ATTACHMENT

What ist attachment?

Attachment theory is the study of how we attach to people in the early stages of our development, and its impact on how we view ourselves and develop relationships throughout our lives (Golding, 2008). Attachments and relationships are hugely important in our lives and help us to maintain our emotional wellbeing. Attachment disorders are disorders of relationships which may present in both child and/or parent or caregiver.

There are a number of attachment patterns, and researchers and writers have used different terms to describe these.

Attachment patterns

Goldwell (2008) definierte drei Kategorien von Bindung bzw. Bindungsverhalten:

Attachment style	Parenting style	Attachement behaviour
Organised secure attachment	Sensitive and empathetic	Enables the child to use the parent as a secure base, developing patterns of behaviour that allow the child to search their environment actively, but also to seek comfort from that secure base when needed.
Organised insecure attachment *1. Ambivalent-resistant attachment*	Inconsistent parenting, with parents/carers having difficulty in attuning to the child's needs, resulting in inconsistent and unpredictable responses	Results in the child maximising their attachment behaviours to ensure they receive care. The child cannot predict when someone will be emotionally available for them, so they attempt to ensure someone is there for them all the time. Their emotions drive behaviours such as: -being demanding and clingy - displaying emotional distress to apparently minor events -resistance to being soothed or comforted - displaying helplessness with low self esteem and low expectations -social incompetence and poor peer relationships.

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2. Insecure avoidant attachment	Parents/carers find the emotional needs of a child demanding, and cannot support that emotional need. This results in the child expecting the parent to back away when emotions are expressed.	The child minimises their behaviour to ensure that the parent/carer remains close and keeps the child safe. The child relies on knowledge to guide behaviour which includes: - being passive and withdrawn behaviours - displaying little emotional distress - self sufficiency.
Disorganised attachment	The parenting style is frightening to the child or the parent is frightening.	The child experiences conflict between where they would normally seek safety and the source of discomfort and fear; this can result in: - distress with little provocation within relationships - expression of violent anger anxious dependency - a dislike of being touched/held.

It is important to remember that these insecure patterns may also be symptomatic of other disorders and it is also necessary to acknowledge differences in gender (boys and girls often present differently) and culture. Always refer to clinical services for formal diagnosis and further support.

It is important to take into account that a level of anxiety is expected when a child is under stress, for example separations. This can also be affected by a number of factors such as illness, grief or a family event. It may also be symptomatic of, or co-exist with the child's disability.

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Implications for teaching and learnig

Learners in **the avoidant attachment** group may:

- show an apparent indifference to uncertainty in new situations
- deny the need for support and help, and avoid proximity to the teacher
- need tobe autonomous and independent of the teacher, and will be hostile towards the teacher
- when directed towards a task have limited use of creativity
- be likely to underachieve and have a limited use of language.

Learners in **the resistant-ambivalent attachment** group may:

- have high levels of anxiety and uncertainty

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- show a need to hold on to the attention of the teacher, and high dependency on the teacher in order to engage and learn
- have difficulties attempting to complete tasks if unsupported, and be unable to focus on the task for fear of losing the teacher's attention
- need transitional objects to be provided when the teacher is out of the room (e.g. Can you hold this for me until I come back?).

Learners in the **disorganised attachment** group may:

- become more controlling as they become more anxious
- be unwilling to accept authority within the school or allow themselves to be taught
- face difficulties in accepting 'not knowing', which can create overwhelming feelings of fear and humiliation
- be most likely to appear at a very immature stage of learning and be underachieving; they will have difficulties with creativity and conceptual thoughts
- need reliable and predictable routines
- benefit from having a secure base within the room (this could be a safe box or a physical object) to begin the initial stages of making secure attachments
- benefit from teachers who offer a high level of emotional support and positive reinforcement.
  This in itself can be a difficult and draining task for the teacher due to the behaviours these learners can exhibit (the learners themselves experience a high rate of fostering breakdown due to this); support should be offered to the teacher as well.

Supporting learners who exhibit attachment difficulties

Feeling safe in the classroom is an important aspect of reducing anxiety for learners with attachment disorders. This can be achieved by focusing on:

1. The environment
The learner must feel safe within the environment. The environment needs to be predictable and reliable. This may be achieved with the following strategies:

- a schedule of what is expected of learners that day, such as 'now' and 'next' schedules
- a display board showing who is in, with pictures of staff whom learners can ask for help
- ensuring learners have their own personal space within the classroom
- limiting demands when the learner is anxious and making targets achievable in order to reduce stress.

2. Relationships
When supporting learners who display attachment difficulties it is important to retain firm boundaries and expectations. However, when learners are disciplined, they may experience a sense of shame that is amplified in attachment difficulties. It is important

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to be aware of this and to convey to learners that you understand how they feel. Teachers need to remain calm when learners are distressed or volatile.

It may help to reflect back to them what they are saying, or provide appropriate physical proximity. Positive interactions should be provided at every available opportunity, in order to increase self worth and self esteem.

Turn taking tasks can act as a model of how two separate people can work alongside one another. Also, the relationship between teachers and learners can be made stronger by games with clear boundaries and rules, together with a high degree of structure in order to enable close proximity without causing a defensive reaction. Activities must have a clear start and end, and the expectations
need to be clear, with all materials at hand for that task.

3. Therapeutic interventions

Learners with attachment difficulties benefit hugely from therapeutic input, such as music, art, play or drama therapy. Speak to external specialists about strategies, suggestions and support for particular learners, and make sure there is continuity if different specialists or agencies are working with them.

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ATTENTION DEFICIT HYPERACTIVITY DISORDER

What is attention deficit hyperactivity disorder (ADHD)?

ADHD is a neurodevelopmental disorder characterised mainly by extreme inattention, hyperactivity and impulsiveness. It is thought to result from a neurological dysfunction affecting various parts of the brain, including an imbalance in certain neurotransmitters, such as dopamine and serotonin. (Neurotransmitters carry information between cells).

What are indicators of ADHD?

The three core features of ADHD may present themselves as follows in school:

Inattention	Hyperactivity	Impulsivity
• appearing not to listen when spoken to • easily distracted and forgetful • difficulty in organising tasks and activities • reluctant to engage in task • making careless mistakes in work and other activities	• difficulty keeping still; fidgeting with hands or feet • climbing or running excessively • talking excessively	• interfering with what others are doing, in class and on the playground • interrupting and shouting out • difficulty wiht turn taking • breaking rules • little sense of danger

Implications for teaching and learning

Difficulties for learners with ADHD are likely to include:

- sustaining attention in class
- gross and fine motor skills (particularly in boys)
- slowness in processing information and forming a response
- strong emotional reactions
- rapid movement of high intensity and high frequency
- appearing rude and careless, without thought for others
- social difficulties, including social isolation and possible exclusion from school
- a lack of reflection or anticipation of consequences
- challenging behaviours.

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It is important to be aware that students with ADHD often have some co-existing conditions, such as: autism, dyslexia, dyspraxia, speech and language difficulties, anxiety disorder, obsessive-compulsive disorder (OCD), oppositional defiance disorder (ODD) and conduct disorder (CD).

General approaches for supporting learners with ADHD

Students who are in large classes may be helped by spending time in a Nurture Group, if the school has one. This can be valuable in giving them a more individualised approach and the chance to develop the skills they need to work in a classroom situation.

Structured teaching approaches, such as TEACCH (the Treatment and Education of Autistic and related Communication-handicapped Children), which is often used with students who are on the autism spectrum, may help them to know what is happening now and what will be coming next. Also, TEACCH uses visually-presented information, which can help to reinforce what is said.

Whether or not elements of TEACCH are used, a multisensory approach will help, which includes giving students the chance to handle objects and to be engaged in active learning. Some learners may find it helpful if they are allowed to have 'concentrators' or some small object to manipulate while listening and working.

Because of their difficulty in staying still, activities should be kept short and there should be opportunities for students to move around in class or to have short bursts of physical activity outside the classroom. This facilitates the coordination of their physical movements and aids the brain in developing neural connections.

Professionals will need to work in a transdisciplinary way when both assessing and planning individual learning pathways.

Strategies to support learners with ADHD

1. Allocate at least one person, with whom learners can develop a positive relationship, to act as a mentor, and address their academic and socialisation needs.
2. Allow extra processing time when asking questions, providing instructions or setting tasks.
3. Work in partnership with parents on appropriate positive approaches to identify and address the students' needs at school and at home.
4. Reduce distractions, including noise and visual stimuli, by giving consideration to where students sit and the environment around them.
5. Encourage learners to increase the time they are able to remain on task and to develop self-help skills and independence.
6. Support students by discussing their behaviour and the effect it has had on others, so that they begin to regulate their thinking and behaviour. Try to stay calm and model the behaviour you want to see.

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7. Use incident sheets to record serious incidents and check for patterns of behaviour. Work on one aspect of behaviour at a time.
8. Vary activities and allowing short breaks for physical activity, interspersed with times when they are expected to remain seated.
9. Make sure that there are opportunities for them to shine and good behaviour by praising or rewarding them when they are behaving well. Also, make sure that they experience success with their work, by using their strengths and their interests.
10. Be consistent and help them to follow the day's routines, using individual timetables (visual or written), diaries or planners. Help them to develop independence and to organise what they need for each lesson, using pictures or lists.
11. Break down instructions so that there is not too much to take in or remember. If in doubt, ask them to repeat back what they have been asked to do.
12. Consider how you can involve the learner themselves (e.g. by engaging them in negotiating their own learning) in making decisions about:

a. personal targets
b. preferred styles of learning
c. preferred styles of accessing tasks
d. assessment
e. reflections
f. what they can do for themselves to self-manage or regulate their responses – for example, helping them to learn to recognise symptoms of raised anxiety or sensory overload, and then enabling them to address this effectively; this may be by alerting someone to help them or by implementing strategies themselves. This may also have a beneficial impact on their self esteem

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AUTISM

What is autism?

Classic or Kanner's autism	High functioning autism	Asperger's syndrome
Moderate or severe learning difficulties The hardest to reach and teach	Average or above average intelligence Able intellectually, but ability held back by degree of autism	Average or above average intelligence Displays triad of impairments in subtler ways

Possible indicators of autism

Autism is generally described in terms of a 'triad of impairments', which must be present in order to receive a diagnosis. These are:

1. **Impairments of social interaction**

   Students with autism may try to avoid the types of situations in which typically developing students gain social skills. Some use contact with others as a means to an end (eg an opportunity to monologue on their subject of special interest); others appear to avoid or not to seek contact with other people. Students with Asperger's syndrome may want to interact, but lack the empathy and understanding of the give and take of friendship to make friends easily.

2. **Impairments of social language and communication**

   Students with autism frequently struggle with communication, including understanding spoken language, gesture, facial expression and other social nuances. As many as 50% of students with ASD have no verbal language. Their difficulties with expressing themselves or getting their needs met can lead to frustration and challenging behaviour. Those with more advanced language skills may enjoy talking, but will not be so good at the turn taking involved in conversation.

3. **Impairments of flexibility of thought and imagination**

   Students with ASD may have an impaired ability to use imagination to problem solve and predict outcomes on a day-to-day basis, which impacts upon their ability to engage in pretend play, role play and take part in curriculum activities that involve abstract thinking and the use of personal imagination. They are likely to want to stick to rigid routines and to be resistant to change.

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Fundamentally, these social impairments affect the way in which students with autism understand and react to the world around them.

In addition, they are likely to exhibit sensory dysfunction. The two most common categories of sensory dysfunction are hypersensitivity and hyposensitivity. Hypersensitivity is indicated by extreme negative responses to sensory stimuli. The person will be sensation-avoiding; for example, they may avert their eyes from lights or cover their ears in noisy situations. Hyposensitivity is a reduced perception of sensory stimuli. This can result in the person seeking heightened sensory experiences; for example, mouthing things or self-harming. Hyper- and hyposensitivity can occur in the same individual, and even differently on different occasions.

Implications for teaching and learning

Difficulties for students with autism may present as follows:

- existence of learning difficulties (mild, moderate, severe or profound), in addition to those caused by being on the autism spectrum
- speech and language difficulties and a lack of desire to communicate
- over- or under-stimulation in the classroom due to hypo- or hypersensitivity (or both), as well as an inability to integrate sensory information from different sources
- inability to read social cues, feel empathy or develop social skills resulting in difficulty making friends, or to engage with others in learning tasks
- lack of flexibility of thought and imagination leading to problems understanding and interpreting the behaviour of others and the world around them
- preference for highly structured environments and routines, combined with a resistance to change
- challenging behaviours and frequent ‘meltdowns’.

Supporting students with autism

There are some established approaches for teaching students with autism. Some teachers prefer to concentrate on one method, while others will use ideas taken from several approaches.

1. **General approaches**

- Daily life therapy (Higashi) – this approach emphasises group learning in the context of a programme which includes vigorous physical activity to develop both strength and concentration
- Applied behavioural analysis (Lovaas) – this approach focuses on two main areas of development – teaching specified skills and managing behaviours

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- Intensive Interaction – this is an approach in which the learner leads and directs interactions and the teacher responds to and joins in with the learner.
- SPELL (Structure, Positive, Empathy, Low arousal, Links) – an eclectic approach developed by the National Autistic Society (NAS) which combines elements from a variety of programs.
- TEACCH structured teaching approach – in this approach, visual and physical structured environments are used to support students' focus and learning underpinned by a distinctive ethos.
- Social Stories – this is an approach that helps to develop social skills through the use of stories, which show (either in words or pictures) how to behave in various situations.

2. Strategies

I. Helping students with autism to build up relationships and develop theircommunication skills is as important as their academic progress, so make sure these aspects of their development are given priority.

II. If students are non-verbal or have extremely limited language skills, use an alternative communication method such as the Picture Exchange Communication System (PECS).

III. As students with autism have been described as being 90% visual learners and 10% auditory learners, it is important to present information visually, rather than relying on talk. Use visual schedules, objects, pictures, symbols, words, etc, depending on the needs of the individual student.

IV. Break down tasks into small steps, so that students can be as independent as possible. Structure the tasks in a similar way, so that they are familiar with what to do; for instance, having one tray containing the activities to be done and another for finished work. Have designated spaces in the classroom for different activities.

V. As these students are easily distracted by extraneous noises and sights, they may benefit from having their own workstations screened off from other students. Large amounts of sensory stimulation such as bright visual displays and background noise will quickly overload their dysfunctional sensory systems.

VI. An autism-friendly environment can be created by taking care over lighting and cutting down on glare, keeping to pale colours with matt finishes and adding soft furnishings, such as cushions and carpeting, to dampen noise.

VII. Some students with ASD struggle to imitate or learn through observation, which means that they benefit from opportunities for kinaesthetic learning. Provide opportunities for 'learning through doing', which can either be physical or virtual (eg through the use of interactive whiteboards).

VIII. Allow opportunities for physical activities at frequent intervals, including ones that stimulate the vestibular system such as rocking,

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jumping and swinging. These can be extremely beneficial and can also help to reduce outbursts.

IX. Motivate students to want to engage with others and with learning by following their lead and responding quickly and positively to any attempts they make to communicate. Use their individual interests as a basis for teaching.

X. Use social stories, which show in words or pictures, how they need to behave in different social situations. These can be created as the need arises and shared with the student on many occasions, in order to drive the message home.

Finally, remember that strategies will be most effective when there is consistency between all the settings and individuals supporting the child, particularly if they are understood, shared and implemented by and with families at home.

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RARE CHROMOSOME DISORDERS

WHAT ARE RARE CHROMOSOME DISORDERS?

The term, 'rare chromosome disorders', refers to conditions which:

1. occur due to missing, duplicated or re-arranged chromosome material
2. have a low prevalence rate (thus not including chromosomal disorders such as Down syndrome).

Chromosomes are structures found in the nuclei of cells in human bodies. Each chromosome contains thousands of genes which determine how we grow and develop. A typically developing person will have 23 pairs of chromosomes with one member of each pair being inherited from each parent, giving a total of 46 individual chromosomes. Two of these are the sex chromosomes, which determine whether we are female (XX) or male (XY). The remaining 44 chromosomes are grouped in 22 pairs numbered 1 to 22. The arms of a chromosome are called 'p' (shorter arm) and 'q' (longer arm) (see Figure 1).

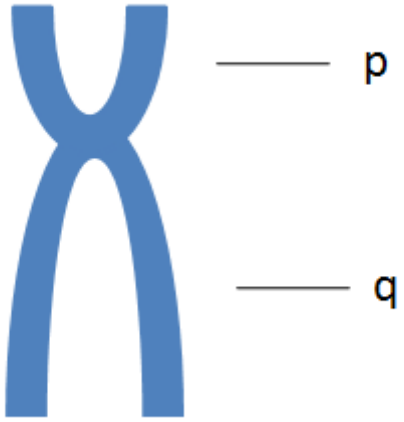

Figure1. Diagram of a chromosome

Even when people are identified as having a similar condition, the way in which it affects each person may still vary a great deal. If enough children are born with the same chromosome disorder, and present a similar pattern of characteristics, it may be called a syndrome. Rare chromosome disorders account for at least one in every 200 live births, with babies either having symptoms of the disorder from birth or early childhood, or being carriers of a chromosomal abnormality and experiencing the effects when they try to reproduce in later life. 'Sex chromosome disorders' is an umbrella term for disorders where there are too many sex chromosomes. Each disorder is gender-specific, and the prevalence rate is one in 1,000 live births. Students with these disorders generally show only subtle physical features and most achieve within age-related norms at school, perhaps with mild learning difficulties.

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Possible indicators of rare chromosome disorders

Rearranged abnormality: Students with a rearranged abnormality may not experience any symptoms, but might have problems in reproduction. Some people consider genetic counselling when they are planning a family to assess the potential impact their chromosomal abnormality may have on their children..

Missing or duplicated chromosome material: For students with missing or duplicated chromosome material, the effects will vary, but symptoms could include physical and/or health problems, learning disability and maybe challenging behaviour. The combination and severity of symptoms will vary depending on which sections of chromosomes are involved, and the ways in which they are different.

Chromosome loss or gain: Students with a loss or gain of chromosomes will experience some degree of learning disability and developmental delay. This is thought to be more serious than the presence of an extra copy of the same part.of an extra copy of the same part.

Implications for teaching and learning

The implications for teaching and learning for these students varies from one disorder to another, and not every student with the same disorder will present in the same way.

Strengths across the range of disorders may include:

- conveying emotion through facial expression, vocal noises, gestures and body movements imitation
- good memory, particularly for faces and places
- enjoyment of books and music
- happy, sociable and enthusiastic disposition when young
- maths calculations, rote memory, spelling and written language, decoding words and basic reading (particularly in students with DiGeorge Syndrome).

The table below outlines the main areas of difficulty relating to some examples of rare chromosome disorders. (As you will see, some of the syndromes do not have names as such, but are referred to by the chromosome number that causes the abnormality.)

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Type of difficulty	Examples of rare chromosome disorder(s) in which the difficulty may be present
Seizures	1p36; Idic15
Hypotonia or flopiness	1p36; 22q13 deletion; Idic15; Jacobsen; DiGeorge
Difficulties with feeding	1p36
Heart problems	1p36; DiGeorge
Hearing and/or visual impairments	1p36
Paris-Trosseau syndrome (bleeding disorder	Jacobsen
causing bruising and heavy blood loss)	1p36, Cri du chat, 22q13 deletion, Idic15, Jacobsen, DiGeorge
Distinctive facial features	Cri du chat
Microcephaly (unusually small head)	Cri du chat, Jacobsen, DiGeorge
Low birth weight/small stature/poor immunity	1p36, 22q13 deletion, Idic15, DiGeorge
Developmental delay	1p36, Jacobsen, DiGeorge
Learning disability	
Sensory processing difficulties, with symptoms which include tactile defensiveness, chewing non-food items and teeth grinding	1p36, 22q13 deletion, Idic15
Social interaction	1p36, 22q13 deletion, Idic15, DiGeorge
High pitched ‘cat-like’ cry	Cri du chat
Speech and language delays	Cri du chat, 22q13 deletion, Idic15, Jacobsen, DiGeorge
Hyperactivity/inattentive	Cri du chat, Idic15, Jacobsen, DiGeorge
Poor concept of danger	Cri du chat

Supporting these students

Approaches may vary according to the particular disorder and the individual student. (A guide for each disorder listed above can be found on the information sheet relating to this topic.) However, the following approaches will be effective for many students:

1. The appropriate use of music, light and tactile resources, with an emphasis on visual learning is thought to assist learning and the control of seizures (take specialist advice in use of light).
2. Patience, repetition and lots of encouragement in a calm, structured learning environment.
3. Concrete resources, including computer based learning, to overcome difficulties with abstract concepts, such as time, money, shape, colour and

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size. Direct instruction rather than reliance on discovery may work well. However, creative projects have been found to be stimulating.

4. Speech and language therapy to aid communication and reduce frustration, particularly as some students will have a cleft palate and feeding difficulties. Signing may be effective, but some students may have poor motor control which will make this difficult.
5. Computer touch screens, voiced based systems and picture exchange systems (such as PECS) to increase communication skills.
6. Adaptive sports, music therapy and sensory integration support (from an occupational therapist) to increase awareness and desire to communicate.
7. Weighted blankets, hiking and wearing backpacks, deep pressure massage and rolling games to stimulate balance and body awareness (an occupational therapist should advise on particular techniques for individual students).
8. Share interventions and strategies used in school with families and other professionals involved to ensure consistency and understanding.

When considering any of these support strategies, bearing in mind the student's individual needs, preferences and interests is essential to increasing engagement. The student themselves, families and staff that know the student well can all help to inform on what these may be.

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EFFECTS OF DRUG USE & SMOKING DURING PREGNANCY

Background

There is growing evidence to suggest that foetal development can be effected in utero by mother's use of some legal and illegal substances whilst pregnant. Unfortunately, unlike alcohol where the effects of its use during pregnancy on the developing child are widely more recognised, there remains limited evidence of the effects of other substances. Foetal alcohol spectrum disorder (FASD) is currently the leading known cause of learning disability (British Medical Association, 2007); please see the specific briefing pack on FASD for more information and the implications for the classroom.

When researching into the effects of prenatal exposure to specific drugs it is hard to determine the full extent of impact, as separating external contributing factors is complicated. For example, those who use one drug are more likely to use others, smoke cigarettes and drink alcohol than non-users, making the effects hard to assess individually. Also, the fact that a mother has used an illegal drug intertwines with many other factors that can affect an unborn foetus. Socioeconomic status, support systems, role of the father, lack of prenatal care, and the care-giving ability of the mother all play significant roles in child development (Wang, 2010), making it hard to ascertain the effect of the substance alone. Conducting research in the area is also complex and involves a range of issues relating to ethics and recruiting participants. In addition to this, researchers may receive inaccurate responses when attempting to establish the true amounts of substances used during pregnancy due to the stigma attached to drug-abuse and poor recall of times when under the influence.

The main area of research has been around use of cocaine, opiates (heroin and methadone) and cannabis, so these are covered in the sheet below. Unfortunately less is known about the educational implications of use of drugs such as speed, ecstasy, ketamine and 'legal' highs. Research is also available as to the effects of the use of painkillers and prescription drugs and of impact of caffeine on the foetus, however these are not discussed here.

Smoking

It is well established that smoking during pregnancy can cause miscarriage, premature labour and low birth weight babies (Cnattingius, 2004). Cigarettes restrict the essential oxygen supply to the neonate, which can limit growth. However, the long-term effects are less clear on child development.

Shisha is a Middle Eastern tradition where fruit flavoured tobacco is smoked through a water-pipe; its popularity is growing in the UK with many shisha bars open to the public. One pipe of shisha is said to be the equivalent of 7-10 cigarettes, with levels of carbon monoxide up to 5 times higher (BBC, 2009). Research has found that smoking shisha (or sheesha) during pregnancy can cause premature or still

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birth, pertinent findings as a common assumption is shisha to be a safer alternative to smoking cigarettes.

Long term effects of smoking on the developing child have not have not been clinically confirmed, however some studies have found links between smoking during pregnancy and conduct and hyperactivity-inattention in the children born at an early age (NHS, 2009; Cnattingius, 2004). For a child presenting with hyperactivity or inattention, refer to the ADHD specific briefing packs for some ideas for management of the behaviours in the classroom.

Cocaine

Cocaine, also known as coke, blow, flake, charlie, crack (a form which can be smoked) is a stimulant of the central nervous system which results in interference of brain messages that control basic needs such as food and drink, giving a false sense of euphoria. Symptoms of use can include mental alertness and increased energy, hyperactivity, raised blood pressure, talkativeness, increased anxiety, decreased appetite and inflated sense of power or strength and confidence. After effects may be increased lethargy and often depression. Health websites and sites aimed at mothers-to-be claim that cocaine drug use during pregnancy limits foetal growth, interferes with nervous system development, and increases risk of premature birth (e.g. March of Dimes, 2008; Baby Centre, 2010). Reports also suggest
that cocaine use can cause babies to be born with smaller heads, something which is often linked to learning difficulties in later life (March of Dimes, 2008). Some initial behavioural problems which have been suggested in the early stages of the child's life such as irritability, being easily startled and excessive crying are said to subside after the first year (March of Dimes, 2008).

Whilst the long term effects are unclear, some studies do suggest that cocaine may contribute to subtle learning and behavioural problems, including language delays and inattention (March of Dimes, 2008; Baby Centre, 2010). Other studies suggest that there may be no lasting impact on cognition, but when cocaine is combined with other drugs and home environment is accounted for, behavioural problems
did present between the ages of 4 and 6 (Chasnoff et al, 2008). Problems in sleeping has also been reported, something which practioners may want to be wary of when expecting students to engage in learning.

Heroin

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Cannabis

Cannabis, also known as marijuana, skunk, hash, ganja and pot, is the most widely used drug in the UK. It is usually smoked in the form of dried leaves or resin with tobacco. Symptoms of use include feelings of relaxation, slowed reactions, distorted coordination and paranoia. There have also been links suggested with an increased risk of mental health problems such as schizophrenia with long term use, as well as poor motivation and concentration. Some research suggests mothers smoking cannabis during pregnancy may increase the chances of premature birth and low birth weight (March of Dimes, 2008; Hall and Solowij 1998). However it is unclear the extent to which this is related to the effects of smoking tobacco with cannabis.

There is suggestive evidence that infants exposed in utero to cannabis have behavioural and developmental effects during the first few months after birth. Between the ages of 4 and 9 years, children who were exposed in utero have shown deficits in sustained attention, memory, and higher cognitive functioning. The clinical significance of these effects remains unclear since they are small compared with the effects of maternal tobacco use (Fried, 1996).

Implications for teaching and learning

With limited research-based evidence to inform practice regarding the effects of specific drugs on the child's long term development, and such great environmental influences that compound development, at this stage there can be no clear implications for teaching and learning. Even without a pervasive effect of maternal drug use, practioners should be wary that children are at risk of developing 'secondary' disabilities if mothers are using drugs after pregnancy or if there is a stressful home environment. This could be mental health and attachment problems, learning difficulties, and behavioural issues around appropriateness of social interaction.

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Practioners are recommended to teach to the learning styles of the students and consider the behaviours they present, rather than the aetiology of their difficulties. As raised in the specific sections above, please refer to briefing packs on the conditions or behaviours specifically presented, such as ADHD or mental health, for teaching strategies to manage behaviour and increase learning. Some key points to consider might be:

- Have you considered the emotional needs of the student in the class? Does the classroom provide a secure environment? Are there opportunities for counselling and listening sessions?
- Does the student need more processing time than their peers? Is there opportunity to catch up if they fall behind?
- Using professional judgement, if you feel any issues around the child's developmental progress could be related to possible alcohol use during pregnancy, look at the FASD briefing packs for some teaching and learning strategies.
- For those young children entering the school system, early intervention within a holistic system of multi-disciplinary working is imperative. It would be recommended that, wherever possible, the family are very much included within this approach to ensure support is consistent at home and at school, for example issues around behaviour and sleep deprivation.
- The multi-disciplinary team may also need to include agencies that have the power to intervene should any issues within the home become child protection concerns if parents are still drug-using.
- How can you involve the student in contributing towards their learning? What can you learn from them about their interests and preferences? Also consider strategies to self-manage their arousal levels, as this could help to boost their self esteem.

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FOETAL ALCOHOL SPECTRUM DISORDERS

What is foetal alcohol spectrum disorder (FASD)?

FASD is an umbrella term used to encompass the range of possible effects of prenatal exposure to alcohol (British Medical Association, 2007). The following diagnostic or educational terms are included in the spectrum:

foetal alcohol syndrome (FAS) – the most easily recognisable condition due to characteristic facial features which are formed during the first trimester of pregnancy and dissipate with age partial foetal alcohol syndrome (pFAS) – some but not all of the criteria for FAS are met

foetal alcohol effects (FAE) – the symptoms are not usually visible (eg behaviour disorders, attention deficits, etc) alcohol related neurodevelopmental disorder (ARND) – can include attention deficits, behaviour disorders, obsessive/compulsive disorder

alcohol related birth defects (ARBD) – includes characteristics such as organ damage, heart defects, sight/hearing problems, skeletal damage and joint defects

A diagnosis of FAS is not an indication of the severity of the impairment, which varies considerably. For a diagnosis, four criteria must be met:

- growth deficiency
- characteristic facial features
- central nervous system damage
- confirmed alcohol exposure

The characteristics of students

The characteristics of FASD are individual to each student depending on timing and dosage of maternal alcohol consumption, and maternal well-being and health during pregnancy. Damage to the central nervous system results in changes to the structure of the brain that will persist throughout life. Permanent damage to organs and bones can occur at particular periods of pregnancy. Generally, however, the following characteristics may be observed in these

Possible strengths

Students may be

- bright in some areas; highly verbal
- artistic, musical, athletic, have good practical skills
- friendly, helpful, affectionate and good with younger students
- determined and persistent.

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Likely difficulties

Students may:

- be easily influenced by others
- have difficulty predicting and understanding the consequences of actions
- despite a good vocabulary, struggle to understand what is said to them
- have difficulty in separating fact from fantasy
- display behaviours which will need support, such as lying, stealing, temper tantrums
- have delayed physical, emotional and cognitive development (delayed developmental milestones)
- have poor impulse control, hyperactivity and poor memory
- experience sensory processing difficulties
- have social communication difficulties, particularly in the areas of interpreting the actions of others and in understanding how to respond in social situations; this is due to their impulsivity and lack of inhibition, and may lead to inappropriate sexual behaviour when older
- have dietary and feeding difficulties/small stature/health problems such as frequent and persistent
- colds, visual and hearing impairments.

As a result of their disability, students may experience

- memory problems; difficulty storing and retrieving information
- inconsistent performance (on and off days)
- impulsivity, distractibility, disorganisation
- ability to repeat instructions, but inability to put them into action
- difficulty with abstractions, such as maths, money management, time concepts
- cognitive processing deficits, so need time to take in information and to respond
- slow auditory pace (may only understand every third word of normally paced
- conversation)
- developmental lags (may act younger than chronological age)
- inability to predict outcomes or understand consequences.

Supporting students with FASD

Have a safe, structured environment, where the student's difficulty in following verbal instruction is supported by visually presented material.
If helpful, use screens or something similar to reduce the distraction around the area where they work.
Keep instructions short and simple.

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1. Support their independence and organisational skills by creating clearly defined areas of the classroom for specific activities; use labelling and general tidiness to help them to find what they regularly.

2. Support their independence and organisational skills by creating clearly defined areas of the classroom for specific activities; use labelling and general tidiness to help them to find what they need.

3. Have a set routine for carrying out their work, so they know what is expected of them.

4. Allow them time to take in what is said and to form a response. Provide plenty of repetition to aid recall.

5. Check that they understand class and school rules and give them the chance to go over them regularly.

6. Provide plenty of encouragement and praise when they achieve. Use their strengths and interest to personalise learning and assist motivation.

7. Help them to understand their feelings and practice the vocabulary to express how they feel. (It is thought that up to 80% of children affected by FASD are with foster or adoptive families, and that some may have lived with a number of families before they are placed with adoptive families. These experiences may lead to impaired emotional understanding.)

8. Maintain regular contact with home in order to give consistent messages and to provide support.
9. The transition between primary and secondary education can be difficult for students with FASD, as they may already have had a number of changes in their lives. Try to ensure that there is a smooth transition and that support remains in place.

10. For teenagers, issues around emotions, friendships and sexual behaviour, independence and achievement can be difficult, particularly if family relationships are unusual.

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FRAGILE X

What is Fragile X Syndrom?

Fragile X syndrome is the most common inherited form of learning disability. It is a chromosomal disorder caused by a 'fragile' site on the end of the X chromosome – appearing to be breaking, but is not quite separated. The gene which causes fragile X syndrome has been identified as the FMR1 gene. It is a gene present in everybody, but an increase in the size of part of the gene, or a mutation, can prevent it from working properly, thus causing learning disability. Those affected with fragile X syndrome have a full mutation. Those with a small change, (a permutation), of FMR1 gene are carriers of fragile X syndrome, but are not necessarily affected by it. Both men and women can be carriers of a permutation gene, and the syndrome can occur in both sexes in all populations. However, it is more prevalent in males than females.

Possible indicators of Fragile X Syndrome
Distinctive facial features may include a large head with long face, large jaw, prominent ears, a long and flattened nasal bridge, and a high arched palate often with dental overcrowding. Other indicators are connective tissue problems such as flat feet, double jointedness, soft skin and spine curvature, which can become more pronounced with age. However, despite all of these potential characteristics, children often do not have an unusual appearance and the characteristics may not be present.

Fragile X syndrome can cause learning difficulties from mild to severe. It can also cause a range of additional difficulties including:

- social communication difficulties
- speech and language difficulties
- attention and emotional difficulties
- behavioural problems
- floppy muscle tone or hypotonia
- developmental delays
- sensory integration difficulties
- seizures

Some girls with fragile X syndrome may be affected by learning difficulties to a lesser extent than boys. Many typical profiles of students with fragile X syndrome are similar to those of students with Autistic Spectrum Disorder (ASD), and it is estimated that 25–35% of young children with fragile X syndrome have an additional diagnosis of ASD; 70–90% of boys and 30–50% of girls with fragile X syndrome have attention deficit hyperactivity disorder (ADHD). For most, there will just be a cross-over in characteristics.

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Implications for teaching and learning

These students may have strengths in:

- expressive language, receptive vocabularies including verbal labeling
- short and long-term memory for meaningful information, including good visual memory for environment around them
- recognising and understanding emotional expression in others
- being friendly, helpful and curious, with a good sense of humour (particularly boys).

Difficulties for students may present as follows:

- working memory difficulties when considering abstract concepts
- organisational /sequencing issues
- eye and vision problems, such as strabismus or 'wobbly eye'
- squints and poor focus on work may occur if sensitivity to touch prevents students from wearing glasses comfortably
- ear infections or 'glue ear'
- repetitive use of language; discussion revolving around favourite topics regardless of appropriateness
- hyperarousal and anxiety when faced with the social demands of language, such as eye contact, coordination of syntax, semantics and conversational pragmatics, leading to an inability to plan
- verbal responses
- outbursts, tantrums and even aggression in boys; girls tend to be less hyperactive and have more mood stability than boys
- gross and fine motor difficulties mean that students have difficulty with handwriting, dressing, manipulating tools and eating (compounded by poor oral-motor co-ordination)
- difficulties integrating any two or more sensory inputs at one time can lead to behavioural problems due to overload
- tactile defensiveness is very common in these students; harmless sensations are perceived as potentially dangerous and therefore unpleasant; sensitivity to being touched lightly may be perceived as painful
- hypersensitivity may mean that students dislike art activities such as painting or using clay, or carrying out daily care or hygiene tasks involving washing hands or shampooing hair
- difficulty filtering out peripheral noises, for example, outside traffic or others talking quietly affects concentration; if there is too much going on, the situation can seem confusing, resulting in anxiety and possibly challenging behavior
- oral sensitivity can result in food with an unusual texture or taste, or the use of particular cutlery, being unpleasant for these students, which can affect behaviour at mealtimes
- hypersensitivity to smells can provoke heightened positive or negative responses ranging from extreme preoccupation to aversion
- speech may be hard to understand, particularly when speaking for longer periods of time; it is often delivered in short bursts followed by long pauses, with repetitions of words or phrases.

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Girls with fragile X syndrome are likely to show particular difficulties related to organising their thoughts, planning ahead and shifting between topics; extreme shyness and anxiety in social situations; oversensitivity to perceived criticism and rejection; difficulty in picking up signals in social situations; difficulty in seeing the consequences of their actions, which impacts on their self-esteem, and their ability to make friends, however much they want to.

Boys can experience delay in language acquisition, excessive repetition of words or phrases, impulsive speech and poor pragmatic skills; poor short and long-term memory for abstract and non-meaningful information (related to poor function of working memory); attention and concentration problems; and
arithmetic, in particular processing and recalling sequential and abstract information. Whilst they may be good in a conversation in terms of their knowledge and vocabulary, their sequencing of ideas might get muddled, and they may struggle with appropriate turn-taking.

Supporting students with Fragile X

The following approaches may be effective:

1. For abstract information, give small chunks of information at a time, focusing on students' strengths in verbal skills and good memory in a meaningful context.
2. Breaking things down into small steps may not always be best practice for these students as they may need to see a more complete picture of what they are learning. For example, when learning to read, try building up a sight vocabulary, putting whole words in a meaningful context; phonics require abstract thinking and memory, sequential processing, and sight and sound integration – areas of difficulty for some boys with fragile X syndrome.
3. Visual aids in teaching and more practical-based approaches may make tasks more concrete and easier to engage with, rather than more detailed spoken instructions. ICT based approaches might be beneficial as material can be delivered visually, with an instant response to an action, but also avoiding direct teacher interaction, which some students may find hard to cope with.
4. Tasks need to be made clear, achievable and able to be completed in a reasonable time span. Students will benefit from a focused, structured and predictable routine with change kept to a minimum.
5. Direct instructions may be better given whilst sitting or standing alongside the student, rather than in front of them, to avoid expectation of eye contact.
6. Frequent states of anxiety and/or hyperarousal will require calming strategies, particularly when out in the community or contexts which present challenges to their senses.
7. Often, these students will not only avoid stimuli, but also seek sensory experiences to calm or to heighten levels of arousal. Deep pressure can produce a calming affect for some students withsensory integration difficulties. If this is the case, try massage, use of weighted blankets or jackets, wearing backpacks, or engaging in activities such as hiking, rolling, gardening or games involving smell.

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8. Consultation with an occupational therapist may provide a full sensory profile, together with an explanation of proprioceptive (body awareness) and vestibular (balance) senses, and recommendations specific to each student.
9. Lots of praise or a reward system will boost self-esteem and encourage students to focus on their positives and strengths rather than focusing on their difficulties.

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MENTAL HEALTH

What is mental health?

The World Health Organisation (WHO) defines mental health as 'a state of wellbeing in which the individual realises his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community'.

One in four people in the general population are said to be affected by mental illness at some point in their lives. Studies suggest that 20% of children and adolescents have mental health problems at some point and one in ten have a clinically recognisable mental health disorder (CAMHS, 2004; BMA, 2006).. Amongst children with learning disabilities, the prevalence of mental health problems has been found to be significantly higher. In addition, Carpenter (2009) claims that 'for every five children with special needs we know that three will have a mental health problem'. As Coughlan (2010) writes: 'Very often, mental health difficulties present in atypical or unusual ways in people with an intellectual disability, and so often go unrecognised for significant periods of time.'

Possible indicators of poor mental health

Mental health issues can present in a number of ways, and it is important to distinguish between a mental health problem, disorder and illness in order to ensure that the appropriate diagnosis, treatment and support are made available.

Mental health problems are relatively common, affecting 30–40% of all children at some time during childhood. They are likely to be mild and transient, and may arise from a broad range and combination of congenital, physiological or environmental factors.

There are four main categories of mental health disorder:

- Emotional
- Conduct
- hyperkinetic (ADHD)
- less common (e.g. ASDs).

Mental illness refers to more severe conditions that affect a smaller number of children at some time during childhood. It includes severe depressive illness, eating disorders, such as anorexia nervosa, and psychotic disorders, such as schizophrenia.

Many symptoms of mental distress, such as self-harming, frequently occur in people with learning disabilities as a result of frustration.

Implications for teaching and learning

Difficulties for students with poor mental health may present in the following ways:

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- Inability to engage positively with the curriculum or school environment resulting in academic underachievement or failure (see table below)
- inability to concentrate on cognitive tasks reducing their ability to learn
- impaired memory resulting in difficulty in learning new material or recalling previously learnt material and compounding existing learning difficulties
- high rate of absenteeism from school impacting on levels of engagement with learning.

Mental disorder	% of children more than a year behind in their intellectual development	% of children with special educational needs
None	24	17
Emotional	44	35
Conduct	59	52
Hyperkinetic	65	71
Less common disorders (e.g. ASDs)	72	97

Table 1. Scholastic ability of children with mental disorders (adapted from Green et al., 2005)

Supporting students with mental health issues

A student experiencing poor mental health or mental illness may be most effectively supported by increasing both engagement and emotional resilience at school and throughout life. Strategies to achieve this include:

Engagement

There are four key areas which can enhance engagement in learning, and therefore achievement in students with significant mental health needs, namely:

- a holistic, interdisciplinary approach
- specific activities designed to promote strong relationships with peers, teachers and the school
- relevant curriculum content and appropriate teaching and learning approaches shared decision
- making which advocates student voice.

Emotional resilience

Emotional resilience is concerned with students' ability to cope with stress, trauma, unpredictable and unforeseen events and disasters. Students with disabilities may be at increased risk of facing such situations, so building emotional resilience is key to meeting their

- Early intervention: The sooner intervention begins for students with mental health needs the better. Multiagency input is needed to increase the support the student is receiving. This should include the GP, the Educational

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Psychology Service and the Child and Adolescent Mental Health Services (CAMHS).

- Support in class needs to centre on encouraging the student to talk about their issues. Depending on the age of the student, this might be achieved by using a peer mentoring scheme, talking mats and other communication technology to facilitate student voice.
- Support in the form of art therapy, play therapy, music therapy or drama therapy can be extremely helpful in giving students another means of conveying their feelings and working out their fears. Relaxation training and social skills training may also be beneficial. For some students, speech and language therapy, physiotherapy and occupational therapy may also be needed.
- Increasing the amount of exercise a student receives can be critical in reducing anxiety and increasing emotional wellbeing. It may facilitate restful sleep, thus further reducing anxiety.

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PREMATURE BIRTH

One contributing factor to the rise in childhood disability, particularly in the developed world, is the increasing survival rates of preterm infants, especially those born very and extremely preterm. Prematurity of birth is defined in terms of either gestational age (GA) or birth weight (BW). Table 1 below outlines the varying degrees of prematurity.

Degree of prematurity	Gestational age	Birth weight
Full- term	Over 37 weeks	
Preterm	Less than 37 weeks	
Very preterm	Less than 32 weeks	
Extremly preterm	Less than 28 weeks	
Normal birth weight (NBW)		Greater than 2,500g
Low birth weight (LBW)		Less than 2,500g
Very low birth weight (VLBW)		Less than 1,500g
Extremely low birth weight (ELBW)		Less than 1,000g

The rise in survival rates of preterm infants, particularly for those termed ‘extremely immature’, means that preterm births now account for 5–7% of live births and very and extremely preterm births account for 1–2%.

What are possible indicators of preterm birth?

Although most infants who are premature are born at 35–37 weeks without any significant long term challenges, preterm infants are at significantly higher risk than the general population of having neurodevelopmental problems. These are characterised by cognitive, neuromotor and behavioural difficulties, which will impact on their ability to do well at school.

Very preterm infants have been found to be at greater risk of being towards the lower end of the normal ability range and significantly lower than their full-term peers. This puts them at greater risk of educational underachievement as a result of specific or general learning difficulties.

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Extremely preterm infants are at greater risk of having cognitive and neurological impairments, and of being diagnosed with attention deficit hyperactivity disorder (ADHD).
Both very preterm and extremely preterm infants may have difficulty with planning and organisation, and with working memory, which will affect numeracy, reading comprehension and other areas of learning.

Extremely low birth weight infants are at increased risk of having learning difficulties and learning disorders with multiple areas of difficulty.

Implications for teaching and learning

Preterm learners may experience a wide range of interrelated and complex difficulties. Students in all the categories above may display difficulties in a range of the following areas, although, in general, the greater the degree of prematurity, the higher the level of difficulties and the number of different impairments that may be apparent:

- significantly lower ability than full term peers, leading to lower achievement
- general learning difficulties
- specific learning difficulties (which means having difficulty in some areas of learning but not others)
- behavioural difficulties
- difficulties with memory
- difficulties with planning ahead and organising their thoughts
- difficulties with receptive language, literacy and numeracy
- deficits in executive function skills (eg organisation, planning, and sustained attention)
- hearing, visual or multisensory impairment, ranging from mild to severe perceptual discrimination difficulties
- higher risk of being diagnosed with cerebral palsy
- delayed physical development, affecting gross and fine motor skills (eg clumsiness, poor handwriting, poor hand-eye co-ordination)
- behavioural, emotional and social difficulties (BESD), with higher risk of being diagnosed with ADHD
- hyperactivity, anxiety, depression and susceptibility to being bullied health problems
- issues with self regulation arising from early life stress, fear, arousal and pain
- difficulties with self help skills such as eating and toileting
- attachment difficulties arising from early experiences
- sensory difficulties.

How can I support a preterm student?

There have been no systematic investigations of the effectiveness of particular educational interventions for learners who have been born prematurely. There is a

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huge variation in what these children will need by way of support. However, the following factors need to be in place:

1. An overview of the developmental history of the individual preterm learner.
2. Access to specialist support and advice, for instance, from educational psychologists, SENCos, counsellors, local authority specialist advisory and support services, outreach services from special schools and other forms of specialist provision. Professionals will necessarily need to work together to develop a transdisciplinary approach when both assessing and planning the child's individual learning pathways. It is important to treat the child holistically, and reduce the possibility of fragmented intervention.
3. Close liaison with, support and guidance for families and carers in helping to meet the needs of their complex children.
4. The appropriate resources to meet each learner's unique and complex needs. Learning is mediated through social relationships. Any educational intervention needs to respond to where the child is both developmentally and socially.
5. Training for staff to recognise the possible learning disabilities and difficulties associated with preterm birth

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RARE CHROMOSOME DISORDERS

Was sind seltene Chromosomenstörungen?

The term, 'rare chromosome disorders', refers to conditions which:

1. occur due to missing, duplicated or re-arranged chromosome material
2. have a low prevalence rate (thus not including chromosomal disorders such as Down syndrome).

Chromosomes are structures found in the nuclei of cells in human bodies. Each chromosome containsthousands of genes which determine how we grow and develop. A typically developing person will have 23 pairs of chromosomes with one member of each pair being inherited from each parent, giving a total of 46 individual chromosomes. Two of these are the sex chromosomes, which determine whether we are female (XX) or male (XY). The remaining 44 chromosomes are grouped in 22 pairs numbered 1 to 22. The arms of a chromosome are called 'p' (shorter arm) and 'q' (longer arm) (see Figure 1).

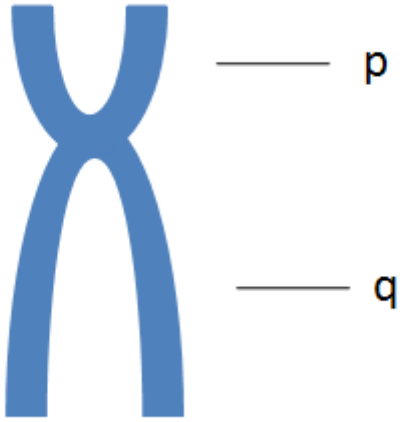

Figure1. Diagram of a chromosome

Even when people are identified as having a similar condition, the way in which it affects each person may still vary a great deal. If enough children are born with the same chromosome disorder, and present a similar pattern of characteristics, it may be called a syndrome. Rare chromosome disorders account for at least one in every 200 live births, with babies either having symptoms of the disorder from birth or early childhood, or being carriers of a chromosomal abnormality and experiencing the effects when they try to reproduce in later life. 'Sex chromosome disorders' is an umbrella term for disorders where there are too many sex chromosomes. Each disorder is gender-specific, and the prevalence rate is one in 1,000 live births. Students with these disorders generally show only subtle physical features and most achieve within age-related norms at school, perhaps with mild learning difficulties.

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Possible indicators of rare chromosome disorders

Rearranged abnormality: Students with a rearranged abnormality may not experience any symptoms, but might have problems in reproduction. Some people consider genetic counselling when they are planning a family to assess the potential impact their chromosomal abnormality may have on their children..

Missing or duplicated chromosome material: For students with missing or duplicated chromosome material, the effects will vary, but symptoms could include physical and/or health problems, learning disability and maybe challenging behaviour. The combination and severity of symptoms will vary depending on which sections of chromosomes are involved, and the ways in which they are different.

Chromosome loss or gain: Students with a loss or gain of chromosomes will experience some degree of learning disability and developmental delay. This is thought to be more serious than the presence of an extra copy of the same part.of an extra copy of the same part.

Implications for teaching and learning

The implications for teaching and learning for these students varies from one disorder to another, and not every student with the same disorder will present in the same way.

Strengths across the range of disorders may include:

- conveying emotion through facial expression, vocal noises, gestures and body movements imitation
- good memory, particularly for faces and places
- enjoyment of books and music
- happy, sociable and enthusiastic disposition when young
- maths calculations, rote memory, spelling and written language, decoding words and basic reading (particularly in students with DiGeorge Syndrome).

The table below outlines the main areas of difficulty relating to some examples of rare chromosome disorders. (As you will see, some of the syndromes do not have names as such, but are referred to by the chromosome number that causes the abnormality.)

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Type of difficulty	Examples of rare chromosome disorder(s) in which the difficulty may be present
Seizures	1p36; Idic15
Hypotonia or flopiness	1p36; 22q13 deletion; Idic15; Jacobsen; DiGeorge
Difficulties with feeding	1p36
Heart problems	1p36; DiGeorge
Hearing and/or visual impairments	1p36
Paris-Trosseau syndrome (bleeding disorder	Jacobsen
causing bruising and heavy blood loss)	1p36, Cri du chat, 22q13 deletion, Idic15, Jacobsen, DiGeorge
Distinctive facial features	Cri du chat
Microcephaly (unusually small head)	Cri du chat, Jacobsen, DiGeorge
Low birth weight/small stature/poor immunity	1p36, 22q13 deletion, Idic15, DiGeorge
Developmental delay	1p36, Jacobsen, DiGeorge
Learning disability	
Sensory processing difficulties, with symptoms which include tactile defensiveness, chewing non-food items and teeth grinding	1p36, 22q13 deletion, Idic15
Social interaction	1p36, 22q13 deletion, Idic15, DiGeorge
High pitched ‘cat-like’ cry	Cri du chat
Speech and language delays	Cri du chat, 22q13 deletion, Idic15, Jacobsen, DiGeorge
Hyperactivity/inattentive	Cri du chat, Idic15, Jacobsen, DiGeorge
Poor concept of danger	Cri du chat

Supporting these students

Approaches may vary according to the particular disorder and the individual student. (A guide for each disorder listed above can be found on the information sheet relating to this topic.) However, the following approaches will be effective for many students:

1. The appropriate use of music, light and tactile resources, with an emphasis on visual learning is thought to assist learning and the control of seizures (take specialist advice in use of light).
2. Patience, repetition and lots of encouragement in a calm, structured learning environment.
3. Concrete resources, including computer based learning, to overcome difficulties with abstract concepts, such as time, money, shape, colour and

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size. Direct instruction rather than reliance on discovery may work well. However, creative projects have been found to be stimulating.

4. Speech and language therapy to aid communication and reduce frustration, particularly as some students will have a cleft palate and feeding difficulties. Signing may be effective, but some students may have poor motor control which will make this difficult.
5. Computer touch screens, voiced based systems and picture exchange systems (such as PECS) to increase communication skills.
6. Adaptive sports, music therapy and sensory integration support (from an occupational therapist) to increase awareness and desire to communicate.
7. Weighted blankets, hiking and wearing backpacks, deep pressure massage and rolling games to stimulate balance and body awareness (an occupational therapist should advise on particular techniques for individual students).
8. Share interventions and strategies used in school with families and other professionals involved to ensure consistency and understanding.

When considering any of these support strategies, bearing in mind the student's individual needs, preferences and interests is essential to increasing engagement. The student themselves, families and staff that know the student well can all help to inform on what these may be.

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SENSORY IMPAIRMENT

This is a general overview of the implications of vision impairment, hearing impairment and multi-sensory impairment. The impact of impairments for individual students with complex learning difficulties and disabilities would need to be analysed in depth.

What is sensory impairment?

The term sensory impairment encompasses visual loss (including blindness and partial sight), hearing loss (including the whole range) and multisensory impairment (which means having a diagnosed visualand hearing impairment with at least a mild loss in each modality or deafblindness).

Vision impairment (VI)
This term covers varying degrees of vision loss including those who are registered severely sight impaired (blind). Even the latter may have some vision, such as being able to tell the difference between light and dark. There are many conditions that cause different kinds of vision loss, the main distinction between conditions is whether the impairment is ocular (eye) or cerebral (brain). Cerebral VI (also known as cortical VI) is common in children with CLDD/PMLD. Functional vision refers to the interaction between the environment and how the visual information is processed. Knowing a student's condition and degree of functional vision may help staff to understand what they can see.

Hearing impairment (HI)
The two main types of hearing loss are:

- Conductive hearing loss, which is the most common type and results from interference in the conduction pathways through which sound reaches the inner ear. This hearing loss usuallynaffects the volume of sound reaching the inner ear. People with conductive hearing loss maynbenefit from the surgical insertion of grommets or from hearing aids. It is commonly a temporary hearing loss
- Sensorineural hearing loss, which is caused by damage to the hair cells lining the inner ear, or the nerves that supply them. This hearing loss can range from mild to profound, and affects certain frequencies more than others. Consequently, people with sensorineural hearing loss need high quality hearing aids or cochlear implants to gain access to the spoken word and sound in the environment.

It is also possible to have a mixed hearing loss, which arises from both the above.

Multisensory impairment (MSI)

This is a term used to describe students who have a combination of visual and hearing loss. They are sometimes referred to as deafblind, although many have some residual sight and/or hearing. The combination of the two sensory losses

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intensifies the impact of each. Students with multisensory impairment have much greater difficulty in accessing the environment and the curriculum, than those with a single sensory impairment.

Possible indicators of sensory impairment

One characteristic shared by all students with VI is that they are limited in their ability to learn incidentally from their environment. Since vision is the primary sense through which children usually explore, organise and integrate information about their environment, when this sense is absent or limited, it impacts significantly on students' curiosity, exploration and information gathering ability.

Like sight, hearing plays a vital role in the learning process. HI causes delay in the development of both receptive and expressive language skills. Having difficulty picking up language in the usual way has a significant impact on all areas of learning.

Students with MSI are more likely to have learning difficulties and additional disabilities than other children, which compound the difficulties arising from MSI, resulting in complex needs. In addition, high anxiety, multisensory deprivation, and behavioural and emotional difficulties often accompany deaf-blindness as a result of the student's inability to understand and communicate.

Implications for teaching and learning

1. VI

It is important to consider factors relating to students' vision condition in order to meet their individual needs. These include: type of condition or visual impairment; age of onset; degree of functional vision; type of intervention provided.

Students with VI and additional learning needs may:

- be delayed in all areas of development, including cognitive, physical, emotional and neurological
- struggle in their attainment of key developmental milestones such as acquiring communication and social skills, attaining orientation, mobility and life skills and understanding abstract ideas and concepts
- have delayed social use of language due to lack of concept understanding, for example.

2. HI

Again, it is important to know: the type of deafness; age of onset; level of useful hearing; means of communication (signing, speech or both); type of intervention, including whether wearing a hearing aid or a cochlear implant. The development of communication is a key issue.

These students may:

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- be delayed in the development of both receptive and expressive communication skills
- experience difficulty in learning various aspects of verbal communication, including vocabulary, grammar and word order
- need to communicate through a combination of oral (including speech and speechreading) and manual (including sign language and fingerspelling) methods, depending on the degree and type of deafness and a range of other factors
- display developmental, psychological and emotional problems.

3. MSI

The combination of the two sensory losses, which intensifies the impact of each, makes for much greater difficulties in accessing the environment and the curriculum, than those with a single sensory impairment. Particular difficulties lie in:

- communication and the development of relationships
- mobility and interaction with the physical environment
- processing and integration of information from residual hearing, vision and other senses
- perception of time and space
- transference and generalisation of skills and concepts
- development of abstract reasoning.

Supporting studenst with VI, HI oder MSI

The following approaches may be effective for students with VI:

1. providing appropriate resources (e.g. braille, large print, etc.) and ensuring access to VI specialists, including habilitation (orientation and mobility) specialists, who may be needed to teach students to negotiate their way around school or to travel independently outside the classroom
2. providing information through oral or tactile means, such as providing verbal instructions and tactile pictures (eg Wikki Stix)
3. providing opportunities for experiential learning involving the use of real-life objects which students can touch; providing frequent repeated instructions, as well as opportunities for multisensory learning, including using taste and smell, when appropriate
4. providing opportunities for students to familiarise themselves with the classroom environment without other students being present; concrete (permanent) objects such as furniture and flooring can be used to distinguish between different areas of the room, as can sounds and smells
5. considering glare within the classroom with regard to reflection from lighting and the sun; means to reduce glare, such as blinds, indirect lighting and dimmers should be available, and careful consideration should be given to where best to position students to ensure optimal visual conditions
6. providing assistance with organisational skills, including having a tidy classroom and providing specified places for items to be kept; containers to

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store items which are consistent across different classrooms used can assist with this
7. printing text with the highest possible contrast (e.g. black and white (light letters on a dark background may be more legible than dark letters on a light background)) and ensuring large, bold fonts are used ensuring lines of text are widely spaced and justified to the right with simple typefaces such as Arial, on an uncluttered background
8. providing thick paper (so that text does not come through from the reverse side) with a matt finish, as glossy finishes can exacerbate problems with glare
9. providing large felt pens and pencils, and paper with raised or bold lines to aid writing skills; computers can be useful in facilitating independent writing further; additional assistive technology, such as screen enlargement and programs and equipment specifically for children and young people with VI, may also be very beneficial
10. devising strategies to encourage students to gain social skills.

The following approaches may be effective for students with HI:

1. providing access to HI specialists, such as teachers of the deaf, advisory teachers, communication support workers (CSWs), speech and language therapists and audiologists; these people can advise on how hearing aids and cochlear implants (if used) should be cared for and the use of any sound systems (including radio aids and sound field) that need to be in place to enhance students' hearing
2. Improving the acoustics within a classroom, including using carpet, putting rubber tips on chair legs, using soft furnishings such as tablecloths and curtains, placing acoustic tiles such as carpet tiles on the walls, and keeping down external noise
3. being aware of where the speaker is standing when talking; standing in front of a window, for example, will create glare which prevents students from seeing the teacher clearly; ensuring the teacher faces students and speaks clearly, to encourage speech reading
4. ensuring students can see classmates as much as possible and especially when they are speaking; where practicable, and depending on the numbers of students, a recommended classroom configuration is a U-shape
5. providing opportunities for hands-on learning and providing visual resources, to support students' understanding of what is being said
6. providing alternative forms of visual communication such as Makaton, pictures, or symbols to support communication; using Total Communication as an approach – a combination of speech, sign support and fingerspelling.

The following approaches may be effective for students with MSI:

1. enlisting the support of a variety of specialists, such as orientation and mobility and rehabilitation specialists, physiotherapists and occupational therapists, who may be required to ensure that these students reach their potential in terms of mobility and independence

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2. providing a secure and stable environment (both social and physical), which provides optimal visual and auditory conditions and consistent, well-cued routines
3. using a wide range of communication options, including speech, gesture, British Sign Language, braille, objects, symbols, etc
4. interpreting all behaviour in terms of being about students trying to communicate their feelings and ideas
5. having a cross-curricular, multisensory approach, which is highly individualised and includes movement-based learning
6. encouraging students to use their hands as tools to provide them with information and help them to communicate
7. intensive interaction is an approach that may be useful; it seeks to build up a learner's motivation and ability to communicate and interact, with the person who is supporting following the learner's lead; sessions are made fun and happen regularly, with the length of time gradually increasing; the pace of interaction is matched to each learner's sensory abilities.

Additional suggestions for learners with no residual sight or hearing

1. provide a touch-encouraging environment. Encourage learners to use their hands to explore the world. Watch/touch learners' hands and learn to 'read' them
2. be aware of what learners are touching and support shared attention on any object being touched
3. use a hand-under-hand touch to explore objects together, or to imitate actions, laying the foundation for communication
4. make your own hands available for learners to manipulate as they wish. Play interactive hand games
5. encourage energetic throwing to develop confidence in use of hands

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