia. There are a number of manuals for parents and professionals, many of which seek to support students and staff in educational settings and confirm dyspraxia as a learning related 'disability' in need of attention from a range of professional bodies. These texts relate to identification and intervention and are heavily reliant on concerns for other dominant curriculum areas, largely those that are text based, as a result of concerns about poor handwriting. There is some focus on physical education, because of the mechanical nature of this subject that can be problematic for some, and also because of the therapeutic nature of physical activity in the support of pupils diagnosed as dyspraxic. Art and design is briefly mentioned in these texts, and the strategies suggested illustrate a vague understanding of the pedagogy of the subject. As a result, this is often within the context of physical assistance and there is little engagement beyond the technical aspects of the work and ways to avoid accidents and spills.

Early literature largely relates to the definition and identification of coordination difficulties and establishing the need for further understanding and acceptance of the existence of coordination difficulties (see Gubbay, Ellis, Walton and Court, 1965 for example but also much later work that indicates that understanding dyspraxia can still be limited in Cousins and Smith, 2003). A sizeable majority of more recent literature is clinical in nature and relates to specific aspects of research conducted over the last thirty years by multidisciplinary agencies. (i.e. cognitive research, neuroscience, physiotherapy, optometry). Fewer studies relate to the experiences of those with dyspraxia and, because of the developmental nature of coordination difficulties, there is a greater emphasis on literature focusing on early childhood. The experiences of adolescents and adults appear to be less well explored although work being currently developed emphasises the longitudinal nature of experiences and a developing concern for life as an adult with coordination difficulties. Research by Cousins and Smyth (2003) and help manuals specifically written for adults with dyspraxia reflect this developing field of interest, suggesting an extension of intervention and 'support' into adolescence and adulthood (Colley, 2002).

The literature can be divided into help manuals for parents and professionals, with explanations on the nature of dyspraxia and suggested strategies for intervention, and the research which is largely scientific and which reflects a largely positivistic rather than interpretative approach. There is a smaller number of publications which offer 'insider perspectives' but there appears to be little in the way of research that attempts to interpret these within their cultural context. Research offers both quantitative and qualitative perspectives but often within a positivistic paradigm. There are few studies advocating interpretative or narrative 'ways of knowing' (Bruner, 1986) although there is a recent move to include 'authentic' voices as a means of enhancing understanding. An example of this developing area of interest is a DVD called *Living with Dyspraxia in Schools* produced by the Dyspraxia Foundation, and showcased at their national conference in November 2006, which was based on interviews with secondary pupils (Dyspraxia Foundation, 2008).

Within the context of integrated provision Zoia, Barnett, Wilson and Hill (2006) refer to the need for a raised awareness regarding coordination difficulties for all practitioners, yet there is a distinct lack of subject specific work for teachers of art and design, in contrast to other subjects that do have a focus. It is not my aim to contribute to the production of the dyspraxic pupil as a body in need of specialist remedial help, but the treatment of art and design in the literature may reflect and reinforce the marginal nature of the subject within the curriculum. I would argue that the oversimplification of art and design, where it is evident in the literature, as a purely mechanical activity requiring coordinated movement offers a further area for exploration.

The problematic nature of the language used in some of the literature is evident and it becomes increasingly challenging to progress with this chapter without acknowledging that, in addition to the problems associated with defining the terms of this research, the vocabulary used is indicative of a medical model that may reinforce individual deficit. Much of the literature indicates a clear concern with 'deficit - diagnosis – remediation' (Mortimore and Crozier, 2006) and as such is clearly rooted within a medical model of disability, supported and explored in the earlier discussion of normalisation in Chapter 3. My initial reluctance to engage with the clinical research in this area came initially from a sense of being beleaguered both by the extensive range of the studies and the medical language used, but also by the sense that it was alien to the sociological nature of the my own research project. It is not insignificant that the majority of research currently being undertaken in this area is of a clinical or medical nature and that there are far fewer studies that seek to explore social and educational context. The prevalence of this clinically based work, with an emphasis on identification of deficit and subsequent remediation, may offer a parallel with the medicalisation of education where epistemological perspectives are drawn from the need to identify pupils' problems and provide a form of remediation for their 'difficulty'. The focus on clinical literature serves to reinforce the already established concept of ‘pupil (child) as problem’ that may mask more challenging questions related to concepts of pedagogy and educational research.

MacIntyre and McVitty (2004) provide illustrative examples of the normative criteria for assessing movement in relation to age related expectations. The initial recognition and subsequent diagnosis of dyspraxia may be in relation to predicted milestones (or cultural expectations) and it is not coincidental that observations of difference and degree of difficulty appear exacerbated when children enter formal educational settings. Ripley (2001) and Sugden, Wright, Chambers and Markee (2002) express concern for pupils in transition from primary to secondary education for example where the child’s level of ‘impairment’ is static (or non-progressive) but the effects of it are exacerbated by the demands created by the move to a structure and organisation that is initially challenging for many pupils. Portwood’s (2003:1) reference to the need for diagnosis when coordination difficulties impact on academic progress could serve to emphasise the concept of disability as a product of the social setting and organisation of learning. The standardisation of particular social processes and the role they play in identifying individual variance is highly significant here.

In their study, Peters, Barnett and Henderson (2001) recognise that dyspraxia is a condition only clearly identified in the ‘developed’ world, signifying a socio-cultural dimension to the ‘dyspraxic’ experience. Kirkby (2004) asks ‘Is dyspraxia a medical condition or a social disorder?’ and offers a discussion of dyspraxia as a medical or social phenomenon, but her argument falls short in respect of a full and meaningful discussion of the potential ‘over-medicalisation’ of a phenomenon. She discusses the role of diet and a sedentary life-style in a paper that does not live up to the expectation of the title since the social context is not fully explored. Miyahara and Register (1999) indicate that although the effects of dyspraxia may be overwhelming, ‘it is only in those privileged cultures that can afford to recognise and manage the problem’. The extent to which privileged cultures contribute to the production of dyspraxia is not explored.

‘DYS’-ING ‘DYSPRAXIA’ – AN EXPLORATION OF THE DEFINITIONS OF COORDINATION DIFFICULTIES

Dyspraxia is a term used to define ‘difficulties’ with the development of physical co-ordination related to sensory processing. Definitions are problematic, because of the range of ‘impairments’ that may be experienced and also because of the ways these are defined by a range of agencies. Dyspraxia is identified as a condition that not only affects the coordination and execution of movements but also the planning of movements prior to carrying them out and is independent of an individual’s level of intelligence. The Dyspraxia Foundation refers to dyspraxia as ‘an impairment or immaturity in the organisation of movement’ (The Dyspraxia Foundation, 2007). Ripley (2001:1) indicates that:

> Developmental Dyspraxia is found in children who have no significant difficulties when assessed in using standard neurological examinations but who show signs of an impaired performance of skilled movements. Developmental

> Dyspraxia refers to difficulties which are associated with the development of coordination and the organisation of movement.

Even in the pursuit of an early and simplistic definition there is a degree of disruption with Ripley’s extension into ‘Developmental Dyspraxia’, and an early discussion of the language of the labels used is essential at this point. Dyspraxia is not the term officially recognised by clinical researchers and is described as a subtype (Dixon and Addy, 2004) of Developmental Coordination Disorder (DCD) the term given official recognition in the American Psychiatry Association’s Diagnostic and Statistical Manual (DSM-IV) (in Elliott and Place, 2004), a source regularly cited at the point of definition in clinical studies. Clinical research largely embraces the term DCD, but this has come relatively recently with an attempt to unify work under one label, and provide a common frame of reference for research and dissemination with an attempt to confirm this status via the establishment of the International Society for Research into DCD (ISR-DCD) at the Professional conference in Banff, 2002 (Mandich and Polatajko, 2003).

Mandich and Polatajko (2003) discuss the introduction of the World Health Organisation’s framework for health and disability, the International Classification of Functioning Disability and Health (ICF). They indicate that the ICF model recognizes the importance of the interaction between person and environment in the creation of concepts such as health and disability, suggesting that it is not only the impairment that needs to be considered but ‘the context of everyday life’ in the way our understanding can be developed.

The terms developmental dyspraxia, dyspraxia, developmental coordination disorder (DCD), fine motor deficits, motor deficits, clumsiness and clumsy child syndrome (for example) are symptomatic of a developing field, but also of the linguistic nuances reflective of the range of agencies and professions researching and writing about the subject. This multidisciplinary development also connects with Foucault’s discussion of the intensification of the medical gaze which takes different forms and includes the family as a significant partner in medical acculturation (Foucault, 1976). I have retained the term dyspraxia largely because that is the term used and understood by the participants in the research, and because it encompasses not only the ‘output’ movement implications (what can be seen to be occurring), but also the motor planning aspects (planning prior to movement). The detail of a specific vocabulary may be essential to practitioners within a certain field, but this may also perpetuate the concept of difficulty that surrounds a definition and subsequent understanding of coordination related conditions (Peters et al, 2001). This problem with definitions and the roles of different professionals in authorising the ‘condition’ are also highly significant in relation to what I will call the ‘status’ of the participants in this study, since the ways in which they are authorised in relation to dyspraxia varies.

Historically, dyspraxia has been referred to as ‘clumsiness’ or ‘clumsy child syndrome’, and was identified in research at the turn of the last century. Peters, Barnett and Henderson (2001) refer to ‘clumsiness’ identified as a ‘defining symptom’ as early as 1909 by Dupre in an article that referred to ‘debilite motrice’. Research in this field can be plotted from the beginning of the twentieth century although there are some difficulties in working towards a clear definition of dyspraxia due to the multidisciplinary approaches to diagnosis and the growing numbers of labels for developmental coordination or motor difficulties. Jean Ayres (1974) in her key text on sensory integration theory refers to both apraxia and dyspraxia.

Sigmundsson, Hansen and Talcott (2003) indicate that, although developmental clumsiness has been discussed in literature for at least 60 years, there are still difficulties with definitions and describes these as both vague and unclear. Peters et al (2001) refer to a high degree of confusion over appropriate labels between clumsiness, dyspraxia and Developmental Coordination Disorder (DCD). The term 'clumsy', although identified as a negative and out-dated term, was identified by them as taking historical precedence and as the term that is most widely understood by a range of professionals. Although some in their study used different labels interchangeably, others are aware that there appears to be more than a semantic difference and that the language may reflect a range of differing conditions.

Geuze et al (2001), in their review of 176 papers based on research into DCD, indicate that this term was introduced in 1987 but did not begin to appear in published papers until 1992. Clumsy or clumsiness was the preferred term in the majority of papers they reviewed (with 41%), followed by DCD (with 26%) and, according to this study, developmental dyspraxia was preferred in only 6% of the papers. Miyahara and Register (2000) investigated the use of three terms, developmental dyspraxia, DCD and clumsy child syndrome (CCS). Parents and professionals agreed that CCS was largely negative. Although professionals and scholars were more familiar with the term DCD, parent groups make use of the term dyspraxia in both the United Kingdom and abroad.

Dixon and Addy (2004:7) refer to an extensive list of terms including clumsy child syndrome, minimal brain dysfunction, l'enfant maladroit, motor learning difficulty, developmental apraxia, agnosia and sensory integrative dysfunction. A more generic yet vague term 'motor learning difficulties' is referred to by Chesson, McKay and Stephenson (1990). A more recent review of clinical research by Zoia et al (2006) refers to 'specific disorder of motor function', recognized for at least a century with a gradual increase in awareness over the past 30 years, and makes reference to the large numbers of terms. The term 'neurodiversity' or a 'processing difference' (unpublished leaflets by 'Key 4 Learning Limited') have been used to describe dyspraxia, dyslexia and aspergers syndrome amongst other conditions although this term is used in other contexts more specifically to describe autism. Biggs (2005) includes dyspraxia within the autistic spectrum yet this is not widely acknowledged in other literature reviewed.

It is not only the labels or terminology that differs, but also the characteristics. The raft of manuals developed to support parents and professionals largely begin with the notion of the problematic nature of definitions of the range of coordination related conditions, the labels used by a range of professionals and the variation in the characteristics of conditions. Geuze et al (2001) offer a detailed discussion of the variations in diagnostic criteria used by professionals researching coordination difficulties and aim to propose a protocol by which such criteria can be more fully established in order to enable studies to be more effectively replicated. This paper indicates that some of the diagnostic criteria are established to fit the specific nature of the research being conducted. This move to formalise and authenticate particular bodies of knowledge is a means of creating conformity to enhance the quality and validity of research yet this may also be read as the authorisation of particular types of scientific knowledge that occlude other ways of knowing (Foucault:1980). It could be argued that the ability to replicate studies within research systems can also exclude individual voices and particular experience.s.

The relationship between dyspraxia and a perceived difficulty to learn is most apparent in its inclusion under the vague umbrella term Specific Learning Disorders/ Difficulties (SpLD), a generic term for a wide range of ‘learning difficulties’ that also includes dyslexia, dyscalculia and autistic spectrum disorders. The implications for the use of this term are that an individual has a specific difficulty that has an impact on their ability to learn with the impairment defined in relation to a very specific and traditional concept of how we learn and the environments in which we may learn best. Learning is a clear point of intersection in this study between dyspraxia and drawing from observation as a central pedagogic practice.

As I have already established, this study makes use of the term dyspraxia to align it with a participant perspective, and also to give recognition to the understanding that those included in the research consider themselves to be defined to a greater extent to being dyspraxic rather than having DCD or being clumsy. It would be disingenuous for me to recreate their stories under the guise of DCD simply because the medical discourse dominates definition. There is also a desire on my part to disrupt the authority of the clinical model, emanating from the development of the use of narrative as a mode of enquiry. As such I recognise the potentially powerful role that language can have in the construction of individuals’ ideas and identities and the role that a label can have as more than a passive conduit for description.

CHARACTERISTICS OF DYSPRAXIA

The language used to define the nature of dyspraxia locates the problem clearly within (not just *with)* the individual, yet makes a clear connection with a socially constructed disability. To illustrate this further, a range of literature explored here describes characteristics and offers specific activities that may be problematic, as evidence of the disabling effect of poor coordination. The ways in which these characteristics are offered here create the ‘dyspraxic ideal’ against which the case studies, and the hypothesis relating to drawing from observation, are positioned.

Dyspraxia is described by Dixon and Addy (2004) as ‘an impairment’ in gross and fine-motor organization. They describe individuals with an inability to plan and organize their movements and claim that this can often have an impact on their daily routine. Kirkby and Drew (2003:6) define the differences between DCD and dyspraxia as being that the ‘child with dyspraxia has a praxis/planning problem and does not know what to do and how to move, whereas the child with DCD has difficulties with coordination and execution.’ Boon (2001:14) indicates that gross motor skills may be affected, resulting in awkward movement and poor balance and coordination. Fine motor skills are described as being affected resulting in difficulty with manipulative skills such as holding pencils and pens. Speech and language may present difficulties in some cases and there may also be implications for the development of social skills, and difficulties with attention span and concentration. In addition to this there may be poor visual motor skills, resulting in difficulty with copying pictures, and poor spatial awareness. Alloway and Temple (2005) also indicate the potential for difficulties with working memory in children.

In early research referring to clumsiness or developmental apraxia by Walton, Ellis and Court (1962) and Gubbay, Ellis, Walton and Court (1965), detailed case studies are presented which explore a wide range of the types of difficulties encountered, and illustrative examples of writing and drawing are offered. Perceived difficulties include an inability to recognise whole pictures, difficulties with spatial recognition or representation, difficulty in understanding simple meaning in pictures and difficulty in understanding the representation of cubes. In addition to this, the case studies presented describe immature writing and drawing, speech difficulties, slowness of movements, right-left disorientation, delayed walking, inability to hop or jump and a range of other perceived difficulties. Further to an exploration of specific characteristics of clumsiness, the papers also provide a discussion of the social implications for children presenting with these characteristics. The studies indicate that these difficulties appeared not to be related to the child's overall intelligence and suggested that a number of these pupils were deemed lazy as a result of a lack of understanding of the condition. They make a clear connection with the developmental nature of dyspraxia demonstrating that the children appeared to make improvements as they developed and/or learnt how to overcome their difficulties.

Dyspraxia, as a developmental condition, is discussed by Ayres (1974) who makes the connection with the developmental process explicit. She describes 'praxis' as:

> … not just movement but the learned ability to plan and direct a temporal series of coordinated movements toward achieving a result – usually a skilled and non-habitual act. It is the end product of a developmental process involving afferent synthesis of the entire past ontogenetic experience related to a given motor pattern. (Ayres, 1974:170)

When a child is unable to draw on past experiences of a learned act or to generalise an ability to perform a specific act they may be defined as dyspraxic. All children need to learn the ability to carry out specific tasks but once these are learnt can usually transfer those skills. A dyspraxic child may have to re-learn how to carry out specific tasks before these can become habitual.

It is suggested that the international estimate of the incidence of dyspraxia is about 6% of the population in children between 5 and 11 years of age (Gupta, 1999; Mandich and Polatajko, 2003), but it may be difficult to identify a clear figure as a percentage of the population affected, due to the range of definitions used and the criteria employed by different agencies. The population is also treated in such statistical and hegemonic creations/representations as homogenous and there is no recognition of differing social factors, ethnicity or gender. The number of children identified with dyspraxia appears to be increasing and Portwood (2004) indicates that this may be as a result of societal change, diet and the increase in sedentary life styles having a potentially detrimental affect on child development. There is also the possibility that increased awareness and diagnosis may be linked to the increased number of children being identified as a result of the formalising of pre-school education. It could be argued that the increased awareness of a means of categorising and pathologising particular learner traits has resulted in this increase.

CO-MORBIDITY OR CO-OCCURRENCE

A further complexity to a study based on dyspraxia relates to the incidence of co-morbidity with other conditions including dyslexia, dyscalculia, autism and Attention Deficit Hyperactivity Disorder, conditions related by their contravention of the concept of the malleable and easily trained ‘docile body’ (Foucault, 1991) of the ‘ideal pupil’. Portwood (2003) suggests that the degree of co-morbidity with Attention Deficit and Hyperactivity Disorder (ADHD), autistic spectrum disorders and dyslexia for example is high being between 40% and 45%. She indicates that Attention Deficit Disorder (ADD) and ADHD present difficulties with concentration, making it difficult to isolate some aspects of behaviour that are shared between these conditions. Shattock and Whiteley (2004) provide an example of a biomedical research project exploring the links between dyspraxia and autism in terms of similarities and shared symptoms.

Kirby and Drew (2003:4) describe co-morbidity as ‘the rule rather than the exception’ indicating that there is difficulty in identifying ‘clean populations that do not have a mixed profile’. They refer to research (by Henderson and Barnett, 1998, and Clarkin and Kendall, 1992 for example) where there is difficulty in determining ‘whether one condition is in fact a symptom of another.’ Traditional sampling techniques appear unreliable and there are clear difficulties for clinical research in that it is difficult to replicate research with groups that do not have a shared set of ‘medical’ characteristics but that may also be rendered ‘different’ in terms of class, ethnicity and gender. The focus on ‘clean’ medical samples based on biological similarity could be perceived as highly problematic when considering the ‘performative’ nature of activities and the potentially situated nature of experience (Rosengren and Bradwell, 2003). There are similar difficulties when attempting to talk to participants about their experiences of art education and dyspraxia where school experiences may be dominated by their identification with dyslexia. This will be discussed later in relation to Craig’s story, in Chapter 7, which is dominated to a greater extent by his dyslexic experience.

Dyspraxia belongs to the group of three ‘dys’s’ (dyslexia, dyspraxia and dyscalculia), with dyslexia at times used as an umbrella term to accommodate the others (in West, 1996 for example). There appears to be a distinct hierarchy of interest and research, with the majority of literature on dyslexia, possibly as a result of an emphasis on literacy due to societal requirements for a literate population and the changing definitions of what it is to be ‘literate’. There is less work based on dyspraxia and less still on dyscalculia (difficulties in relation to numeracy), although this appears to be an expanding area of interest. There is a high degree of co-morbidity between these three areas and delineation between them is difficult since some characteristics are shared. ‘Poor organisation’ is an example of a characteristic claimed by both dyspraxia and dyslexia.

Kaplan et al (2006) reveal a further complexity in questioning the terminology of co-morbidity proposing that it could be a misleading term signifying that the disorders are independent of one another. They indicate that the conditions are not independent and co-morbidity does not therefore provide a satisfactory explanation for the ways in which the developmental problems are in fact related. Other texts however do not engage with this degree of difficulty. Dixon and Addy (2004) offer one amongst many texts for parents and teachers that discuss dyspraxia with little reference to comorbidity and discuss the identity of the specifically dyspraxic child throughout.

CHILD DEVELOPMENT

Dyspraxia is inextricably connected with a concept of child development and, as already discussed, is defined in relation to particular age related expectations and maturation. Foucault (1980:172) refers to the 'problem of childhood' in discussing the rise of medical acculturation and the role of the family in monitoring and managing the early stages of life. Within these systems he describes the family as the most 'constant agent of medicalisation' (p. 173). Child development has been subject to an increasing range of multidisciplinary interventions that intersect health, education and social well being such as 'Every Child Matters' (DCSF, 2004) all designed to manage childhood. Early life stages, previously less well monitored, are now increasingly managed. These are not inert discourses that are merely descriptive and reactive to conditions in the UK. The political focus on child poverty and interventions such as Sure Start, locate child rearing very firmly as a political objective. Child development is situated within particular forms of practice where a concept of 'development' is state supported via interventions and monitoring to assure entitlements to early education, health care and protection, for example. 'Development' in a medical discourse relates to specific weights and sizes of babies, for example, with distribution curves that indicate those above or below an 'average'. Within such discourses, child development becomes a site of difficulty and intervention.

The concept of child development is also subject to hegemonic discourses which authorise and prioritise particular cultural, class and gender assumptions about a range of ways in which it is possible for a child to 'develop'. As the child reaches school age, development shifts from health monitoring to education, where age related expectations in terms of intellectual 'development' are conflated with an ability to learn. Within the educational development discourse, particular concepts of education become associated with creating the optimal opportunities for children to develop in socially desirable/acceptable ways (associated with white middle-class values, for example). The ways in which gender is reflected in the literature on dyspraxia offer a useful reflection on particular hegemonies that underpin the conceptualisation of child development in this discussion.

GENDER

Gender plays a significant role in the ways in which pupils appear to be defined as dyspraxic and this is recognised here although a full discussion of this dimension of concern is beyond the scope of this book. A gender bias in the identification of coordination difficulties is acknowledged in a number of texts. According to Ripley (2001) and Portwood (2003) 80% of diagnosed cases of developmental dyspraxia are male while Zoia et al (2006) indicate a ratio of 3:1. The provision of support for pupils identified as having a Special Educational Need (SEN) or an additional need illustrates a gender bias which may reflect something of the power/knowledge discourses at play within gendered systems of education (Paechter, 2000). However, there may also be a cultural dimension to identification in that it is possible that boys display certain characteristics more likely to gain the attention of teachers (Daniels, Hey, Leonard and Smith, 1999). Historically, there was a greater concern for the identification of dyslexia in male children, for example, because of their socio-economic role and related expectations. It could be argued that identification of a learning related disability was less significant for female children who may have been expected only to marry and have children (Gaine and George, 1999:65). A similar argument could be pursued in relation to ethnicity where low expectation potentially correlates with low levels of identification. Dyslexia is frequently identified as a white middle class phenomenon, but there is no discussion of this more specifically in relation to dyspraxia.

A further argument is based on possible neurological differences between the sexes. Portwood (2003:19) explores concepts related to brain development to support the gender differences in identification. Accepting that gender is both a binary and a natural occurrence, she indicates that there are neurological reasons for differences between identification in male and female children referring to research from Yale University's Centre for Learning and Attention at the University of Iowa. This research explores gender differences in hemispheric specialisation which could indicate that boys' brains do not as easily compensate when there are difficulties in the development of the right hemisphere of the brain. She concludes that boys and girls can learn differently as a consequence of this. Such discussions of gender and brain function are not unproblematic. Fausto-Sterling (2000:115) offers an interesting discussion on 'Sexing the Brain' where she interrogates the role that science has played in exploring and defining gender roles through studies of neurological difference insisting that:

> …scientists do not simply read nature to find truths to apply in the social world. Instead, they use truths taken from our social relationships to structure, read, and interpret the natural.

There is also some variation in the identification ratios of boys to girls in different age ranges (Portwood, 2003:50). At age 3–7 years the ratio is 3:1, and in the junior and secondary school ages 8:1. She indicates that 'the ratio of 8:1 for this age group does not suggest that the dyspraxic proportion has changed but merely that boys are more likely to be identified.' In the Further Education sector more women than men are diagnosed. This may suggest that the social situation has a direct impact on types of appropriate behaviours and expectations. It may be that male students with dyspraxia may have reached a stage of disaffection and withdrawn from education by their late teens. Portwood (2003) also suggests that a failure to acknowledge the developmental differences between girls and boys could potentially lead to an inaccurate identification of 'failing boys'.

Boon (2001) is explicit about referring to 'he' because of the strong gender bias evident in the identification of the condition and Dixon and Addy (2004) also acknowledge this fully in their introduction yet this literature comes to create and reinforce rather than represent this gendered perspective. Chesson, McKay and Stephenson (1990) indicate gender as an additional concern as part of their study, indicating that girls with motor learning difficulties may be missed as a result of the types of behaviours that may be exhibited. Theirs was a study of 31 children only two of whom were female.

SELF ESTEEM AND DYSPRAXIA: A HURDLE TO CREATIVE ENGAGEMENT?

The impact of low self esteem on people with dyspraxia is well documented in the literature and this is a significant area in relation to the development and experience of dyspraxia as a cultural phenomenon. Self esteem is related to the way in which we define ourselves in relation to the world we encounter and our relationships with others in the world. There is a dual argument here in that some advocate a full recognition of dyspraxia in order to guard against issues of low self-esteem that might emerge from ignorance to the condition (Gubbay, 1965) where others recognise the impact that labelling of conditions may have on the psychological development when self concept is aligned with low expectations (Wearmouth, 1999; Norwich, 1999; Green, Baird and Sugden, 2006). A pupil's perceptions and experience of a 'dis-ability' could create a barrier in addition to the physical manifestation of a 'condition' or 'problem' and this provides a clear focus in a range of support texts written for parents and professionals (Ripley 2001; Ripley et al, 2003; Kirkby and Drew, 2003 and Portwood, 2003).

Ripley et al (2003) emphasise the role of self esteem, giving examples of parents', teachers' and the child's comments to illustrate her concern. She identifies the erosion of self concept starting early, as a result of negative initial experiences and failure, indicating that:

> If the underlying problems and the issues surrounding self-esteem are not addressed, a child at twelve years may have adequate handwriting…but have negative feelings about himself /herself as a learner, towards school, towards adults and his/her own future. (Ripley et al, 2003:12)

However, low self esteem is not a specific trait that is related to dyspraxia but a by product of a child's experiences and relationships. Dixon and Addy (2004:117) suggest that a child 'only knows that he operates differently from his peers because he is constantly told so'. They illustrate their point by asking the question 'how can a child feel valued if he is constantly being asked to change?' possibly suggesting a lack of flexibility in educational and social systems that require the individual to learn in specific norm referenced ways. Macintyre (2000) also discusses the potential existence of a comparative ideal to which a child may compare herself or be compared against, yet which may be an ideal which many children may not match.

There are concerns for the way in which specific characteristics of dyspraxia may be misread by teachers and the ways in which this reading of a particular pedagogic performance can contribute to a pupil’s sense of self. Munro, Butler, and Major (2005) refer to postural control, with some children appearing slumped and lazy, indicating that teachers had frequently remarked on pupils adopting positions different from those of others in the class. Orton (in Ripley et al, 2003) discusses the perception that children who were delayed in reaching development goals were ‘lazy, careless and of low ability’ and that this was linked to the development of a ‘sense of inferiority’. Ripley indicates that this is still the case for many where dyspraxia is not recognized or fully understood (Ripley et al 2003:64). These descriptions of the dyspraxic pupil suggest a physical presence that contravenes the accepted model of the ‘ideal’ pupil, perceived as an attentive and keen learner or a ‘docile’ body, both eager and compliant (Foucault, 1991:170). The dyspraxic pupil, outlined above, suggests the exhibition of different pupil attributes more readily associated with a lack of enthusiasm as well as a lack of ability to learn in appropriate ways, connecting physical presence with a particular type of learning ‘performance’ that might be read by others as disengagement or learner pathology. Poor self-esteem is therefore not directly attributed as a characteristic of dyspraxia but a reaction to the ways in which particular differences result in expulsion or revulsion of the ‘other’ (Butler, 2006) as a result of the assertion of ‘culturally hegemonic identities’ or hegemonic learner identities.

Macintyre (2000) reflects on the role that the individual can have in contributing to low self-image, referring to ‘reciprocal analysis’, where self-image is based on what people think others think of them. The role of others in the creation of self esteem is recognised here, where parents are described as the first critical influence on self-perception. During a child’s early years the emphasis changes to teachers, and their peer group takes on a greater significance. In discussing the role of the peer group Macintyre outlines the relationship between children where the peer group act as role models and a direct source for comparison. It is possible to make a direct, although anecdotal, link here with the way in which pupils often compare their drawings within a hierarchy of ability which is well established and understood by a peer group. Within any group pupils will usually be able to identify the individuals who are particularly good at a specific activity such as drawing. This direct connection between drawing engagement and comparative levels of perceived ability will be developed more fully in the study.

Self-esteem is a central concept in current learning theories. Claxton (2002), in his work on Learning to Learn describes four characteristics of effective learners: resilience, resourcefulness, reflectiveness and reciprocity. All require a degree of learner, and personal, confidence. The recognition in the new national curriculum for art and design (QCA, 2008), with its emphasis on mistake-making and risk taking, also supports a view of an ‘empowered’ and confident learner but, more importantly, one who appears to be able to exert a good deal of control over their own conditions for learning. Self-esteem is at the heart of these concepts of learning and this is a significant theme to be discussed in relation to the participants in this study.

CLINICAL RESEARCH

From the clinical research perspective, there appears to be a developing area of interest and activity with an increase in research in this area over the last thirty years (Zoia et al, 2006). Geuze et al (2001) refer to 176 publications, providing an indication of both interventionist (those that evaluate a particular type of intervention or remediation) and non-interventionist research, including work establishing assessment and identification procedures, carried out up to and including 1999. A more recent review by Zoia et al (2006) indicates current clinical research being undertaken by a wide range of professionals. The article identifies the growing interest of an international community and collaborations between interested groups including researchers, clinicians and policymakers. Current literature reflects the multi-professional dimension to this research, with physiotherapy, occupational health, psychology, psychiatry and neurology just some of the fields reflected in the work to date. The DCD-VII conference in Melbourne, Australia in February 2007 reflects a similar diversity in relation to the oral presentations, papers and posters reflected in the conference programme.

Some aspects of this clinical research, related to visual and sensory processing, are particularly relevant to this consideration of the experiences of drawing from observation for pupils with dyspraxia. In the following section I do not offer an unproblematic acceptance of scientific discussion but aim to use this to explore the ways in which the dyspraxic ideal is produced and appears to be biologically fixed within the physical body of the individual.

VISUAL PROCESSING

A number of studies explore the connection between visual processing, dyspraxia and learning difficulties, yet the context of the 'learning' appears less well explored. Difficulties with some drawing activities may relate to this element of sensory processing rather than, or in addition to, difficulties with pencil grip and manual dexterity. Early work by Jean Ayres (1974:173) illustrates a link between dyspraxia and difficulty in visual tracking, commenting that 'eyes that will not follow a volitional command make desk work most demanding.' The relevance, usefulness and effectiveness of 'desk work' as a location for learning are not explored here and sit almost invisibly as the accepted physical conditions. More recent clinical research indicates a connection between difficulties with visual processing and dyspraxia. Lord and Hulme (1988) make a direct connection between visual perception and coordination by exploring the links between visual perception and motor control and this is one of the few studies that relates specifically to drawing ability. Wilmut, Wann and Brown (2006) establish that shifting the gaze ahead of hand movement is a natural part of developing hand movements with accuracy. This study indicates that there are differences in the coupling of eye and hand movements in children with DCD, where the eyes get too far ahead of the hand, and that this can result in a perception of slowness in carrying out complex sequential tasks. The situated nature of such 'perceptions of slowness' are not discussed.

Deconinck et al (2006), in a study that considers the visual contribution towards walking in children with DCD, suggests that the findings indicate that there is an increased dependency on visual control and that this may be associated with a poorly developed internal sensorimotor model. Sigmundsson, Hansen, and Talcott (2003) and Sigmundsson, Whiting, and Ingvaldsen (1999) identify a range of literature related to the relationship between visual deficits and motor coordination difficulties. Sigmundsson, Hansen, and Talcott (2003) provide a clinical exploration of the ways in which the brain processes visual information and conclude that there is a relationship between developmental clumsiness and visual processing deficits. Alloway and Temple (2005) indicate that children with DCD showed comparatively striking deficits in visuo-spatial working memory tasks, describing visuo-spatial working memory as significant in linking movement planning and control. Sigmundsson and Hopkins (2005) indicate that the visual processing problems of ‘clumsy’ children contribute to, or strongly determine, movement problems and learning difficulties, in a study linking problems with visual processing and learning difficulties. Gubbay (1975) in Sigmundsson and Hopkins (2005) reported that 50% of children with DCD have trouble with schoolwork and that these problems might be located in poor visual recognition abilities. It is significant to note that these studies do not attempt to explore the appropriateness of these learning experiences, which remain unquestioned and constant as a backdrop against which individual deficits are explored.

The translation of clinical research related to visual processing into help manuals provides exemplification of how these specific problems may have an impact on curriculum engagement or the routine of daily life. Kirby and Drew (2003:42) describe visual spatial perception as how ‘a person perceives the relationship of external space to his body as well as objects in space relative to other objects’, and suggest that, in addition to the potential problems with sensory processing, there may be specific difficulties related to visual perception. Portwood (2003:71) describes the use of optometric assessment for some children undergoing initial diagnosis and there is a discussion of ocular motor instability which could affect tracking objects from left to right, as well as problems with focusing. She identifies three areas here: the first, *amplitude of accommodation*, relates to the ability of the optical lens to change shape in order to view objects that are near or far or for ‘close work’ for example; the second, *accommodative lag*, can affect the ability to focus on words on a page, for example, indicating that this can result in some children focusing on the page behind instead of the words; the third, *accommodative facility,* refers to the ability eyes have to relax and concentrate. Portwood (ibid) gives an example of the significance of this for children looking at a board and then re-focusing on the page of the book in front of them. This is significant for observational drawing which requires the constant moving and shifting of the eyes from one area to another and could be relevant if observational drawing presented greater difficulties than other drawing activities. Dixon and Addy (2004) indicate that some may have difficulty in completing jigsaws and producing ‘dot to dot’ drawings, for example, due to poor ‘visual closure’, a function which enables us to guess at whole objects even though we may only see them partially.

Kirby and Drew (2003:39–44) explore visually related difficulties, identifying these as either physically related to focusing, eye movement and saccades (tiny jerks of the eyes when viewing a static object) for example, or perceptual, including visual spatial awareness, differentiation between figure and ground, and visual memory. They suggest that children with poor visual discrimination have difficulty putting parts together to make a whole and have problems identifying ambiguously represented objects. Kirkby and Drew (2003:42) also explore visual memory suggesting that it is dependent upon, attention and concentration, good observation, speed and motivation, claiming that children with poor visual memory may successfully reproduce an object from observation, but may have difficulties reproducing it when the object is taken away. This may suggest that children may have difficulty working from their imagination if the imagination works as a visual store.

SENSORY PROCESSING – CONNECTING THE IDEAS

One of the most significant aspects of literature relating to dyspraxia is that which makes a connection between sensory processing and motor planning prior to co-ordinated movement. During an activity such as drawing from direct observation of objects the relationship between the brain, hand and eye are evident and explained fully in Betty Edwards 'Drawing on the Right Side of the Brain' (1992). It is the coordination of these aspects that appears potentially problematic in considering the dyspraxic ideal.

Ripley et al (2003) illustrate a 'feedback loop' to explain the link between the environment and sensory processes, and suggest that disruption to any one of these could result in coordination difficulties. I would suggest that such disruption could make an activity such as drawing from direct observation potentially more problematic. However, there are a whole range of other factors relating to drawing that may have relevance. Rosengren and Braswell, (2003:63) discuss changing constraints in relation to task variation that offers a more 'authentic' framing for class room experience than the unmediated 'feedback loop':

> Task constraints will change as the specific tasks the child is confronted with change. These changes may involve variations in the instructions a child is given in a particular drawing session, or variations in the frictional coefficients as a child attempts to draw with a different drawing implement. Constraints always interact, so changing one constraint impacts on the entire system, yielding significantly different outcomes.

This discussion of the interplay between systems appears to offer a perspective that shifts to a consideration of context rather than the location of individual deficit.

The theoretical and practical applications of work by Jean Ayres (1974) related to sensory integration is widely referenced in many texts related to developmental coordination difficulties (Dixon and Addy, 2004; Portwood, 2003, for example), specifically in relation to the explanation she gives of the relationship between neural processes and the senses. In this work she makes clear connections between sensory processing and learning difficulties, advocating intervention as a means of remediation. Outlining sensory integration therapy, Ayres suggests that:

> Sensory integrative processes result in perception and other types of synthesis of sensory data that enable man [sic] to interact effectively with the environment. Disorders of perception have been reasonably well established as concomitants of early academic problems. (Ayres, 1974:1)

This overview reflects a deficit approach to learning for those with sensory integration ‘disorders’ and proposes that the deficit is the reason for aspects of academic learning being difficult. However, it should be acknowledged that the relationship between ‘learning disorders’ and early academic ‘problems’ or failure may relate to inappropriate teaching methods, for example, and a social model of disability would suggest that pupils with this type of ‘deviation’ are failed by an education system that has insufficient flexibility to meet specific and individual difference. This will be discussed later but it is relevant to present these ideas now and recognise the role that a body of literature may have in the production of dyspraxia as a disability that results in a negative impact on the perception of the abilities of particular pupils.

Ayres (ibid) acknowledges the role that sensory stimulation plays in the ways in which children develop. She indicates that if the information received by tactile receptors via touch, for example, is not precise, the brain does not have a sufficient basis to develop an accurate body awareness, and this could result in poor motor planning. When children are at an early stage of development, she argues, learning via movement is vital, in that it enables us to cultivate the capacity for habitual movement. Individuals with dyspraxia, Ayres suggests, can find it more difficult to develop these habits and must therefore re-learn an activity each time it is attempted.

Ayres outlines the functions of three main sensory receptors and Ripley et al (2003) makes the link with developmental dyspraxia and the ability to manage sensory information via these three forms of processing. The first of these are the tactile receptors which are cells in the skin that send information to the brain. Ayres (p. 172–3) explains the limitations that problems with this can cause. ‘If a child cannot tell which finger is receiving a tactile stimulus, he [sic] cannot be expected to know well how to move that finger in a skilled manner in manipulation of objects or use of tools including a pencil.’ Dixon and Addy (2004:20) describe children with dyspraxia struggling to develop visual form constancy (knowledge about properties of objects such as shape and size), indicating that this is due to receiving incorrect information regarding an object from a ‘dampened sense of touch.’ Touch is established as the key sense in early child development, and the connection between this sense and the development of fine motor skills appears obvious. Dixon and Addy (2004) suggest that this area is affected in the majority of children with dyspraxia. They also describe the effects that can occur with perceptual constancy, ‘the ability to perceive an object as possessing variant properties, such as shape, position and size’ (2004:17), for example, if sensory integration is disrupted. They make a clear practical connection with specific areas of the school curriculum that may be affected, suggesting that ‘difficulties in form constancy also affect judgement of size, which in turn influences drawings, physical education, handwriting and mathematics.’

The second of the processes described by Ayres is related to the vestibular apparatus in the inner ear, which Ripley et al (2003) describe as significant in that it responds to shifting head position, and the coordination of head, eye and body movement. This also enables us to coordinate left and right sides of the body. Lastly the function of the proprioceptive system, present in muscles and joints, gives us an awareness of our body position, enabling us to carry out familiar actions without us needing to rely on visual confirmation of our position. As a result of this, regular adjustments need to be made to a person's position in order to respond to external stimuli in our environment. Again Dixon and Addy (2004:21) provide an example of the effects of this, with some having difficulty in differentiating between figure and ground, for example, as a result of relatively poor perception of their own position in space. This is related to the way in which we develop an awareness of how we look and move and understand how to position ourselves in space or in relation to other objects and people. Ripley (2001:34) indicates a relationship between oral and verbal ability and dyspraxia suggesting that some may have problems with vocabulary which involves space and time indicating that these concepts may be particularly confusing.

Dixon and Addy (2004) describe the negative implications for poor sensory processing resulting in a difference in spatial perception, and the language of deficit is evident here. This quote is significant also for the clear connections that are made with immature and erratic drawing, and will be considered more fully with the literature that makes a specific connection with art and design and drawing:

> Many children with dyspraxia will have a dysfunctional position in space and this will reflect in a poor understanding of self-image, poor appreciation of the body's proportions, and a lack of appreciation of laterality. Self-drawings will be immature and lacking in detail, and proportions may be erratic. The child may perceive himself differently from his peers and may be unaware that he appears different. (2004:24)

What is also significant here is the discussion of the definition of the dyspraxic ideal in comparison to a norm. The child in this discussion 'appears different' to a norm that is neither named nor defined.

Dixon and Addy continue in describing specific examples of problems resulting in poor spatial awareness, indicating that some children may have difficulties representing three-dimensional objects (2004:35). What is absent in this discussion is the positioning of those who are assessing the 'immaturity' in these 'self-drawings', their frames of reference and what constitutes immaturity in drawings produced by children or adults. It is possible that many of us may have difficulties in the representation of three-dimensional objects, and this may relate to the particular drawing systems that we might employ and that are culturally defined. Three-dimensional representation of objects is offered here as if there were only one way of representing three-dimensions rather than multiple (Willats, 1997) and that most 'normal' people can employ without difficulty. Forms of representation, and particularly drawing, are claimed within this medical discourse and used to define individual deficit as if entirely unproblematic. This engagement with representation appears to offer a clear and unmediated sightline through to the individual deficit, yet such practices are culturally constructed and defined. This discussion of norms, related to drawing and representation, is more fully explored in Chapter 5 which investigates the context for art education, drawing and representation.

ART AND DESIGN EDUCATION AND DYSPRAXIA: THE INTERSECTION OF TWO MARGINAL FIELDS

Dixon and Addy (2004:67) refer to a study by Addy (1996):

> A group of twenty-five children with dyspraxia aged 9 to 11 years were asked to comment on the subjects they were involved in at school. Each child unanimously stated that school consisted of three subjects: writing, art and PE. In addition, each reiterated ‘I am rubbish at all of these subjects.

What is less clear is whether a group of twenty-five children not identified with dyspraxia would have given a similar response yet it may suggest that there are aspects of art education that may be less enjoyable or present pupils with a poor sense of achievement. There is little discussion of this and art as a subject appears comparatively less well explored than other subjects that are largely text based.

Although Lord and Hulme (1988) discuss drawing ability from a scientific perspective, this is not within the context of art and design pedagogy. The intersection between information about coordination difficulties and art and design as a specific subject area taught in schools appears to be extremely limited, as is research related to dyspraxia and art and design education. An exception to this is the work currently being undertaken by Rankin, Riley and Davies at the Swansea Institute (2007) which explores dyslexia and the teaching of drawing. This section of the literature review therefore refers largely to manuals produced for professionals and parents in order to support children more effectively in school. In these contexts, art and design is treated largely as a mechanical/technical skill with an emphasis on manipulative control, and the treatment of the subject within these contexts appears to confirm it as low in status in comparison to other disciplines. For an art and design teacher the level of engagement with subject pedagogy and the subsequent advice is inadequate. This apparent lack of concern is contradictory in light of the emphasis on ‘immature drawing’ as an initial indicator of a coordination difficulty.

Boon (2001) indicates that drawing and writing may be problematic but, in a section dedicated to art and design, the priority is given to the organisational skills of the teacher. There is no attempt to discuss the pedagogic aspects of the subject, and Boon goes on to discuss practical problems such as knocking paint pots over, wearing overalls and covering tables with newspaper. The types of learning that can be achieved during an art and design lesson are not discussed and the emphasis is on controlling mess. In comparison, her discussion of music reflects an attempt to discuss the specialist nature of the subject using specific language related to that discpline:

> It may well be difficult for a dyspraxic child to beat time, keep rhythm or play softly but the type of activities frequently practised during music lessons

> can be of enormous benefit in developing rhythm, listening and co-ordination skills. (Boon, 2001:54)

Other texts (Brookes, 2005 for example) discuss specific curriculum areas but fail to mention art at all. Dixon and Addy (2004) refer to specific challenges for pupils and indicate that 'distorted figure-ground discrimination can have a profound effect on reading, writing, physical education and maths.' This would seem to have implications for aspects of some types of representation in art and design yet the subject is not included in this listing. Pickles (2004), in her final chapter (based on music and art), considers the exploration of a range of media and the use of photographs to illustrate work as a substitute for drawing. Ripley (2001) outlines difficulties with visual perception and ocular-motor control, specifying other curriculum areas, yet art and design or drawing are not referred to.

In addition to the lack of subject knowledge for art and design teachers, there is a similar lack of engagement with the specific nature of drawing. Ripley, Daines and Barrett (2003) indicate that 'drawing involves many aspects other than motor control and is therefore not dealt with' in a chapter curiously headed 'Handwriting and Drawing'. Kurtz (2003) similarly makes no mention of drawing in any particular detail, although there is quite a full discussion of handwriting and the technical difficulties that may be experienced.

My argument here is that drawing is first acknowledged to be a different type of activity from handwriting but is then not fully investigated or explained. Drawing and handwriting are frequently conflated. Although there are natural similarities in the two activities, 'immature' drawing (a problematic and socially constructed concept) is frequently acknowledged as a defining characteristic of dyspraxia. Some texts advocate that drawing may be a useful strategy for pupils to communicate their ideas where handwriting is difficult (see Ripley, 2001 for example), and this suggests some contradictory messages regarding the role and value that drawing may have. Although Ripley (2001) offers the use of these other forms of visual representation as an alternative to handwriting, she also acknowledges the challenges such alternative modes of representation may provide for some pupils for whom spatial perception is a related difficulty.

Following some initial discussion on the types of challenges that may be encountered in art and design, Dixon and Addy (2004) appear to be exceptional in their treatment of the subject and offer some recognition of it as a vehicle for learning for all students. They offer quite specific and subject based information about the types of challenges that could be encountered and give a relatively full account of ways in which art and design lessons could be planned as wholly inclusive. They suggest that there is scope within curriculum guidance to move beyond a reliance on particular forms of naturalistic representation, and advocate an emphasis on design, pattern and texture. Their focus, however, remains on art education as an exploration of these formal elements. They describe some of the difficulties for a pupil with dyspraxia in relation to art and design:

> Particularly poor form constancy and position in space will seriously impede the child's ability to reproduce three-dimensional objects, proportions will also be erratic and self-drawings will be very basic and often disjointed (2004:35)

They go on to discuss the perceived limitations for pupils with dyspraxia indicating that:

> The attempts of children with dyspraxia at drawings and paintings may appear to be very immature and lack creativity, and it may be assumed that the child lacks imagination. (2004:141)

They conclude by dispelling the myth that children with dyspraxia may be less creative and attempt to provide practical advice in order that pupils can benefit from working in art and design. It could be argued that they are also contributing to the production of the dyspraxic ideal as one who cannot draw, rather than presenting an acceptance of a broader definition of drawing and the ways in which this can function by adhering to the idea that a drawing that is uncontrolled or immature has less value. In their attempts to dispel the myth of dyspraxic lack of creativity they may reinforce the unquestioned assumption of the connection between apparent immaturity and a lack of creativity.

Other texts indicate the types of challenges that may be encountered in relation to certain types of drawing. Ripley (2001:45) discusses the difficulties which could be encountered if a pupil with dyspraxia finds spatial perception challenging suggesting that this may lead them to have a problem with interpreting a range of visual-spatial information including pictures, maps and diagrams (Portwood, 2003).

Werenowska (2003) offers some personal perspectives on experiences of compulsory education. Some contributors to this volume of personal narratives, poems and short stories discuss specific school subjects, but art is mentioned infrequently. It may be that this supports the supposition that art and design has little relevance for some or that it is a subject with a low status. A number of the narratives refer to the impact of poor handwriting and although some admit to having little confidence with their drawing ability it does not seem to have had the same degree of impact as issues relating to handwriting. Gilheany (Werenowska, 2003:18) describes art and music as 'no go areas' because of his poor manipulation and visual-spatial awareness. McKinley also refers to the impact of dyspraxia on a practical level. He says:

> This was why I found making objects in craft, woodwork and metalwork class difficult, for I couldn't remember the sequence of operations. I also had visuo-spatial difficulties, which were due to poor eye-hand co-ordination…In maths and tech drawing classes I found it difficult to follow instructions, visualise a shape or drawing, and commit it to paper. (McKinley, 2003:23)

He does however go on to recommend the pursuit of a practical hobby as being of great benefit in providing a creative outlet suggesting painting or the arts and crafts discussing this in therapeutic terms.

Rankin, Davies and Riley in an unpublished paper, begin by establishing the high percentage of art and design students with dyslexia or dyspraxia in higher education although there is little discussion of why this may be the case. The focus for their work relates to the notion that students with dyslexia and dyspraxia may encounter difficulties with drawing due to memory issues and tracking of objects, and goes on to outline work that includes conducting brain scans of individuals whilst they are drawing to illustrate differences in individual's brain activity when drawing from life and drawing from imagination. It is argued that this is done in order to provide a greater understanding of different learning styles and to enable the development of more appropriate teaching methods and strategies. Although the study appears to take a clinical approach to brain function whilst drawing, the conclusions, that a broader definition of drawing should be employed, suggest a move towards an inclusive approach for all students. The indication that provision for students should be enhanced by a form of medical screening however is highly problematic. There is an acceptance of particular types of hegemonic practice in relation to drawing and particular forms of representation and an assumption of the identification of learner deficit as an essential starting point for teaching.

DRAWING FOR DIAGNOSIS

It could be argued that the function of drawing, as a product that can be used for clinical diagnostic purposes, is alien to the creative nature of the activity. Children use drawings for a range of different purposes, many of which may relate to process and meaning making rather than product and representation. It may be that drawing for diagnosis of impairment or assessment of ability may contribute to the creation of the identity of a child with dyspraxia as one who cannot draw. There may also be a relationship between the diagnostic function of drawing and the 'aesthetic' decisions art educators may make in relation to a pupil's ability. The inclusion of immaturity of drawing as a key characteristic of dyspraxia suggests that it is now absorbed into the canon of defining features. It is possible that this may communicate as much about our cultural definitions of the role and function of drawing as it does about the nature of dyspraxia.

Drawing as a means of charting child development has a long standing connection with the work of Ebenezer Cooke and James Sully, pre-dating Dr Cyril Burt in 1921 (Carline, 1975) and the development of the Goodenough intelligence test (Cox, 1992). The analysis of different types of drawing have been linked to a child's manual, mental and imaginative development and it is therefore used as a means of diagnosing developmental 'problems' (Cox, 1992 and Rosengren and Braswell, 2004). Gupta (1999:19) outlines the role that drawing can play in testing, identifying it as a curious type of 'busy work' that might offer insight into the achievement of particular grapho-motor milestones:

> Give a paper and a few crayons to the child to draw a house, a tree, and a person. Drawing keeps the child busy and also serves as a good projective test.

Drawing is used in a number of studies in order to determine the level of disruption to coordination for some children with dyspraxia. Early studies by Gubbay et al (1968) include drawings produced by children with dyspraxia, with a commentary on the drawings that relates to the identification of a specific problem. This medicalisation of drawing as a tool for psychological investigation results in a quantitative analysis of the specific attributes of a drawing. For example Jolley, Fenn and Jones' (2004) use of a scoring system to identify expressive characteristics in children's drawings, leads them to conclude that children's expressive drawings improve with age while Hodgson (2002) provides a neuroscientific investigation into the key features of children's drawings.

Rosengren and Braswell (2003:56–75) offer a particularly useful argument in respect of the discussion of drawing, handwriting and concepts of child development. They explore the similarities between drawing and writing, suggesting that both are 'constrained by similar influences', both involve sophisticated tool use and that they are also both attempts to communicate with others. Drawing is described as a precursor to writing, suggesting that both have traditionally been associated with reflecting changes in skill in relation to age. They refer to this maturational perspective that appears significant for researching child development in relation to drawing (Cox, 1992). Rosengren and Braswell suggest that the following assumptions are made in research related to drawing and development (p. 59): drawing and writing development are governed by maturation and internal factors relating to the child and there is stable progression in moving from being a young child to an adult. They suggest that because so much research relates to this stable progression, drawings have been used as a means of assessing motor development, cognitive development and socio-emotional development. They comment:

> All of these assessments are based on the notions that 'normal' children of a given age will produce highly similar products…and that all drawing outcomes will be based on similar internal representations. (p. 59)

They continue later in this chapter to suggest that 'The fact that the drawing outcome is found to vary significantly with changing task constraints makes a purely maturational account of drawing untenable'(p. 69). Of greater significance still to this study is this final quotation since it is the holistic drawing experience that is little explored in literature connecting dyspraxia and art education, yet it is this that is highly significant to the experiences of the participants included in this study:

> The parameters of the drawing task (e.g. pitting speed vs accuracy) and the cultural milieu (especially in terms of writing systems) in which one becomes an experienced drawer provide other contexts in which these various constraints interact. Together, these and other factors help shape the interplay between constraints on drawing behaviour.

The new analysis of the seemingly accepted logic connecting drawing and development offers a refreshing perspective and a useful point at which to move the discussion from the marginal field of drawing to the dominant focus on handwriting. The discussion of drawing in relation to art education will be returned to in Chapter 5.

HANDWRITING

In this section I will outline the main areas of discussion related to handwriting and dyspraxia, and draw parallels with drawing from direct observation. A range of research has produced a consensus that poor handwriting is one of the most commonly shared characteristics for children with dyspraxia (Addy, 2004). Jean Ayres (172:1974) gives a summary of potential difficulties experienced by a child with dyspraxia, describing writing as ‘an extremely and usually overly demanding task for an apraxic child just entering school.’ The predominance of information on handwriting difficulty, and programmes for intervention reveal a belief in this as a central component of learning within a literacy based education system, reflecting a cultural concern that we can write rather than draw. The emphasis on handwriting is also identified in the narrative case studies, where it is confirmed as a central concern.

Anna Barnett’s keynote address (see also Sugden and Chambers, 2005) at the Dyspraxia Foundation Conference, 2006, included an analytical description of the handwriting process, effective in outlining the complex processes involved. Her approach advocates a more systematic approach to teaching handwriting for a sustained period in a child’s early education. She describes how young children can be challenged by the need to combine the recall of letter shapes with the coordination required in the physical representation of graphic symbols. Handwriting is also established as a highly complex activity by Smits-Engelsman, Niemeijer, and van Galen (2001), but as one that can become more easily executed as skills become habitual. Older children, develop the ability to write without making conscious decisions to recall word and letter shapes and can therefore focus on the manual aspects that the activity requires. Ripley, Daines and Barrett (2003:34) make connections between mastering handwriting and maturational development, outlining age related expectations for drawing and handwriting. A significant aspect of their argument is the claim that continued practice has less impact on improved motor skills than the child’s neurological development. Both arguments suggest that there are aspects of writing that become unconscious over time, and the process, for most, therefore becomes an easier one. It is claimed that such habits are not as easily developed by a child with dyspraxia.

Drawing from observation is a similarly complex activity in translating three dimensional shapes onto a flat plane. There is the need for visual processing, and this is combined with the manual dexterity required to put pen to paper. I would argue that there is a further complexity to drawing in this way, since there are no set numbers or shapes such as the use of graphemes in handwriting, to use in a drawing and this may therefore be more problematic since it is less habitual in nature. Although particular drawing schemas may be employed to denote a house, for example, drawing less familiar objects from observation does not allow these to be used in depicting unfamiliar shapes and forms. To explain further, I would suggest that drawing from observation is problematic because there is a constant reliance on the need to process visual information and identify a means of representation. Pupils who are encouraged to draw directly from what they can see do not have the benefit of memorising specific shapes and forms and habitual actions are less likely to be developed. My hypothesis here is that the need for the continued combination of visual processing and manual dexterity may contribute to this being a challenging activity.

Difficulties with handwriting can have serious implications for pupils’ learning in the majority of subjects, and this may account for the dominant role that handwriting related issues take within the literature. Zoia et al (2006) and Smits-Engelsman (2001) describe the impact of coordination difficulties on academic achievement, stemming from poor handwriting skills. Macintyre and McVitty (2004:83) refer to handwriting as a key learning tool and potential vehicle for the approval of 'successful' learning.

> It is used extensively throughout school to communicate thoughts and ideas and record calculations. 'Good handwriting' leads to 'neat work', often a source of praise, especially in the early years.

They continue by making a very clear connection between handwriting that functions both as a practical skill and as a potentially inaccurate indicator of learning or understanding.

> …the immediate impact of poor handwriting can disguise the content of what is written to the extent that assessments are distorted by focusing on poor letter formation and word layout rather than the imaginative content or even the structure of the story or poem.

It is possible to make parallels here with what could be described as idiosyncratic drawing forms, where a pupil's representation may be understood differently from their aims as a result of particular approaches to drawing (Atkinson, 2002). Again these ideas relating more specifically to art and design education will be explored more fully in Chapter 5.

Addy (2004) indicates that increased demands in school can exacerbate difficulties and 'issues' become more prevalent as expectations are increased. As children become older, the expectation for habitual handwriting increases and problems are emphasised. She indicates that:

> In order to develop fast, fluent handwriting, children need to have refined kinaesthesia, efficient motor planning, accurate hand-eye coordination, intact visuo-motor integration, and in-hand manipulation.

The emphasis on speed and time as a learning constraint is combined with the need to be able to apply appropriate pressure and employ spatial organisation. She continues by explaining that it is also important to be able to write without looking at every word or letter in order to be able to write from a board, for example, or from dictation.

An exploration of specific difficulties with handwriting development may offer parallels with drawing. Dixon and Addy (2004:25) discuss the role of spatial relationships as a cause of difficulty in relation to handwriting development. They describe 'confused laterality', which can cause letter reversal or problems with letter orientation and poor spatial planning on the page as well as an inability to judge spaces and distances that would also have relevance when drawing from observation. Ripley et al (2003:70) identifies difficulties with the memory of writing patterns. They explain that the eye is confused by having to check on hand movements as well as organisation, evaluation and direction, and that this leads to messy writing. They also discuss the role that proprioceptive feedback (information fed back to the body by receptors which inform further actions or movements) should have in this activity, and make a direct connection between sensory integration and handwriting. The discussion here relates to planning for movement being informed by sensory feedback and the compensatory facility that visual monitoring can provide when this feedback is less effective. Although such strategies are employed, this may result in slower writing and increased pencil pressure. Macintyre and McVitty (2004) describe visual perceptual difficulties discussed in relation to reading, difficulty in making visual judgements and placing objects in space. Again, similar discussion could be applied to drawing from direct observation.

In considering poor handwriting or immature drawing as a key characteristic of dyspraxia, the social and cultural dimension of the 'condition' becomes apparent. Dyspraxia becomes a disability when handwriting, as an educational tool for communication, starts to present a barrier to writing and, by implication, learning. It may also become a mistaken signifier for lack of engagement, laziness or lack of understanding, when pupils work slowly or lack sufficient accuracy in their written communication. A parallel argument could be made for the way in which we interpret pupils' drawings. Lack of a recognised, and often age related, level of technical skill may be considered to signify an inability to understand and use specific forms of representation. An unfinished drawing, lacking detail and produced in a time constrained environment, might be read as a lack of pupil engagement in the activity. The drawing created by a pupil with coordination difficulties may be interpreted as reflecting a lack of understanding of visual concepts, an argument supported by the discussion of the role of cultural differences in representation developed by Atkinson (2002).

VOICES OF EXPERIENCE

The relevance of personal narrative has been explored more fully in the methodology sections of this work and is an important focus for this research. Literature that gives some precedence to the voices and experiences of those with dyspraxia is relatively limited in a field that is defined by the notion of professional expertise. 'Real' voices of experience are used as vignettes to provide examples of the impact of dyspraxia but these are mediated by an expert voice (in Elliott and Place, 2004, for example). Jones (2005:7) introduces the inclusion of dyspraxic voices in *Developing School Provision for Children with Dyspraxia*:

> 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.

Here it is not only the dominance of 'expert' voice that is problematic, but the 'benevolent humanitarianism' (Tomlinson, 1982) that oozes from 'empathy for their plight' which creates a disempowering context for experience.

There are a small number of texts based on the narratives of those with dyspraxia and this has a particular interest for me in light of the methodological approach I have taken for this study. A number of these, produced by charitable organisations, have sought to provide a vehicle for prioritising the 'lived' experience. This literature offers a different perspective from the medical expert by prioritising the voices of those who have a direct experience. It also provides some understanding of the types of school experiences that children/adults may have had and may enable us to form an understanding of the ways in which dyspraxia is culturally defined and regulated. Much of this literature recounts life experience but some is fictional and also worth consideration. The emphasis on clinical studies in the literature highlights the alternative perspective that a fictional text can bring to developing an understanding of the social context for dyspraxia.

Stephen Harris in Trouble: A Dyspraxic Drama in Several Clumsy Acts by Tim Nichol (2003) combines the story of a dyspraxic boy, during his transition into secondary education, with practical ideas and information. Although fictional, the book is written from Stephen's perspective and is a definite attempt to present an 'insider perspective'. There is a sense that this must be based on an individual's 'real' experience. It is important to indicate, however, that this insider perspective is used a creative tool and the presentation of an authentic voice emanates from a professional, removed perspective (the experiences of a teacher) rather than personal one. Biggs (2005), in comparison, writes as an adolescent with dyspraxia using the vehicle of her own experiences and relationships to convey information about dyspraxia to professionals as well as others with dyspraxia. Practical advice is given alongside some stories of her experiences, with a large focus on 'surviving' school, and a prevailing sense of humour. The focus for this publication is on the duality of dyspraxia, with the author at once recognising the limitations of the condition and also the opportunities. The forward by Jamie Hill has a particular focus on the relevance of expectations in relation to notions of disability and an acknowledgement of individual difference.

The Dyspraxia Foundation website has a link to a personal website established by a teenage boy, which gives an insight into his diary entries and personal reflections of his experiences and there is a distinctly authentic feel to his postings as he recounts his daily encounters. Although there is a sense of authenticity here there is an uncertainty about how this personal expression is situated and what function it can perform. Weidner (2005) offers a 'snapshot' of 'real' experience as a challenge to 'textbook fantasy', reinforcing the suggestion that lived experience and professional voices are not always in accord.

Werenowska (2003), in the publication *Dyspraxic Voices* by DANDA (Developmental Adult Neuro-Diversity Association) provides a forum for adults to reflect on their experiences. DANDA is run by and for people with autism spectrum disorders, Attention Deficit and Hyperactivity Disorder (ADHD), dyspraxia and other related conditions. This publication focuses on adult experiences or stories with an emphasis on 'dyspraxic voices'. Their life experiences include fictional accounts, poetry and emails as well as more traditional autobiographical accounts. Amanda Kirby, in the introduction, emphasises the unique nature of each experience and suggests that a number of perspectives should be considered to ensure that we consider not 'the classical or typical' but the individual.

Some Ideas to Conclude

The literature reviewed here suggests that the intersection of drawing and dyspraxia is both restricted and potentially restrictive in contributing to the confirmation that children with dyspraxia have difficulties with drawing, yet the discussions around immature drawing and particular difficulties with representation do not question the adherence to hegemonic forms of representation or other hegemonic practices in relation to the medicalisation of education. The literature largely confirms pupil difference in relation to coordination as a medical 'deficit' or an educational 'problem', without exploring systemic practices that may be inflexible in adhering to a set of socially constructed norms.

This study will explore individual and personal experience where they intersect with education as a set of hegemonic practices. I believe that there are some significant implications for all who may feel that drawing and by implication art education has no relevance for them.

This study does not aim to extend the emerging body of literature that is developing in relation to the personal, individual and lived experience of people with dyspraxia. Rather it seeks to question the lack of visibility of particular discourses that contribute to the construction of the dyspraxic ideal. The invisible seam or intersections between a range of medical and educational discourses that are employed to provide a means for particular pupils to be able to 'survive' systems of practice appear to go unquestioned and their 'authority' is confirmed by their invisibility. To explain further, medical and educational discourses become inseparable particularly in the identification of 'Specific Learning Difficulties', where their joining occurs via a range of implicit practices situated within educational and medical practices designed to provide individual and tailored solutions for children who appear 'less able' to learn within existing systems. The expertise of a range of agencies, and habits of practice derived from routine systems of intervention result in the exercising of forms of power but also in the confirmation of such powers. The habitual nature of such practices confirms and reasserts their centrality to particular systems of thought.

I have aimed within this review to draw out the 'dyspraxic ideal'. In doing so I have produced a case that, according to 'the literature' there is an argument for suggesting that pupils identified as dyspraxic might find drawing from observation to be a difficult activity. The medical reasons for this have been presented as a justification, yet I am also highlighting the detached ways in which such discourses exist, removed from the situated context of learning experiences and 'complex social functions' where an activity, such as observational drawing, might sit. The lack of interrogation of particular educational approaches emphasise both the anonymity and the implicit nature of these teaching systems.

The following chapter provides an introduction to a similarly complex system, that of art education, and the ways in which art and learning are related. More specifically, I will focus on drawing from observation within the field of art education. I will return to 'the dyspraxic ideal' in the narrative chapters when I reflect on the stories of Matthew, Craig, Alex and Elaine and their 'dyspraxic' experiences of drawing from observation, in order to explore the ways in which this 'ideal' sits within the complex social functions of art education.