

## Cognitive Theories of Autism

- Theory of Mind
- Theory of Executive Function
- Weak Central Coherence Theory

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## Theory of Mind

- **How it Develops**
- 1<sup>st</sup> order False Belief Tasks
- 2<sup>nd</sup> Order False Belief Tasks
- **Poor Theory of Mind?**
  - i. Number of ways Social Performance is Affected
  - ii. Behaviors that may suggest poor theory of mind
- **How does this impact Autism?**
- **How can we incorporate it into therapy?**

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## Theory of Mind Development

- Is understanding that we all have different beliefs, knowledge, and minds
- We are able to see that people have thoughts and feelings which impact their actions
- We realize people do not have the same thoughts as us

(Carnahan, Christman, & Williamson, 2011)  
(Mitchell, & Rijdsdijk, 2007)

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## Theory of Mind

Development / Magnification Continued

2 types of tasks

### i. 1<sup>st</sup> order False Belief Tasks

1. We all have different thoughts
2. Well developed in a child by age 5
3. Start to acquire by age 4

### ii. 2<sup>nd</sup> Order False Belief Tasks

1. We understand that we have thoughts about each other
2. Not developed until age 6
3. What a person thinks about other people's thoughts

Baron-Cohen, 1989

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## Intersubjectivity

- When does it emerge?
- Sharing affect
- Following and initiating joint attention
- Imitation
- Understanding others desires and intentions
- "Self-Other Mapping"

(Mundy & Arca, 2006)

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## Mirror neurons

- Brain cells in the premotor cortex
- First identified in monkeys in the early 1990s.
- Neurons fired when an act is performed or when an observer see another perform the same action
- Involved in higher order cognitive processes – such as LANGUAGE
- Helps us decode the intentions of others and develop empathy

Iacoboni, 2006)  
(Iacoboni, 2008)

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## 1<sup>st</sup> Birthday

- Video research
- TDC will look at others for reassurance when cake is placed before them
- What about children later diagnosed with ASD?

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## Poor Theory of Mind in Social Performance

Individual may:

- not realize they do not “fit in” or understand why they don’ t
- not correctly perceive situations
- misread or miss social cues/responses of others
- miss social cues and will not appropriately act on the social responses of others

TDC with early developing TOM are more popular among their peers and enjoy more success in life in general.

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## Poor Theory of Mind Behaviors

1. Comments that embarrass or offend
  - a. Even if they are true
2. Inability to pick up on cues that suggest our conversation partner is not interested in what we’re saying
3. Wondering what other people are thinking and knowing that they have thoughts about what we are thinking
4. Inability to pick-up on facial expressions, body language, prosody
5. Inability to understand that our behavior affects how other people think and feel about us

) Kowalski, T, 2002

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### How does Theory of Mind affect Autism?

- YES, it does affect Autism.
  - i. Affects pragmatics
    - Language use
  - ii. Social and communication impairments
  
- Individuals with autism are very gullible
  - i. Don't understand when people are taking advantage of them
    - This can lead to a lot of messy situations

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### How can we Incorporate Theory of Mind into Therapy?

- Teaching Strategies:
  - Help the child to see beyond the literal meaning in Reading
    - Learning how the character progresses throughout the story
    - Contribution of a character within a story
    - Characters viewpoint
    - Comprehension of peoples opinions
  - Use background knowledge to relate characteristics

(Carnahan, Christman, & Williamson, 2011)

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### Theory of Executive Function

- How it Executive Function /Development
  
- How does this Executive Dysfunction impact Autism?
  
- How can we incorporate the Theory of Executive Function into therapy?

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## Theory of Executive Function

### Development

- "Is the ability to allow us to organize our behavior over time and override immediate demands in favor of longer-term goals."(Dawson & Guare, 2004)

#### How we plan and execute a goal

- i. Processing information
- ii. Planning & Organizing tasks
- iii. Self-regulation
- iv. Monitoring behavior using feedback
- v. Long-term and short-term Memory
- vi. Ability to be flexible

(Osmonoff, & Schetter, 2007)  
(Meltzer, 2007) (Dawson & Guare, 2004)

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## Executive Dysfunction

--Occurs in:

- Autism
- Schizophrenia
- Obsessive-Compulsive Disorder
- Tourette Syndrome
- ADHD
- Parkinson's disease.....and more

Meltzer, 2007

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## How does Executive Dysfunction Affect Autism?

- It causes:
  - Poor planners
  - Restricted interests
  - Stereotyped behaviors
  - Recurring language use
  - Recurring motor movement
  - Overall repetitiveness
    - Recent Research has concluded that executive dysfunction leads to the repetitive actions
    - This can lead to aggravation with oneself

(Azano, & Tuckwiller, 2011)  
(Meltzer, 2007)  
(Osmonoff, & Schetter, 2007)

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### How can we incorporate the Theory of Executive Function into Therapy?

2 key methods:

#### 1. Teaching Strategies

- a) Accommodation
  - Physical or environmental
- b) Modification
  - Providing appropriate material level
- c) Compensatory
  - Independent skills

#### 2. Direct instruction

- a) Skill building

(Ozonoff, & Schetter, 2007)

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### Weak Central Coherence Theory

- How...
  - it Developed?
  - it can become a disadvantage (or con)?
  - it affects Autism?
- Improving Weak Central Coherence in Therapy ?

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### Weak Central Coherence Theory

Development, Cons, Affects on Autism

- Focuses on detail not the bigger picture
- Can explain inability to focus on main concepts
- Inability to interpret (comprehend) non-literal meaning from context

Affects on Autism:

- Can explain special talents and peaks in performance

(Carnahan, Christman & Williamson, 2011)  
(Martin, & McDonald, 2009)

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### Improving Weak Central Coherence Theory in Therapy?

- Strategies will help the child focus on not just the detail but the bigger picture
- Teaching Literacy and Reading Comprehension Strategies:
  - **Identify the main points**
    - Helping child identify all the main “details”
  - **Sum up main points**
    - Helps the child organize those “details” into a bigger picture
  - **Cueing**

(Carnahan, Christman, & Williamson, 2011)

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### Improving Weak Central Coherence Theory into Therapy? Continued

- **Shape the environment for learning**
  - Small and large group instruction
  - Set-up activities
  - Build on their background knowledge
  - Have the reading text meet the child’s needs
  - Link their focused topic to another topic
    - Allowing them to see the bigger picture
- **Structure is key**
  - Schedule, routines, check-lists, labels
  - Completed work boxes

(Carnahan, Christman, & Williamson, 2011)

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### Weaknesses in the Cognitive Processes of Autism

- Can cause issues with:
- a. Pragmatics (social language performance)
  - b. Conflict resolution
  - c. Difficulty repairing miscommunication
  - d. Negotiating
  - e. Dealing with sarcasm/irony
  - f. Presupposition
  - g. Conversation and narrative discourse
- Early therapy intervention is very important

Winner, 2007

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