

## **The Links between Social Stories, Comic Strip Conversations and the Cognitive Models of Autism and Asperger's Syndrome**

**Dr Tony Attwood, January 1998**

Social Stories and Comic Strip Conversations are an ingenious technique for helping people with autism and Asperger's Syndrome. They are rapidly becoming a significant component of the school curriculum for such children, but do the theoretical models used to explain Autistic Spectrum Disorders, also explain why they are successful? As with many innovative and practical ideas, they originated from working directly and collaboratively with children rather than from intellectual consideration and subsequent application of an academic theory. However, when one examines the current theories explaining why children with autism are different, one can recognise how the strategies are consistent with these models. Research on the cognitive abilities of people with autism has produced three distinct theoretical models. Each model will be briefly explained with quotations from autobiographies to illustrate specific points and an explanation of how aspects of Social Stories and Comic Strip Conversations are consistent with each model.

### **Theory of Mind**

One of the most significant advances in our understanding of autism has occurred from the research of Uta Frith, Simon Baron-Cohen and Fransesca Happe which supports the hypothesis that children with autism and Asperger's Syndrome have an impairment in the fundamental ability to "mind read" (Baron-Cohen 1995) From the age of around four years, children understand that other people have thoughts, knowledge, beliefs and desires that influence and explain their behaviour. In contrast, children with autism have considerable difficulty conceptualising and appreciating the thoughts and feelings of another person. In other words, they lack the ability to think about thoughts.

This ability is essential in order to understand the behaviour of others. For example, if you saw someone opening a refrigerator door you might assume the person was hungry and looking for something to eat. If they then found an unlabelled container, tasted the contents and made the facial expression we recognise as disgust, you would think they did not like the contents. If they then placed the container with the garbage one would assume they had a personal dislike for the contents or it was bad.

Gunilla Gerland has High Functioning Autism and recently had her autobiography translated from Swedish to English. (Gerland 1996). She writes:

*"The basic emotional states, sorrow and joy, did of course exist in me, but I didn't take them out into the world and glue them on to other people, so I couldn't recognise those complex emotions shown by others" ( page 112.)*

Mind blindness also means the person has difficulty in distinguishing whether someone's actions are intentional or accidental. For example, the author observed a child with Asperger's Syndrome who was sitting on the classroom floor with the other children in his class and listening to the teacher read a story. The adjacent boy started to tease him by poking his fingers in his back while the teacher wasn't looking. The child became increasingly annoyed and eventually hit the boy to make him stop. The teacher was looking at the children at this point (but did not know the preceding events) and reprimanded the child for being aggressive. Other children would have proclaimed they were provoked and recognise that if the teacher knew the circumstances, the consequences would be less severe and more equitable. Yet he remained silent. The teacher continued with her story and a few moments later another child returned to the classroom from going to the toilet. As he carefully moved past the child with Asperger's syndrome, he accidentally touched him but the child was not aware that in this situation, the action was accidental. He hit him in the same way as the child who was tormenting him.

Social Stories provide information and tuition on what both parties in a given interaction or situation may be thinking. In particular, the perspective sentences specifically describe a person's thoughts and feelings in a given situation and explain the consequences of actions on the thoughts of others. Comic Strip Conversations include thought bubbles and the use of different colours to visually illustrate a person's thoughts and feelings. It is interesting that recent research has confirmed the value of concrete representation in helping understand mental states. A study by John Swettenham and colleagues found that conceiving the mind as a camera helped children with autism develop an alternative theory of mind. (Swettenham et al. 1996)

Our codes of social conduct are based on the knowledge of how our behaviour affects the thoughts, opinions and feelings of others. We strive not to offend. If a child does not conceptualise the thoughts of others then they will appear rude and inconsiderate, descriptions often made by strangers when meeting a child with autism. Such children appear to belong to a different social culture. Social Stories provide a 'visitors' guide to our social culture, by explaining social conventions, their rationale and what is expected for those exploring "unfamiliar territory."

A new area of research currently being explored by Uta Frith is whether mind blindness also applies to the child's own mind. Does the child have the ability to reflect on their own experiences, thoughts and feelings? Can they relate *their* inner thoughts to those of others?

One aspect of Comic Strip Conversations is that the child can draw themselves with a thought bubble and use colour to represent their own thoughts and reflections. The author has found that children with Asperger's Syndrome are often confused how to accurately define and portray their own thoughts and feelings. They also often assume all participants are experiencing the same feelings.

### **Theory of Weak Central Coherence**

Uta Frith and Francesca Happé (1994) have developed another theoretical model described by the term weak central coherence. This model is independent of the ability to mind read and describes a reduced ability to draw together diverse information to construct a higher level meaning. In other words, the child with autism overly focuses on detail and fails to grasp the 'whole picture'. The model is primarily based on three research designs. The first examines the ability to identify a hidden figure or shape within a larger drawing, e.g. a triangle embedded within a picture of a clock. Children with autism are conspicuously quick and competent at this task. Their thinking is not distracted by the overall theme. The second design examines the child's performance on the Block Design subtest of the Wechsler Intelligence Scale. The child has to copy an abstract pattern using coloured cubes within a time limit. Children with autism are remarkably good at breaking a large geometric pattern into small segments. The third design involves reading aloud a sentence that includes a word that can be pronounced in two ways according to the context. For example "There was a tear in her eye" might be read aloud such that the word 'tear' sounds like the pronunciation used in "There was a tear in her dress". Another example is "The dog was on a long lead" could be pronounced as the word 'lead' which describes the heavy metal. Such errors are rare with ordinary children but significantly more common for those who have autism.

Thus children with autism and Asperger's Syndrome are good at tasks that require attention to detail but poor at deciphering the overall meaning. They can immediately identify small, obscure items or notice minute changes in the position of objects in a room. Their interests are often confined to aspects of life others consider of limited relevance such as collecting clothes pegs or different types of spark plug. This unusual perception of the world can also affect the child's drawings. The conventional strategy is to start with the general outline and then fill in the details. Autistic children often start by drawing isolated detail. In the mind of the child with autism, detail is paramount and if this is changed, the whole 'picture' changes.

Having weak central coherence means having considerable difficulty identifying which details are important and how they connect to form a consistent pattern or 'gestalt'. For us, the whole is

greater than the sum of the parts, but the child with an Autistic Spectrum Disorder, may not know which parts are relevant and how they are related. The autobiographies frequently refer to a problem understanding the meaning behind simple everyday events. This is illustrated by the following quotation of Therese Jolliffe, (Jolliffe et al 1992). She is an adult with autism who is currently conducting research in this area.

*Reality to an autistic person is a confusing, interacting mass of events, people, places, sounds and sights. There seems to be no clear boundaries, order or meaning to anything. A large part of my life is spent just trying to work out the pattern behind everything. Set routines, times and rituals all help to get order into an unbearably chaotic life. (page 16)*

The person with autism sees the world as consisting of unconnected fragments and is often desperate to create order out of apparent chaos. This can lead to false assumptions as to why specific events occur. For example Gunilla describes how,

*I very much wanted to understand and that led me to think up something, a theory about how things worked, that always applied to whatever I saw. Every time my mother came (to collect her from school), one thing was always the same: she always came into the hall. What if that meant I had to be in the hall for her to come at all? That's what it was. That must be it, I thought. If she came in and I wasn't in the hall, if she didn't see me, would she then go home again? And perhaps it also meant that if I wanted to go home, then she would appear if I went out into the hall. I had actually never seen my mother in any other room except the hall, so I associated her appearance with the actual room, as if she just materialised in the doorway. Every thing had to hang together in some logical way and now I had probably found it: as long as I was in the hall, the room to which my mother always came, then she would come. If on the other hand I was in the wrong room, in any of the rooms into which she never came, then she wouldn't come. (page 70)*

How do Social Stories help? They use a written medium to identify which details to attend to and what they mean. They provide the code to decipher what is relevant to the situation and explain the 'thread' or theme that links specific events. They also correct false assumptions. In other words they provide the logical connections and enable the child to 'see' the big picture. The acquisition of this knowledge is recognised by the child as far more important than other aspects of the school curriculum. Gunilla describes how,

*What was on offer at school was so totally uninteresting. I needed to learn skills, not about how many stomachs a cow had or what the farmers of Sweden produced. Knowledge of that kind said nothing to me and had nothing to do with my world. I needed to learn how you found your way around school, which lavatories to go to, what you did when you played and how my body worked. ( page 126)*

Comic Strip Conversations use a visual medium to identify the salience and pattern behind everyday events. They also use colour to portray feelings, a technique already discovered by some children with autism.

This is explained by Gunilla as:

*Sometimes it was all so incomprehensible, I couldn't even find an end in the tangle to pull at. Then I would turn in on myself, knowing neither the question nor the answer; and I couldn't tell anyone. My state was just colour inside myself. I was the only one who had colours: I had an internal colour system which became a way of connecting information about different worlds, about the nursery world and the garden world. Everything became a colour inside me- people, words, feelings, atmospheres. Not understanding was faintly orange, a pale orange with sunlight coming through it. Tiredness, what I hadn't the energy to try to understand, came and laid a dark green on top of the orange light and put it out. (page 21)*

## Theory of Impaired Executive Function

This theory was developed by Sally Ozonoff and Bruce Pennington, (1991) and James Russell (1997). They applied our knowledge of the function of specific structures within the brain and the profile of cognitive abilities associated with autism, in particular, problems with planning, organisation, shifting attention, working memory, impulse control, initiation and perseveration. This pattern suggests a dysfunction of a specific area of the brain, the pre frontal cortex. There is increasing neurological and psychological research evidence to support this theory. These characteristics account for similar and different aspects of autism than are explained by the Theory of Mind and Weak Central Coherence.. However, Social stories are specifically designed to assist the individual in several of these areas. They provide a script of actions and dialogue that reduce the effects of problems with planning and organisation, and strategies and cues to assist with initiation and impulse control. People with autism also describe how they can remember and read text in their mind more efficiently than recalling spoken instructions. Gunilla refers to how,

*I had an almost photographic memory for a certain type of text ..... and could leaf through to a page in my head for any paragraph I needed. In some ways, I didn't really remember what was there but I had a kind of copy to the page in my head, which I was then able to read off. (page 149)*

Comic Strip Conversations also use the person's relative strengths in executive functions, for example, Gunilla describes the following,

*But talk about things I couldn't visualise never stuck in my head - it would just fly away and settle somewhere else. The words possibly stuck, but only as words, interesting in their structure or flavour. They might have exciting colours or contain pleasant sounds, but if I couldn't visualise them they meant nothing. (page 24)*

The author would add that one of the understandable characteristics of autism and Asperger's Syndrome is to become very emotional when confused in circumstances that require social reasoning. The specific emotions can be anxiety, sadness and anger.

These emotions inhibit rational thought, a process associated with the frontal lobes. Social Stories and Comic Strip Conversations are written or drawn when the child is calm and reasonable. It is in this frame of mind that the child is more able to recognise the thoughts of others, the connections between events and to plan what to do.

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