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COMPLEX LEARNING DIFFICULTIES AND DISABILITIES RESEARCH PROJECT (CLDD)

ATTENTION DEFICIT HYPERACTIVITY DISORDER

What is attention deficit hyperactivity disorder (ADHD)?

ADHD is one of the most common childhood disorders. It is a highly debilitating condition, and misunderstanding it can lead to negative personal and social outcomes for the person affected. The majority of professionals now accept that ADHD is a complex but genuine condition, which may cause a student to underachieve at school and display unpredictable challenging behaviours. It is not a result of bad parenting, and parents should be encouraged not to feel guilty (Train, 2004).

ADHD is a neurobehavioral, developmental disorder with associated cognitive difficulties, and is primarily characterised by the co-existence of chronic inattentiveness and hyperactivity. It is considered to be the result of a neurological dysfunction which causes a deficiency in neuromotor transmitters in the brain cells (Cooper and Bilton, 1996). Genetics research also indicates that ADHD may be a result of abnormalities to the dopamine system, which is concerned with the regulation of movement (Hughes and Cooper, 2007).

Behavioural symptoms may appear to be innocent and merely annoying; however, if left untreated, the persistent and pervasive effects of ADHD can severely interfere with a person's ability to get the most out of education or the workplace. Secondary effects, such as poor motivation and low self-esteem, are at times inappropriately dealt with by professionals and families (Cooper and Bilton, 1996).

Understanding ADHD

ADHD is, at the time of writing, included in the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) (American Psychiatric Association, 1994). The behavioural criteria for diagnosing ADHD fall into three categories – inattention, hyperactivity and impulsivity.

Inattention

Indicators of inattention include:

- appearing not to listen when spoken to
- being easily distracted by extraneous stimuli
- having difficulty in organising tasks and activities
- frequent forgetfulness
- often avoiding or being reluctant to engage in tasks
- making careless mistakes in work and other activities.

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Fundamentally, students with ADHD have difficulties in sustaining attention when engaging with educational and other activities (Hughes and Cooper, 2007). Rewards for task completion may not be sufficient incentive to overcome this; but having intrinsic interests within the tasks or activities may be an effective motivator (Hughes and Cooper, 2007). These students' deficits in motor output timing increase their difficulties. They are often slow to perform tasks as they experience problems with regulating their motor control. Therefore, giving them additional time for activities to allow for information processing should be considered (Hughes and Cooper, 2007).

Hyperactivity

Indicators of hyperctivity include:

- excessive fidgeting with hands or feet
- climbing or running excessively
- talking excessively
- difficulty remaining in a seated position.

Rapid movement of high intensity and high frequency, high levels of excitement, and strong emotional reactions are characteristic of students with hyperactive behaviour. In a situation which demands that they sit still in their seat, hyperactive students will compensate by foot tapping, body fidgeting and squirming. Excessive talking or shouting out are also interpreted as indicators of inattentiveness (Hughes and Cooper, 2007). Hyperactive students may experience serious social difficulties, social isolation especially from their peers, and be susceptible to school exclusion (Cooper and Bilton, 1996).

Impulsivity

A student who is impulsive will:

- intrude on others
- interrupt activities
- shout out inappropriately
- have difficulty with turn taking.

Impulsivity is a neurological predisposition which makes self-regulation difficult. The person with ADHD may have difficulty in controlling their behavioural response to a given stimulus (Hughes and Cooper, 2007).They will typically act without reflection or anticipation of consequences (Cooper and Bilton, 1996). In the classroom, this impatience can often be displayed as blurting out answers before the end of a question or when the question is directed towards another student, instead of raising a hand and waiting as instructed. Some students may also appear rude and antisocial as they are careless in what they say to others, speaking without thought and paying little attention to social norms (Hughes and Cooper, 2007). Green and Chee (1995) describe this as 'social clumsiness'.

Fifty per cent of students with ADHD have other related areas of difficulty, such as dyslexia or language and/or hearing difficulties (Borrill, 2000). They may have associated conditions which have complex combinations such as anxiety disorder, undifferentiated attention deficit disorder (UADD), oppositional

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defiant disorder (ODD) and behaviour, emotional and social difficulties (BESD) (Train, 2004). ADHD and learning difficulty are interconnected, and often coexist (Mayes, Calhoun and Crowell, 2000).

Green and Chee (1995) suggest that ADHD is a four-part problem and not just about attention and hyperactivity. They identify four categories:

- attention, memory and academic underachievement
- active, impulsive, poorly controlled behaviours
- associated comorbid conditions which compound the symptoms of ADHD (eg dyslexia, conduct disorder, etc)
- influence of the living environment.

Diagnosis can be complex due to the heterogeneity of ADHD, alongside the comorbidities mentioned above. There is no single diagnostic test for ADHD, so different kinds of information need to be gathered, such as a full educational history, past psychiatric history, family history, medical history (eg medication, illnesses) and previous accidents. This information should be available to a clinical psychologist or paediatrician for assessment (Train, 2004).

Boys are diagnosed with ADHD five times more frequently than girls, and tend to express their difficulties in a more overactive manner which may be difficult to manage (Borrill, 2000). Salmon and Kirby (2009) report that, in mainstream secondary school, approximately 25% of students with ADHD are excluded at least once due to challenging behaviours, while 80% attain below average in at least one academic subject.

Medication and ADHD

The prescription of medication to treat ADHD is controversial. The medication most commonly used is methylphenidate, which is commercially available as Ritalin (Train, 2004). An alternative drug is dexamphetamine (BUPA, 2004). Most medications have side effects; with methylphenidate and dexamphetamine, the side effects can be insomnia, headaches, irritability and slow growth (the latter needing careful monitored by a general practitioner).

For many students with ADHD, medication produces short-term benefits. It calms and helps them become less aggressive, and enables them to interact more effectively with others (Borrill, 2000). Train (2005) found that 70% of children with ADHD who received medical treatment became more focused, behaved more appropriately, and were less impulsive and less hyperactive.

Medication and ADHD

School can have an enormous impact on a student with ADHD, as teachers have considerable opportunity to help them to develop academically and socially. Consistent, high quality educational interventions are sought after by professionals and parents to support these students and meet their needs (Green and Chee, 1995). The student will benefit when teachers and parents/carers are able to work in partnership using appropriate positive approaches and shared objectives. However, for this to

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be successful, a trusting relationship needs to be established. The teacher needs to be responsive and empathic, demonstrating a solutions mindset, whatever their own beliefs about the diagnosis of ADHD.

Students have problems in the following four areas, which have an impact on their ability to self-regulate:

- *working memory:* difficulties in retaining and manipulating information for the purposes of appraisal and planning
- *internalised speech:* difficulties in exerting self-control through self-talk
- *motivation:* difficulties in assessing actions in terms of desirable outcomes
- *learning from past experience:* difficulties in planning new behaviours based on analysis of past behaviours.

Classroom strategies

A positive learning attribute of students with ADHD is their active learning style. Kinaesthetic/tactile learning tasks and role play make use of this strength, resulting in increased attention levels and reduced disruptive and impulsive behaviours (Hughes and Cooper, 2007). While no two students with ADHD are alike, and no single programme or approach will be best for all (Wilkinson and Cook, 2006), some of the following strategies may be useful.

Environment

- *Encourage a quiet, calm environment and minimise unnecessary noise.*
- *Ensure the student's timetable or schedule is easily accessible to them in an understandable form.*
- *Make organisational structures, rules and routines simple and easy to follow and recall.*
- *Sit the student away from external distractions (eg doors and windows).*
- *Sit the student where it is easy to monitor progress unobtrusively, and intervene with regard to their self-esteem.*
- *Make the desired focus of the student's attention more stimulating and interesting than potential distracters.*
- *Within the familiar routines, maximise variation to keep the student's interest.*
- *Manage group working situations: students with ADHD find it easier to work in a pair than in a group; when successful in a pair, involve them in a carefully chosen group.*

Teaching strategies

- Consistency of instructions, procedures and routines support the student in developing the skills they need to develop and achieve (Edwards, 2001).
- Teach to the student's cognitive and personal strengths (eg take account of tactile or kinaesthetic learning styles).
- Create supported, structured opportunities to allow the student to be academically successful. For example, an English activity may incorporate:
  - story telling – the student can retell a story that has been recently read

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- ○ play acting – role play different characters in a story
- ○ board games for reading comprehension/phonics
- ○ visualising compositions – the student visualises the paragraph the teacher is reading out loud
- ○ Structured programs for handwriting (US Department of Education et al, 2004).

- Provide the student with frequent legitimate opportunities to leave their seat under teacher direction.
- Encourage students to use tools, such as diaries and planners, to organise their day which will help them to understand what is happening now and next.
- Preview and review tasks, together with rewards for completion, to help the student to know what expected.
- Directions should be clear, concise, and reinforced through complementary means (eg verbal and visual). Give specific instructions (eg 'Stop talking, and read page 3' rather than 'Get on with your work').
- Be prepared to repeat and rephrase instructions, etc, as often as needed in a positive manner.
- Ask the student to repeat the instruction to confirm what is expected of them.
- Students with ADHD find writing difficult due to distractibility, and poor sequencing and concentration skills; seek alternatives when appropriate (eg audiotape, computer, scribe).
- Ensure clarity and precision of learning tasks (eg reduced complexity and ambiguity; obvious sequence and structure).
- Increase their likelihood of achievement – initially present tasks with small number of short steps; increase complexity slowly.
- When delivering instructions, use plenty of eye contact.
- Allow the student additional time to complete tasks.
- Encourage the student to come to you for assistance when they are confused.
- Rehearse desired thinking routines with students: this will help regulate their thinking and behaviour.
- Use direct modelling and instruction to enable the student to understand key aspects of self-reinforcement of desired behaviours, self-instruction techniques, and problem solving routines.
- Give frequent and prompt feedback to the student on their performance in a positive way. Give small, frequent, immediate rewards for achievement (eg choice of preferred activities).
- Give small, frequent, immediate rewards for achievement (eg choice of preferred activities).
- Plan some teaching assistant time to monitor programmes and the student's perceptions.
- Model and encourage positive regard, tolerance and support of individual difference within the classroom.
- Professionals will necessarily need to embrace across disciplinary approaches when both assessing and planning individual learning pathways.
- Consider how to involve the leaner themselves, eg by engaging them in negotiating their own learning, such as decisions about:
  - ○ personal targets
  - ○ preferred styles of learning
  - ○ preferred styles of accessing tasks
  - ○ assessment

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- reflections
- what they can do for themselves to self-manage or regulate their responses; helping them to learn to recognise symptoms of raised anxiety or sensory overload, then enabling them some control in how to address this most effectively, maybe by alerting someone to help them or to implement strategies themselves. This would also have beneficial impact on self esteem.

Some of the following teaching approaches have been used successfully to support the learning of students with ADHD, and can be used in combination according to the needs of the student:

- Guided self-instruction and self-pacing techniques: these allow the student to achieve in their own time, and build up self-esteem.

- Structured teaching approaches, such as the Treatment and Education of Autistic and related Communication-handicapped Children (TEACCH) method: this helps the individual to make connections between events (Division TEACH, 2007; Mesibov et al, 2004). The TEACCH structured teaching programme has four major components: physical organisation, visual schedules, visual work systems and task organisation (Hanbury, 2005). These are used to organise the student's environment and activities through providing clear visual boundaries and minimising visual and auditory distractions; they can be designed to build on a student's strengths and interests (Hanbury, 2005). The structure helps answer four questions for the student: what work; how much work; when is it finished; what happens next? The programme uses the operant (positive reinforcement) approach as the modelling techniques encourage students with autism and ADHD to interact with others (Ayers et al, 1995).

- Errorless learning: This approach uses positive reinforcement combined with prompting strategies to teach new skills. This is similar to the positive reinforcement strategy used within TEACCH; however, the errorless teaching instructional strategy ensures the student will respond correctly. As each skill is taught with verbal instruction, an immediate cue or prompt for the correct answer is given which ensures the student's correct response and prevents them committing an incorrect response to memory (Touchette and Howard, 1984).

- Brain Gym: This programme provides an ethos of learning through movement. Its 26 activities recall the developmental progression of movements learned in the early years of life which support physical co-ordination (Dennison, 2009). Based on kinesiology (the science of body movement and its relationship with brain function), it co-coordinates the physical movements that aid the brain in developing neural connections.

- Nurture groups can be a promising intervention for students with ADHD – these comprise 10–12 students who access a holistic curriculum that is developed and individualised for each student's needs and skills. They are a valuable forum for rehearsing social skills (Hughes and Cooper, 2007).

Supporting self-esteem and social skills

- Most students with ADHD are highly disorganised, often being unaware of messy hands or hair, of clothes back to front, etc. Messages from school never reach home, and, during lessons, they spend most of their time thinking about the first part of the activity, and are consequently unable to finish. This has a knock on effect, as most students with ADHD are exceptionally sensitive; therefore, self-esteem is usually low as they achieve so little (Green and Chee, 1995).

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- A student with ADHD may benefit from having at least one person assigned to them with whom they can have a positive relationship. This person may well act as a mentor for the student, and address and assess the student's academic and socialisation needs (Borrill, 2000).

Strategies for improving self-esteem and social skills include:

- teaching social interaction and self-advocacy skills specifically and explicitly (eg how to gain attention acceptably; how to turn take in conversation)
- introducing strategies to manage organisational difficulties (eg a checking strategy whereby teacher or student clarify at the end of the lesson what the homework is)
- praising social achievement (eg staying in a seat) as well as academic achievement in class for all students.

Supporting behaviour

- Reinforce positive behaviour rather than highlighting the negative.
- Set clear behavioural expectations with the student and family, and create a few simple, realistic, clearly stated rules.
- Encourage families to share in the approaches agreed.
- Manipulate circumstances to so that the student can achieve.
- Use an ignore/re-enactment of rules/praise strategy in response to rule-breaking behaviour when possible.
- When behaviour is too disruptive, use consistent, clearly managed, short-term time out strategies.
- Use incident sheets to record each serious incident systematically; by doing this the teacher will be able to identify behaviours that require the application of behaviour modification techniques. If possible work on one behaviour at a time ignoring other behaviours (Wilkinson and Cook, 2006).

Support for students, families and educators

- The Hyperactive Children's Support Group (email: hacsg@hacsg.org.uk) produces a list of articles and reprints applicable to children with ADHD.
- The AD/HD Family Support Group UK (1a High Street, Dilton Marsh, Westbury, Wiltshire BA13 4DL) has information about many aspects of ADHD including:
  - an overview of medication
  - the adult with ADHD
  - the pre-school child with ADHD
  - home management for children with ADHD.
- Ideas for teachers: www.ADDinschool.com.

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