

Magic of Mentalizing:
Applying Innovations in Theory of Mind and Social-Cognition to Create Effective Interventions for Children with ASD

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ExQ is a personalized digital curriculum for middle and high school students that directly builds Executive Function skills through games, error analysis and metacognitive lessons.

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Executive Function Defined

Executive Function refers to the brain processes involved in the top-down, goal-directed modulation of attention, thought, emotion, motivation and action.

- Zelazo et al., 1997

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Goal Directed Modulations

Modulation of attention, thought, emotion, motivation and action

Dialing Up or Dialing Down, Depending on the Context & Demand!

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3 Core Executive Function Skills:

- 1** Inhibition
- 2** Working Memory
- 3** Mental Flexibility

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Strong EF & Decision-Making Proficiency

- Control impulse
- Regulate behaviors and emotions
- Reason critically and think flexibly
- See multiple perspectives
- Not miss the forest for the trees
- Extend empathy and compassion for others
- Self-reflect and ask for help
- Repair relationships

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Independent & Self-Sufficient

A self-sufficient learner manages one's own thoughts, feelings, and behaviors to achieve goals – set by self, for self without selfishness

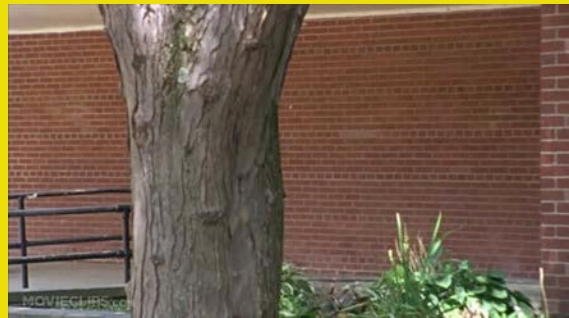
It's what you DO with what you know!

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Executive Function in Action



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1 Inhibition


The man looks strange.
I have a question.
~~I am going to ask NOW!~~

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(Give Mr. McBride full attention)
Peter Cooper built the first train in 1829. It was called Thomas Thumb.
Long time ago people didn't leave their towns because travel was hard.
How tall is he?
I am the same height as he is.
(Give Mr. McBride full attention)




2 Working Memory

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What would my teacher want us to do? What would she like the guest to think? And, what will my teacher say to me?




3 Mental Flexibility

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EF to Shift & Adapt



1 Inhibition



3 Mental Flexibility




2 Working Memory

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EF in Social Context



A major ingredient in successful social interactions is the capacity to "Mentalize" which refers to that ability to understand and manipulate other people's behavior in terms of their mental-states.

- Chris Frith and Utah Frith

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Making Sense of the World

Range of Mental States




Emotions Thoughts
Beliefs Dreams
Desires Pretense

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Theory of Mind (ToM)



ToM (Mentalizing)


"Theory of Mind (ToM) is the ability to put oneself into someone else's shoes, to imagine their thoughts and feelings"

- Baron-Cohen (1995) & Baron-Cohen et al. (1985)

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Mentalizing Or Mindreading



"When individuals mindread or mentalise, they not only make sense of another person's behavior...but they also imagine a whole set of mental states (they have seen something of interest, they know something or want something) and they can predict what they might do next."

- Simon Baron Cohen

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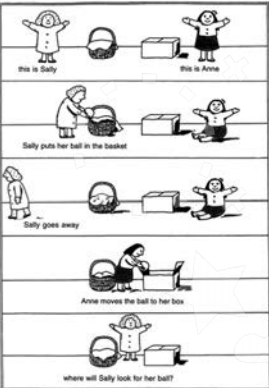
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"Acid Test" of Theory of Mind

False belief test: The Sally-Anne Task

"Where will Sally look for her ball?"

- C D Frith, U Frith Science 1999; 286:1692-1695



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Cognitive ToM

What is Leila thinking?



Affective ToM

What is Mia feeling?



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ToM: Self & The Other

Interpersonal Cognitive ToM

Interpersonal Affective ToM

Intrapersonal Cognitive ToM

Intrapersonal Affective ToM

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Let's watch

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Figuring out inner mental states of others

Feeling

Feeling

Feeling

Thinking

Thinking

Thinking

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Comparing inner mental states

Feeling

Feeling

Feeling

Thinking

Thinking

Thinking

The viewer

Feeling Thinking

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Applying ToM

Theory of Mind

Cognitive ToM

Affective ToM

- The viewer **guesses** WHY the officer pulls the woman over. Also **figures out** WHY the officer asks the woman to get out of the car.
- The girl **understands** that the police officer thinks that the girl is not the driver's daughter.
- The viewer considers multiple perspectives (mom's girl's & police officer's). Pauses and wonders WHY the little girl do that?

- The viewer recognizes mom's calmness while being pulled over. Infer mom's confusion when asked to step out.
- Empathize with the mom who's oblivious of the girl's "prank".
- The viewer reflects on his/her own emotions about the whole experience.
- Feels the feeling of amusement.

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Developmental Disabilities & Deficits in Theory of Mind

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Autism & Mentalizing Deficits (1)




- All aspects of ToM are significantly affected
- In children with high-functioning autism or Asperger's, Cognitive ToM tends to develop
- Inferencing difficulties are greater than expected based on language skills
- Difficulty tracking eye gaze
- Less likely to look at eyes
- Difficulty imitating and identifying emotional expressions
- Difficulty recognizing emotionality in voice

- Carol Westby

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Language Impairment & ToM Deficits (2)



- Delayed in developing ToM
- More difficulty identifying emotional expressions; more likely to confuse negative emotions
- Fewer mental state words
- Difficulty with inferences; more than expected based on sentence comprehension


- Carol Westby

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Interplay between ASD & ADHD

- Both have deficits in executive control and in navigating social context (Bentley et. al 2011)
- Social communication
- Challenges with making and keeping friends
- Eye contact vs. distractibility
- Both > in males, strong comorbidity with intellectual, LS & Dev difficulties




- Leitner (2014)

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Interplay between ADHD & ASD

- Estimates suggest 2/3rd of individuals with ADHD show features of ASD
- Between 30 & 50% of individuals with ASD manifest ADHD symptoms (particularly at pre-school age)




- Davis and Kollins (2012)

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ADHD & ToM Deficits (3)




- ToM delays/deficits (more likely on higher levels)
- Facial affect recognition deficits
- More time to make decisions
- Difficulty making judgments about facial expressions and characteristics (matching to situation)
- Reduced empathy
- Less matching of their emotions to others' emotions

- Uekermann, J., et al (2010). Social cognition in attention-deficit hyperactivity disorder (ADHD). Neuroscience and Biobehavioral Reviews, 34, 734-743

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Abuse & Neglect & ToM Deficits




- Limited ToM
- Inability to form attachments and effective peer relationships
- Reduced/lack of empathy/altruism
- Disturbances in the development of intrapersonal ToM
- Social-Pragmatic deficits
- Language used primarily to get tasks done; less frequently for social or affective exchanges

• Coster, W., Cicchetti, D., (1993). Research on the communicative development of maltreated children: Clinical Implications. *TopicLanguageDisorders*, 13(4), 25-38.
• Music, G. (2011). Trauma, helpfulness and selfishness: The effect of abuse and neglect on altruistic, moral and pro-social capacities. *JournalOfChildPsychology*, 37, 113-126.

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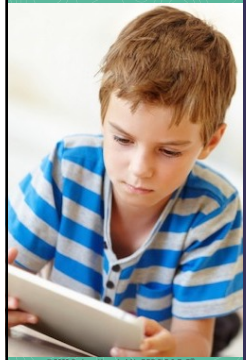
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Mentalizing, Classroom Relationships & Everyday Learning

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Bullying & ToM


Bullies

- Some bullies have good cognitive ToM (maybe most likely in ring-leaders)
 - Know how to manipulate others
 - Can maintain their status while bullying
- Some bullies have lower ToM, but SES and maltreatment contributed more to bullying than ToM
- May not have affective ToM or empathy

Shakoor, S., et al (2012). A prospective longitudinal study of children's theory of mind and adolescent involvement in bullying. *Journal of Child Psychiatry and Psychology*, 53, 254-261.

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Fairness: Let's watch

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ToM & Academic Relevance (1)

- Teachers give instructions and directions to the class
- Through explicit protocols and class-rules teachers express their desires and wishes
- Some expectations/rules are implicit that need to be "figured out" by reading the room and sensing the scene

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ToM & Academic Relevance (2)

- Failure of ToM and EF is evident through impulsivity, lack of cooperation, defying rules, and creating trouble
- Lack of alignment of goals can create an uphill battle
- Rationale for self-correction for better relationships may be lost on the child

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ToM & Academic Relevance (3)

- The corrective feedback may not be understood or interpreted by students if they lack ToM
- EF/ToM insights open up to the possibility that, "Misbehaving kids are misunderstood kids"

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5 STRATEGIES:

Turning on the Magic of Mentalizing to Improve Social-Cognition

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Strategy 1: Read the Room & Sense the Scene

- Establishing the context
- Assess situational ambiguity
- Interpret interpersonal dynamics (lie, deception, false praise)

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Establish the context

- Situation
- Location
- Occasion

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Establish the context (2)

- Where is this happening?
- How do we know?
- What happened before?
- What do you predict will happen next?

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Situational ambiguity

- Why would this young man be crying?
- Why would this young man be crying on a happy occasion?

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Situational ambiguity (2)

The next day was a disaster. Everyone at school laughed at Candice. They called her "Garlands Candy" and "Purple at the Party. Lettuce." She tried her best to act as if everything were normal, but when the class sang the Pledge of Allegiance, her stripes turned RED, white, and blue, and she broke out in tears!

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Lying: Let's watch



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Interpersonal Dynamics




- Figuring out the lie
- Understanding desires, wishes, and intentions of people
- Impact on interpersonal relationships

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ExQ Infinite Knowhow
Being fooled (1): Let's watch

- Understanding desires, wishes and intentions of people
- Figuring out the deception
- Recognizing spite

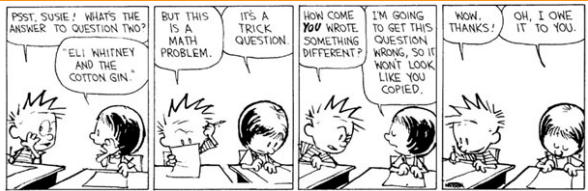


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ExQ Infinite Knowhow
Being fooled (2)


- Understanding desires, wishes, and intentions of people
- Figuring out the deception
- Recognizing spite



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Strategy 2: Going beyond literal



- Read between the lines
- Figurative language
- Infer & extrapolate


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ExQ Infinite Knowhow
Reading between the lines

"This is incredible," said Mr. Rogers.
"Who is the rocket scientist who put my glasses in the dishwasher?"
"I am," said Amelia Bedelia.
"Thank you for promoting me.
You told me to wash all of the glasses."

- When/Where would you see this?
- What's the context?
- How does this all come together?



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Let's watch (spaghetti dinner)

- Interpretation of "Eat like a family"

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Strategy 3: Thinking ToM Maps

- Assess interpersonal exchange
- Organize interpersonal & intrapersonal ToM
- Activate metacognitive process

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Mapping thoughts & feelings

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Assess interpersonal exchange

Why do mom and dad find it **strange** that their pizza is delivered by their son?

Why is it that freshly delivered pizza half eaten is "not so strange"?

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Example

A Chair for my mother
by Vera B. Williams

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Scene from "A chair for my mother"

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Picture in the Head (1)

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Dialogue in the Head (2)

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Metacognitive Process

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Where would the family go now?

Will anyone help them?

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Strategy 4: Perspective Taking

- Figure out needs of others
- See situations from others' point of view
- Provide empathic support to others

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Perspective Taking

- What's the difference between athletes and non-athletes?
- How does the varsity football player spend his time after school?
- Why did the girl stop getting bullied?

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Being considerate: Failed

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Let's watch

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Being considerate: Successful

- How did the French fan feel?
- How did the Portuguese fan feel about the French fan?
- Why did the French man give a hug to the young boy?
- Why did the boy wait?

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Strategy 5: Self-advocacy

- Explore motivations of others & clarify misunderstanding
- Assess needs/desires of self and ask for help effectively
- Reflect & devise strategies for self

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Conflicting Motivations

What does Jeremy want?

What does mom want?

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Expressing Personal Need

- Who prepared the packet and the note?
- What do they want?
- Who is the packet & the note for?

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Getting into Others' Head

"What is she thinking?"
Concerned. Boy, it's a long flight. Two infants can be a handful.

"How is she feeling?"
Stressed. I am worried that the crying babies might disturb the passengers.

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Expressing personal need

How would you feel if you got this note and these treats?

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Explore Self-Advocacy

- How did this mom of twins help herself?
- How did she get help from others?
- Why is it important to get help from others?

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Meta Process - Self-Advocacy

- 1) She made packets of candy and wrote a note explaining her situation. The mom knew if the babies cried during the flight it will disturb everyone.
- 2) Others on the plane tolerated babies crying and didn't complain to the flight attendants.
- 3) When we ask for help, we get help and our problems are understood by others.

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SUMMARY:

Turning on Magic of Mentalizing to Improve Social-Cognition

- 1 Sensing the Scene
- 2 Going Beyond Literal
- 3 Thinking Maps
- 4 Perspective Taking
- 5 Self-Advocacy

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Summary

"And yet, what are we to do about this terribly significant business of other people? So ill equipped are we all, to envision one another's interior workings and invisible aims."
— Phillip Roth

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Summary (2)

A well-developed mentalizing capacity allows children to connect, communicate and collaborate with others with appropriate social-understanding that propels not just their personal goals but collective mission.

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Thank You!

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