Theory of Mind & Autism

As an adult – you are aware of your mind and how it works. As an adult you realize that people do not all share the same thoughts. This understanding is called **theory of mind**. As a child you did not have a theory of mind – because of this you often made mistakes and misinterpreted situation.

Psychologists use a number of different tests to check to see if a child has a theory of mind. One of those tests is the **False Beliefs Test**. This test is used to check to see if a child can recognize that the beliefs they have – may not be shared by other people. A young egocentric child believes everyone shares the same thoughts – a more mature thinker knows that is not true. A younger child does not realize that false beliefs impact a person’s actions.

- To perform the test -- you would show a child an ordinary piggy bank. You would ask them what they think is inside the piggy bank.
- Most children will tell you money or pennies.
- With the child watching - you would next take all the pennies out of the bank and replace them with marbles.
- You again ask the child – “What do you think is in the bank?”
- They say marbles.
- The next step is to ask them to - imagine that a friend came into the room and saw the piggy bank on the table. You ask “What will your friend think is in the bank?”
- If the child understands theory of mind – they will say their friend would think that money was in the bank – because banks usually hold money and their friend will be guided by this false belief.
  - A child without theory of mind – would say marbles – wrongly presuming their friend knows the same information that they do.

Most children cannot correctly answer the questions when they are 3 years-old – but by 4-5 years they can – demonstrating they understand at least one aspect of theory of mind.

Another part to having a theory of mind is the understanding that people gain knowledge when they look at things – or use any of their senses. The child slowly learns that each sense provides you with unique bits of information. Eyes allow you to see – but cannot hear. Ears can hear – but cannot see.

Before a child understands this aspect of theory of mind – they will presume a grandmother can see the new toy when they hold it up to phone – because they can clearly see the toy.

Once a child has a theory of mind – they are ready to begin telling much better lies. Without a theory of mind – you think everyone knows what you know. This makes lying very difficult. Once you realize that people do not know everything that you do – lying becomes a possibility. Psychologists use the **Button Test** – as another test of theory of mind – as it relates to lying.

- An adult shows the child a button – then hides in one of their hands, hit behind their back.
- The child guesses which hand has the button.
- Next it is the child’s turn. They hold the button and hide it in one of their hands.
Children without a theory of mind presume if they know were the button is – everyone will know where the button is – they do not even attempt to hide the button. Once a child has a theory of mind – they realize they can hide the button and perhaps trick the adult.

When a child fully understands theory of mind – they understand that people think, feel, believe, and plan things – in their minds. These thoughts shape their behavior. Some people refer to theory of mind as a ‘mind reading skill.’ When you understand how the mind works – it helps you to predict other people’s behavior more accurately. When you have a theory of mind – you can set aside your beliefs and emotions – and guess what someone else is feeling – and from there – you can predict what they will do. With a theory of mind - you no longer believe that everyone shares the same beliefs and intentions. Child with autism have a difficult time passing the false beliefs test – they have a sort of ‘mind blindness’ – they cannot read other people’s minds. Life is much more difficult if you cannot guess what others are thinking, feeling, or planning to do next.

Even though children are unable to pass the false beliefs test until they are about 4-years-old, they start building a set of basic skills shortly after birth. Here are some of the skills children must develop before they can have a theory of mind: [Children with autism often lack these skills]

1. **Joint attention.** This skill develops around 9 months of age. Mother and child both look at the same object at the same time – pointing or knowing how to follow someone else’s point – are key skills. These shared experiences help children realize people do not always see the same item in the same way.

2. **Understanding intentions.** Children quickly learn that people have goals or intentions. Children often want to ‘help’ their caregivers reach their goals – helping crack the eggs needed for the cake, helping a parent fix the car, or helping mom wash the floor.

3. **Pretend play.** When children make-believe they are demonstrating that they know the difference between reality and pretend. They know that a real tea party has tea – and a pretend tea party has make-believe tea - that can be sipped loudly and poured dramatically. They know what a real car sounds like – and can pretend their cardboard box is a car with a bad muffler.

4. **Imitation.** When a child imitates an adult’s actions – this shows that they can watch a behavior, remember it, and repeat it at a future time. Often they not only copy the behavior – but include the intention that went with it. A child might get out the broom and clean up the dog food they spilt – wanting the house to look nice for dad.

5. **Emotional understanding.** Children quickly learn that other people have feelings or emotions. They also learn that experiences can lift someone’s mood – or make it worse. Young children will offer to share a favorite blanket with parent who is upset, or hug a dog that has been yelled at. They also learn that telling a sister she looks fat – will make her feel bad.

Another indicator that children as young as 2 are developing a theory of mind – is their ability to talk about mental states. You can ask a child why they did something – and they can tell you in simple terms what they were thinking. You can question a child about what they want for breakfast and they can point to the ad on TV and say “I want that.”
Henry Wellman believes that theory of mind develops in two steps.

1. At about 2-years children develop desire psychology. They can talk about what they want and ask to have their desires met. “I want candy.” “Give it to me.” At the beginning of this stage they still believe that everyone likes the same thing they do. If you tell them you like carrots and hate cookies, and then ask them to get you a treat – most young toddlers will attempt to feed you cookies, because they like cookies better. By 18-months they are more likely to pass you a carrot.

2. At 4-years they move into the belief-desire psychology step. They understand that people do the things they do - because they want something and because they believe selected behaviors will help them get what they desire. A child at this age knows that he is more likely to get a treat at the grocery store - if they help mom load the cart, smile cutely at all the little old ladies, and remember to say please. At this point they easily pass the false belief test. They understand that beliefs shape behavior – just like desires do. They are less egocentric. With time their theory of mind will continue to grow as they gain experience ‘reading minds.’ Having these skills helps a child to understand social events, make friends, know who not to trust, and how to argue for what you want.

If you look at theory of mind from a biological point of view – you realize that theory of mind develops as the brain develops. The prefrontal cortex is actively involved when you are thinking about other people. As children develop - they use the same brain areas when they are solving a false belief test as adults do. Younger children who cannot pass a false belief test – use a different brain area as they attempt the test. Researchers believe that humans have mirror neurons throughout the brain. Mirror neurons seem to help people imitate others actions, language, or facial expressions. The same mirror neurons are stimulated when humans perform an action, and when they watch another person perform that action. These neural pathways help us to understand other people. If you watch someone take a sip of ice water on a hot summer day – the same mirror neurons are stimulated in your brain – as when you take a sip of ice water. These pathways link to your emotions and desires – helping you to predict what the other person is feeling or wanting next.

Mirror neurons are actively involved in the process of imitation, the development of theory of mind, language expansion, and the use of empathy. Children with autism do not have normal brain development – they do not develop a normal theory of mind. Their mirror neurons do not seem to activate when they observe other people. Children with autism have a difficult time with imitation, theory of mind, language, and empathy. They do not spontaneously copy other people’s facial expressions – many of these are linked back to mirror neuron defects.

You can also look at theory of mind as a learned skill that requires social interactions to fully develop. Children do not develop a theory of mind in isolation – their thoughts are shaped by the people around them and the conversations they have about emotions. Language is a very important skill – without language theory of mind is slow to develop. Parents who are sensitive to the child’s needs and feelings – encourage a secure attachment and open the door to discussions about feelings. These talks help the child to understand their own emotions, and other people’s emotions. Asking a child “How did that make you feel?” Or “How do you think your sister felt – when you broke her doll?” help the child think
about emotions. Siblings also help a child develop a *theory of mind* – children get to practice their mind reading skills and interact with someone closer to their own age. Siblings are also the most likely playmates in joint pretend play activities – these activities encourage sharing, empathy, and conflict resolution.

Theory of mind is an important skill. As it develops children are more prepared to make friends, understand other people’s reactions, and to live successfully in society.

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