PUPILS WITH AUTISM
UNIT 11
THEORETICAL EXPLANATIONS OF THE AUTISM SPECTRUM

LEARNING OUTCOMES

Trainees will:

- Understand some key psychological theories, which attempt to explain the behaviours and skills seen in the autism spectrum and their relevance to the classroom, and
- Understand how social and emotional understanding develops from birth through the early years in typical children and how and why this might be different for children on the autism spectrum
- Understand some of the reasons why mental health problems might be more prevalent amongst pupils on the autism spectrum
- Know some of the main mental health problems that pupils might experience, and
- Know how schools can aim to reduce mental health problems and address the needs of these pupils who do experience such problems.

ONLINE RESOURCES

The content and tasks throughout these PDFs are supported by online resources that are designed to facilitate and supplement your training experience.

Links to these are signposted where appropriate. The resources use graphics and interactive elements to:

- Highlight salient points
- Provide at-a-glance content summaries
- Introduce further points of interest
- Offer visual context
- Break down and clearly present the different stages and elements of processes, tasks, practices, and theories

The online resources offer great benefits, both for concurrent use alongside the PDFs, or as post-reading revision and planning aids.

Please note that the resources cannot be used in isolation without referencing the PDFs. Their purpose is to complement and support your training process, rather than lead it.

You should complete any learning or teaching tasks and additional reading detailed in this PDF to make full use of the Advanced training materials for autism; dyslexia;

speech, language and communication; emotional, social and behavioural difficulties; moderate learning difficulties.

To find out more about the resources, how they work, and how they can enhance your training, visit the homepage at: www.education.gov.uk/lamb

The first resource for this unit can be found here: www.education.gov.uk/lamb/autism/theory/intro

BRIEFING

BRIEFING 1: COGNITIVE THEORIES

Researchers and clinicians have attempted to explain the psychology of individuals on the autism spectrum and some of the behaviours and perceptions. Three theories in particular have attracted interest over the past few decades:

- Theory of Mind (ToM)
- Central coherence theory, and
- Executive function theory.

Theory of Mind

Sometimes called 'mentalising' or 'mindreading', ToM describes the social ability to understand the motives, intentions and beliefs of others, to see something from another's point of view – even when that perspective is different from our own.

Simon Baron-Cohen has been one of the leading researchers involved in TOM. He explains:

> *In my early work I explored the theory that children with Autism Spectrum Conditions are delayed in developing a theory of mind (ToM): the ability to put oneself into someone else's shoes, to imagine their thoughts and feelings…We not only make sense of another person's behaviour (…Why did their eyes move left?), but we also imagine whole set of mental states (they have seen something of interest, they know something or want something) and we can predict what they might do next…This theory proposes that children with Autism and Asperger's syndrome are delayed in the development of ToM*. [1]

[1] Baron-Cohen, S. (2008) *Autism and Asperger syndrome*, Oxford: Oxford University Press

In typically developing children it is suggested that there are a number of important, naturally occurring developmental steps which contribute to a growing capacity to understand the minds of other people. For example:

- At 14 months, typical toddlers demonstrate a capacity for joint attention (pointing or following another's gaze), look at another's face and eyes and pay attention to what the other person is interested in

- By 24 months, typically developing children will usually engage in pretend play, using their 'mindreading' skills to be able to understand that in the other person's mind, they are just pretending

- The typical three year-old can pass the 'seeing leads to knowing' test, understanding that merely touching a box is not enough to know what is inside.

- Between 4 and 5, most typically developing children can pass the 'false belief' test, recognising when someone else has a mistaken belief about the world. The most well-known measure used to assess a child's understanding that someone may believe something about a situation which is different from the child's own knowledge is the Sally-Anne task.

> T**he Sally Anne task**
>
> The Sally–Anne test is a psychological test used to measure social cognitive ability to attribute false beliefs to others. The test involves two dolls, "Sally" and "Anne". Sally has a basket; Anne has a box.
>
> Sally puts a marble in her basket and then leaves the scene. While Sally is away and cannot watch, Anne takes the marble out of Sally's basket and puts it into her box.
>
> Sally then returns and the child is asked where s/he thinks she will look for her marble. Children are said to 'pass' the test if they understand that Sally will most likely look inside her basket before realising that her marble isn't there. Children under the age of four, along with most autistic children (of older ages), will answer, 'Anne's box', seemingly unaware that Sally does not know her marble has been moved.

- The typical 4 year old is also able to understand deception - and how they can manipulate someone else's thinking through deceit

- By the age of 7 or 8, the typically developing child can work out what might hurt another's feelings and what might therefore be better left unsaid. They can also interpret another person's expressions from their eyes to work out what they may be thinking or feeling.

See online resource:
www.education.gov.uk/lamb/autism/theory/communication-timeline

Many children and young people on the autism spectrum are delayed in developing these abilities – and in some cases may never develop the swift and instinctive ToM of the typical person. This helps us understand why pupils on the autism spectrum either don't 'get' or take much longer than their peers to get the meaning of jokes, asides and the everyday social conversation of pupils in the class or playground. There is some evidence that programmes aimed at teaching pupils on the autism spectrum mentalising skills and to understand emotions can be beneficial but, even then, the understanding is not immediate and intuitive as for other children.

Central coherence theory

This is another psychological theory, described by Frith in 1989.[2]

Baron-Cohen captured the essence of this theory in the following way:

> *People on the autistic spectrum have problems in integrating information to make a coherent, global picture. Instead they are said to focus on the small, local details in a scene. This, whereas the neurotypical mind has strong central coherence, more likely to attend to the gist, rather than the nitty-gritty, the autistic mind is said to have weak central coherence, more likely to attend to the detail than the overview*[3]

Following her earlier work with Shah[4] and also Snowling[5], Frith suggested that individuals on the autism spectrum were very skilled at identifying the detail over the more general overview. An example of this superior local processing, as opposed to global processing, would be the young child with autism who can complete a complex jigsaw facedown, using only the piece shapes as a guide to fitting the pieces together. Frith went on to suggest that people on the autism spectrum tend to

[2] Frith, U (2003) *Autism: explaining the enigma.* UK; Wiley-Blackwell
[3] Baron-Cohen, S. (2008) *Autism and Asperger syndrome*, Oxford: Oxford University Press, p.53-54
[4] Shah, A. And Frith, U., 1983, An islet of ability in autistic children, *Journal of Child Psychology and Psychiatry,* 24, 613-20
[5] Frith, U. and Snowling, M, (1983) Reading for meaning and reading for sound in autistic and dyslexic children, *Journal of Developmental Psychology*, 1, 329-342

perceive stimuli as separate pieces or fragments rather than part of an integrated whole.

In the typically developing population there is a tendency to seek out the 'bigger picture', or context, as a way of grasping **meaning.** For example, on entering a room full of people it is useful to be able to have an overview of the situation which can then inform our behaviour, e.g. determining whether it is, for example, a party, a formal meeting, a wake. Frith called this ability 'strong central coherence'. She suggested that individuals on the autism spectrum are detail focused, at the expense of global meaning or the gist of a situation or story. She initially described this as weak central coherence but is now unhappy about the connotations of this:

> *People have said my choice of term 'weak central coherence' implies negative connotations...this is so ironic, because I use it to celebrate the children's strengths. It's not good always to be taken in by the whole: this means you have prejudices and it weakens independent thought.*[6]

Central coherence theory is important not only in emphasising the potential strengths and talents of pupils on the autism spectrum, but also in reminding us of some of the choices and preferences that they show. Sometimes the detail of any material, such as the dates in a history lesson or the numbers in a maths lesson, will be what pupils on the autism spectrum focus on, rather than the 'bigger story'. By checking how well pupils on the autism spectrum understand the teacher's account or a written text can ensure that they do not get left behind by focusing on details rather than the overall story/narrative.

See online resource:

www.education.gov.uk/lamb/autism/theory/central-coherence

Executive function theory

Executive Function is the term given to the thought processes that organise and control action on any level, e.g. movement, attention and thinking. If the brain is thought of as a computer then executive function is the master programme that *controls and directs all the software programmes*[7]*.* The executive function will organise and monitor ongoing behaviour and make adjustments, as necessary.

Boucher suggests that, at the most basic level, executive functions enable individuals to:

[6] Frith in Feinstein, A. (2010) *A History of Autism*, Oxford: Wiley-Blackwell, p.213
[7] Boucher, J. (2009) *The Autistic Spectrum*, London: Sage, p.170

> *STOP doing one thing: this involves **inhibitory control** and the ability to **disengage attention** from a current stimulus, ongoing thought process or action*
>
> *SWITCH to something else: this involves **mental flexibility**; not just stopping doing one thing, but shifting attention to a new stimulus or shifting **mental set**;*
>
> *START on something else (for example, new topic of thought or a different physical action): this involves **generating** a new focus of attention such as a topic or goal, **planning** how to achieve the goal, and **initiating** the selected behaviour*. [8]

In fact, executive function is a term that embraces a host of mental processes that support purposeful activity, such as planning, memory and relevant task or activity focused attention. Clare Sainsbury, an adult with Asperger syndrome has commented:

> *Children with Asperger's often end up perseverating, obsessively repeating a particular response even when it is no longer of use (repeating a question once it has been answered, for example or repeating a strategy that has already failed to solve a problem). We are often unable to shift our attention away from the point at which we have become stuck, or generate new strategies to try.*[9]

Proponents of executive functions operating differently in individuals on the autism spectrum argue that this theory could explain some of the issues related to inflexibility in thinking, planning and self-organisation, switching attention from one activity to another and so on. However, it is important to remember that not every individual on the autism spectrum will have difficulties arising from executive functions and not everyone who has executive function problems is on the autism spectrum. However, this theory might help us to understand why some pupils on the autism spectrum find it so difficult to organise themselves and to plan. This can be particularly true in secondary school when pupils have to organise their books and other materials for each lesson and each classroom. Sometimes an inability to do this can come across as 'absent mindedness' but should not be taken as a lack of intention by pupils. On the contrary, they may often be very frustrated at their own inability to 'get things together', leading to anxiety and, at times, extreme distress.

See online resource: www.education.gov.uk/lamb/autism/theory/executive-function

[8] Ibid
[9] Sainsbury, C., 2000, Martian in the Playground, Lucky Duck

Other cognitive theories

Other cognitive accounts focus on the unusual perceptual-levels seen in individuals on the autism spectrum. Two of the most novel are Laurent Mottron's account of 'enhanced perceptual functioning' (EPF) [10] and Kate Plaisted's theory[11] of reduced generalisation and enhanced discrimination abilities. Both of these accounts focus more on the superiority of locally oriented and perceptual operations in individuals on the autism spectrum. They attempt to explain some of the 'islets' of ability seen in this population, such as the 'peak' in block design on the Wechsler IQ tests and enhanced (auditory) pitch detection. These theories also map well onto the 'underconnectivity' theory of autism.

TASK 1

Consider each of the three main psychological theories that attempt to explain some of the differences seen in autism, i.e. impaired theory of mind; weak central coherence or difficulties with executive functioning, in relation to a pupil on the autism spectrum. List the ways and extent to which the pupil displays some of the difficulties or differences highlighted in each of the theories.

BRIEFING 2: FACE AND EMOTION PROCESSING

There is some evidence that a number of aspects of face and emotion processing may be impoverished in individuals on the autism spectrum. This is, perhaps unsurprisingly given that difficulties in 'emotional reciprocity' and in the use of facial expressions and other aspects of the non-verbal communication repertoire to regulate social interaction form part of the diagnostic criteria for autism.

A number of aspects of face and emotion processing are relevant for thinking about how pupils on the autism spectrum might read and understand social situations. Skilled social interactions rely on us:

- recognising people (knowing who they are)
- recognising emotions (knowing how someone is feeling), and often
- adjusting our own emotion expression to suit or match the mood of our communication partner.

There is some evidence that all of these might be more challenging for individuals on the autism spectrum.

[10] Mottron, L., Dawson, M., Soulieres, I and Burack, J (2006) Enhanced perceptual functioning in autism: an update, and eight principles of autistic perception, *Journal of Autism and Developmental Disorders, 36, 1, 27-43*
[11] Plaisted KC, Dobler V, Bell S, and Davis, G (2006) The microgenesis of global perception in autism, *Journal of Autism and Developmental Disorders* 36,1,107-116

Some studies have found that recognition of some of the six 'basic emotions' (happy, sad, fear, anger, surprise, disgust) is impoverished in individuals on the autism spectrum, most consistently recognition of fear, which can be confused with surprise.

More recent experiments have investigated more subtle expressions of emotions by looking at identification of computer-manipulated images of expressions ('morphed faces') and shown difficulties in participants on the autism spectrum.

Much less work has studied the production of emotional expressions but anecdotally it is recognised that, sometimes, individuals on the autism spectrum express emotions in a more stilted and mechanical way than other people.

There are a number of psychological theories about why people on the autism spectrum may have difficulties with processing emotions. It has been suggested that individuals on the autism spectrum do not process faces (and hence facial expressions) in the same way as 'neurotypical' individuals. Ideas range from an aversion to faces (or at least to eye contact) to processing faces in a more piecemeal fashion. An example of the latter is that when most of us are asked to recognise faces that have been inverted or turned upside-down we are very much worse than for faces the right-way-up. This is less true for individuals with autism, suggesting that they might relay on individual features rather than the whole face to recognise a person or emotion. This chimes with the central coherence theory of autism discussed above. It is important remember that emotional information is not restricted to faces. Tone of voice and body posture also convey information about how someone is feeling, and picking up on these non-verbal emotional cues may also be more difficult for individuals on the autism spectrum.

It is important to recognise that, along with mentalising or ToM skills and executive functions, face and emotion recognition are developmental abilities, so that one would expect them to improve with age. There are a number of programmes that have been developed to help to teach individuals on the autism spectrum to improve their recognition and expression of emotions. While these are promising and certainly will not do pupils any harm, there is only modest evidence that the benefits carry over into everyday social interaction and understanding.

See online resource: www.education.gov.uk/lamb/autism/theory/faces

BRIEFING 3 - SOCIAL EMOTIONAL THEORIES

The work of Peter Hobson[12] and others, suggests that there are other important developmental strands that need to be explored in addition to the psychological

[12] Hobson, P. (1993) Autism *and the development of mind*, London: Erlbaum

theories discussed above. Kanner suggested that children with autism may lack:

> *the innate ability to form the usual biologically provided affective contact with people.*[13]

There is much to support the notion of the 'innate' drive for emotional connection, contact, relating and bonding in the behaviour of typically developing children. There are numerous examples of this drive from the research literature, including:

- Three day old babies will turn their head towards the smell of their mother's breast milk in preference to the smell of another's[14]
- Infants demonstrate a preference for the human voice when compared to sounds of a similar pitch and loudness[15] as well as a preference for looking at faces rather than other visual patterns[16], and
- Two-day-old babies can imitate an adult model of a smiling, frowning or surprised face[17].

Equally interesting, are experiments that have looked at the impact of aspects of emotionally-driven interaction that are unusual in some way. In a series of experiments with young babies exploring the impact of the interruption of the usual interaction between the baby and carer, such as inappropriate timing or absence of the usual responses, the babies responded with a marked change in behaviour such as ceasing to smile, avoidance of eye contact, crying and other signs of distress.[18] Because the diagnosis which places a child on the autism spectrum is generally made after the age of three years, it is difficult to investigate the presence or absence of the social behaviours described so far. There are now a number of studies, though, looking at the early development of typical babies in the first two years of life and those at greater risk of developing autism, (i.e. those with a history of autism in the family). Data on the early development of children who subsequently are diagnosed with autism or Asperger syndrome will therefore be available in the future.

There is some anecdotal 'evidence', particularly from the retrospective observations of parents, that offers some clues about this earliest stage of development for babies

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[13] Kanner, L. (1943) Autistic Disturbances of Affective Contact
Kasari, C., Freeman, S. & Paparella, T. (2006) Joint attention and symbolic play in young children with autism: a randomized controlled intervention study. *Journal of Child Psychology and Psychiatry*, 47(6), 611-620.

[14] MacFarlane, J. (1975) Olfaction in the development of social preferences in the human neonate, In M. Hofer (Ed) *Parent-infant interaction*. London: Elsevier

[15] Friedlander. B.Z. (1970) Receptive language development in infancy*, Merrill-Palmer Quarterly*, 16, 7-51

[16] Fantz, R. (1963) Pattern vision in newborn infants, *Science*, 140, 296-97

[17] Field, T.M., Woodson, R., Greenberg, R., and Cohen, D. (1982) Discrimination and imitation of facial expressions by neonates. *Science*, 218, 179-81

[18] Murray, L., and Trevarthen, C. (1985) Emotional regulation of interaction between two-month-olds and their mothers, In T. Field, and N. Fox, (Eds*.) Social Perception in Infants*. Ablex

who are later diagnosed. For example, Schreibman[19] describes a mother whose baby was very resistant to being held and fed but who responded well to being propped up by cushions and fed by bottle at arm's length. Schreibman also cites anecdotal reports of children with a diagnosis where the parent describes infants who did not cry for attention or lacked a postural anticipation of being picked up. Some parents reported unusual body responses – some babies being stiff and unresponsive while others were excessively flaccid. Both groups showed a lack of 'cup-and-mould' responses, where the infant and adult adjust their bodies to 'fit' each other.

Focusing on infants is important because it is through these earliest, socially and emotionally driven interactions that an infant builds on the intuitive understanding of other people's emotional feelings, according to Hobson[20]. This is similar to Trevarthen's notion of intersubjectivity[21] which suggests that the baby and parent are inevitably drawn into a reciprocal dance where their responses to each other are finely attuned and synchronised. If this is absent or unusual in some way, a great strain is placed on the possibility of engaging in a dialogue that will build an emotional awareness of self and other.

TASK 2

Select a pupil on the autism spectrum known to you and list the evidence which suggests that the pupil finds it hard to understand social behaviour and expectations in relation to both peers and staff. Consider which areas of social understanding you might work on with the pupil and the strategies you might use to enhance the pupil's ability in this area.

TASK 3

Select a pupil on the autism spectrum known to you whose emotional state is hard for staff to read, i.e. from body language, facial expression etc. Then think about how staff might help the pupil to express his or her emotions more effectively.

BRIEFING 4 - MENTAL HEALTH ISSUES

Some mental health problems are more common in pupils on the autism spectrum than for typical pupils of the same age. The nature of autism means that pupils are more likely to have higher levels of stress and anxiety and that if these are not reduced and addressed, mental health problems may result. It is likely, therefore, that mental health problems can be prevented in some pupils on the autism

[19] Schreibman, L. (1988) *Autism*, London: Sage
[20] Hobson, P. (1993) Autism *and the development of mind*, London: Erlbaum
[21] Trevarthen, C., Aitken, K., Papouidi, D., and Robarts, J. (1998) *Children with autism*, London: Jessica Kingsley

spectrum and if education and services improve, the figures currently given for the frequency of mental health disorders in the autism population will be fewer.

Table 1 shows the distribution of the three most common mental health difficulties among those on the autism spectrum and those in the typical population.[22]

Mental health difficulty	% of those on the autism spectrum	% of typical population
Depression	39	17
Anxiety	17	15
Bipolar disorder	10	0.5

See online resource:
www.education.gov.uk/lamb/autism/theory/mental-health

It is well known that factors such as low self-esteem, failure at tasks, social isolation and irrational thoughts contribute to depression and anxiety, and many of these are present in the lives of pupils and adults with autism. They are therefore very vulnerable to developing mental health disorders.

But, these factors are potentially very amenable to change. It is possible for schools, families and others to work to enhance pupils' self-esteem, to increase their chances of success, to develop social links and to work on negative thinking. Many schools develop records of achievement, have systems for identifying and rewarding success for all pupils and levels of achievement and focus on the positive aspects of the pupils' lives to enhance their well-being.

A key consequence and potentially the most debilitating effect of being on the autism spectrum is the high level of stress and anxiety experienced. When a person is highly anxious or stressed then their capacity for learning and performing tasks is severely limited.

Typically, children and adults gradually develop self-awareness of what is likely to cause them stress and of how they feel when they are becoming stressed or anxious. They can then take action to reduce their stress levels. However, even the most able pupils with autism often have a reduced awareness of their emotional and physiological state and may not be able to think of strategies to decrease their anxiety or stress.

To help with this school staff can:

[22] Figures taken from a briefing by the National Autism Society (NAS).

- Find out what triggers the anxiety. This may already be clear, or the pupil may be able to tell them. If not, careful observation and recording will be required
- Find out how pupils show they are feeling anxious and what helps them to calm down, and
- Work together with the pupil and key people in their life to develop strategies to avoid the triggers, and/or act effectively to relieve the anxiety.

Listening to parents or carers who know the pupil well is also important. Parents/carers will be able to identify early signs of anxiety that school staff may miss. Being aware of this will help prevent feelings of anxiety escalating beyond the pupil's control.

A key role for school staff is to:

- teach pupils how to become aware of their emotional state
- make pupils aware of the types of situation that cause them to become anxious or stressed, e.g. fire bells, changes in routine or loss of a treasured possession
- teach pupils strategies to lower their levels of arousal and stress, e.g. through relaxation techniques, breathing exercises, moving away from the situation, listening to favourite music or engaging in an activity which calms them.

Approaches have to be very specifically tailored to the individual as what causes stress for one pupil will be different from another and, therefore, the strategies that help will be different.

TASK 4

1. List the factors which lead to feelings of stress and anxiety amongst the staff group. Consider the ways in which you might work to reduce your own stress levels in relation to these.

2. List the factors within a school day that might lead to stress and anxiety for pupils on the autism spectrum and then consider ways in which you might advise teachers to address these.

3. Consider how staff can assess a pupil's self esteem and identify factors which affect this. Are the needs and achievements of all pupils recognised in your school? What might be done to strengthen this?