

**THE “READING THE MIND IN FILMS” TASK:  
A PILOT STUDY ON COMPLEX EMOTION RECOGNITION FOR  
THE ITALIAN ADAPTATION IN ADULTS WITH AND WITHOUT  
AUTISM SPECTRUM CONDITIONS**

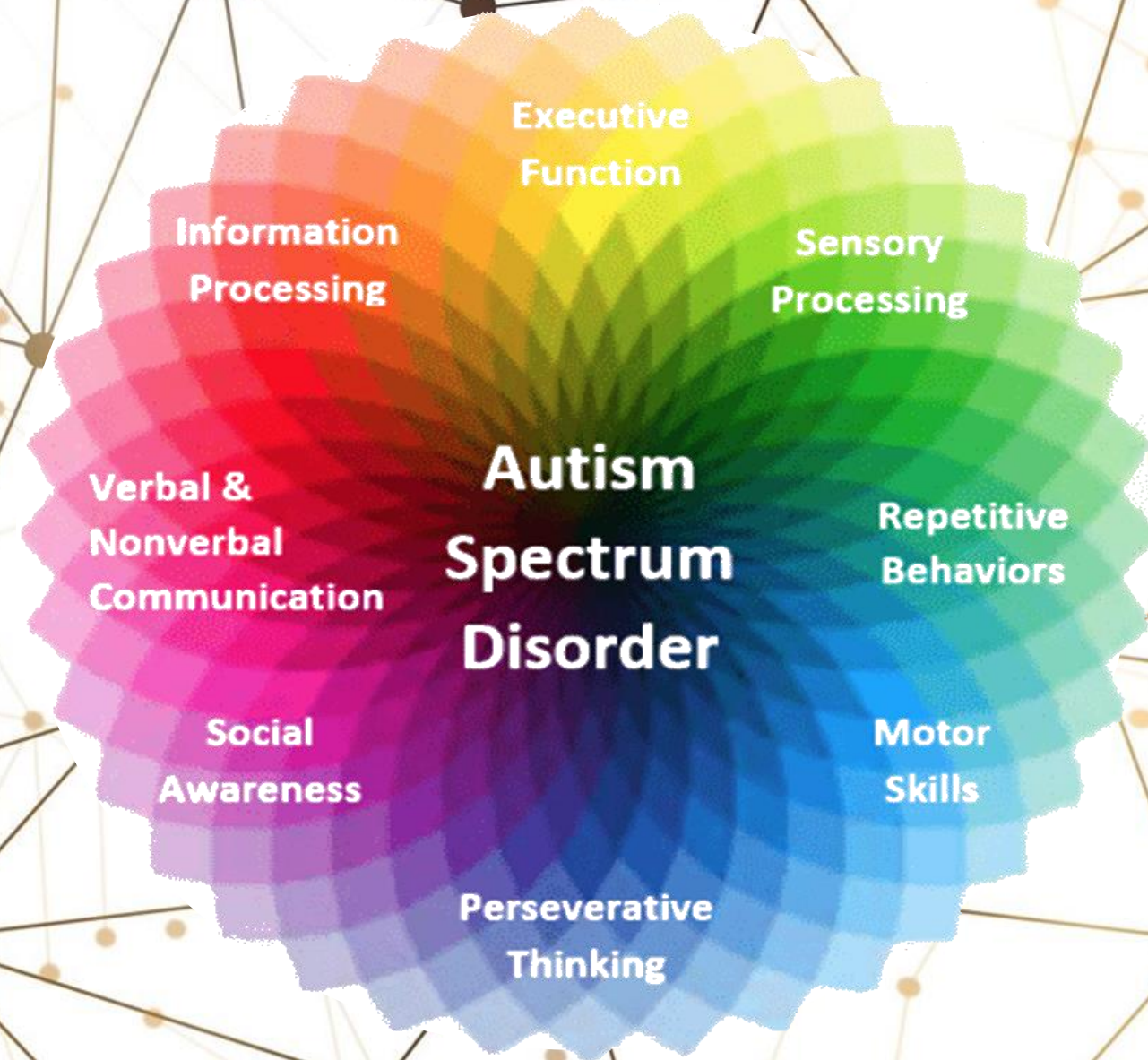
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# AUTISM SPECTRUM CONDITIONS (ASC)

- Neurodevelopmental disorders with persistent social and communication challenges (*APA, 1994; WHO, 1994*).
- Difficulties evident even in those without cognitive impairment, e.g., Asperger Syndrome (AS) and High Functioning Autism (HFA) (*Attwood, 1998; Baron-Cohen et al., 2000; Frith, 1989; Hobson, 1993*).
- Conceptual shift recognizing autism's heterogeneity, replacing distinct subtypes with a unified Autism Spectrum DSM-V (2013) (*APA, 2013*).



# AUTISM SPECTRUM CONDITIONS (ASC)

## SOCIAL AND COMMUNICATION CHALLENGES

- Limited response to social stimuli and challenges with social interaction (*Frith & Frith, 2005*).
- Restricted/Repetitive automatic behaviours (*Baron-Cohen et al., 2000*).
- Reduced eye contact, difficulty in recognizing facial expressions, and matching emotional content with spoken language (*Hobson, 1993; Baron-Cohen, 1995*).
- Difficulties in interpreting and using social cues (eg., gestures, gaze perception, proxemics), complex emotions and mental states (eg., pride, guilt, envy).

# THEORETICAL BACKGROUND

## Theory of Mind (ToM)

- Central cognitive theory in understanding social difficulties in autism (*Astington, Harris, & Olson, 1988*).
- ToM refers to the ability to attribute mental states—beliefs, desires, intentions—to oneself and others, crucial for interpreting social behavior (*Frith, 1989*).
- Deficits in ToM leading to challenges in understanding others' emotions, beliefs, and intentions (*Frith & Frith, 2005*).

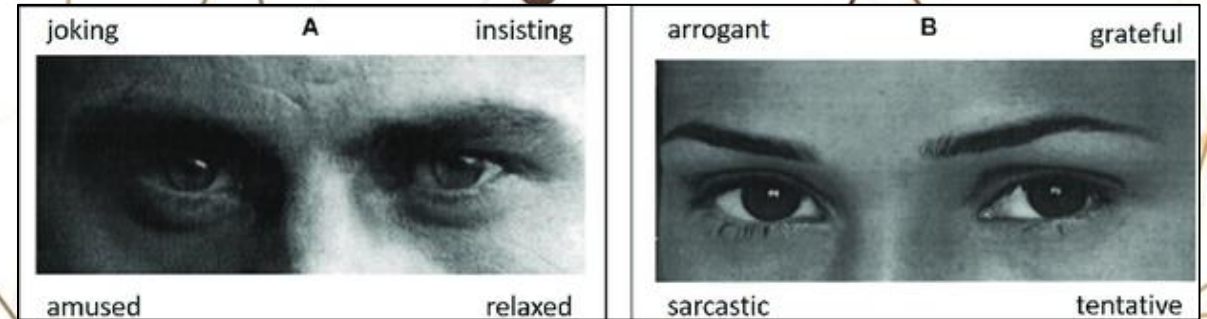
## Weak Central Coherence Theory

- Focus on details rather than the broader context, leading to difficulties in interpreting social cues (*Happé & Frith, 2006*).
- This cognitive style may further impair understanding of social interactions and communication.

# HOW TO MEASURE MENTAL STATES?

## The “Reading the Mind in the Eyes Test” (RMET)

- Measures recognition of emotions from just the eye region of faces.
- Widely used in different fields of psychology and autism research (*Baron-Cohen et al., 2001*).
- Unimodal sensory tool, presenting stimuli through a single sensory channel (e.g., visual perception).



## Limitations of the Reading the Mind in the Eyes Test (RMET)

- RMET focuses exclusively on facial expressions, **neglecting other important social cues** such as body language and tone of voice.
- **Ambiguous Interpretation:** some terms used to describe emotions may be interpreted in various ways, making consistent evaluation among participants difficult.
- The **emotions and mental states** represented are often **oversimplified** and may not reflect the complexity of real emotions experienced in daily interactions.
- **Lack of Ecological Validity:** The use of static images fails to capture the dynamism of social interactions, limiting the test's ability to assess social skills in real-world contexts.

# ADVANCEMENTS IN COMPLEX EMOTION RECOGNITION TOOLS

## Awkward Moments Test (AMT)

- The AMT (*Heavey et al., 2000*) consists of short video clips from advertisements that depict socially awkward situations.
- **Strengths:** Ecologic tool using videos and focusing on interpreting uncomfortable social interactions, relevant for understanding social cognition.

## Limitations of the AMT

- **Ecological Validity Concerns:** The scripted nature of advertisements may not capture the spontaneity and complexity of authentic social interactions.
- **Contextual Ambiguity:** The scenarios may lack depth, limiting participants' ability to engage fully with the emotional nuances.

## Movie for the Assessment of Social Cognition (MASC)

- The MASC (*Dziobek et al., 2006*) uses short film clips that depict realistic social interactions, requiring participants to infer the mental states of characters.
- **Strengths:** Highly Ecologic tool which Provides a more naturalistic setting for assessing social cognition compared to static images.

## Limitations of the AMT

- **Length:** The duration of the test may lead to fatigue or disengagement.
- **Interpretive Challenges:** Some scenes may be ambiguous, complicating accurate interpretation of characters' feelings.

# ADVANCEMENTS IN COMPLEX EMOTION RECOGNITION TOOLS

## Reading the Mind in Films (RMF)

- The RMF (*Golan et al., 2006*) utilizes film clips that present diverse social cues within rich contextual scenarios, prompting participants to interpret complex emotions and mental states.
- **Strengths:**
- **Comprehensive Assessment:** Encourages consideration of various cues, including facial expressions, body language, vocal intonations, and context.
- **Ecological Validity:** Closely aligns with how emotions are experienced in everyday life, offering a more holistic view of emotional understanding.

## Aim of the present study

This pilot study aims to **adapt the RMF to an Italian version by translating and dubbing the original clips**, enhancing the ecological validity of emotion recognition and mental states assessments for individuals with and without Autism Spectrum Conditions in Italy.

# METHODS AND PROCEDURE

## Apparatus: Adaptation of the RMF

### Dubbing Process Overview

- **Materials Acquisition:** 22 film clips from the Autism Research Centre website, primarily from English films (late 1990s - early 2000s), with one Italian film ("L'ospite d'inverno").
- **Script Creation:** Created a script capturing dialogues, emotions, and contexts, followed by a precise Italian translation reviewed by bilingual experts.
- **Engagement of Professionals:** Collaborated with professional voice actors and an audio technician for dubbing. Sourced voice actors from Fiverr, ensuring their characteristics matched the original actors.
- **Audio and Video Editing:** An audio/video editing expert synchronized new dubbing with lip movements and original background sounds, maintaining the clips' timing and emotional tone.
- **Finalization and implementation:** The dubbed clips were meticulously revised for semantic accuracy (back translation method); leading to the Italian version of the clips.





# METHODS AND PROCEDURE

## Materials

- **RMET:** Assesses the ability to infer emotional states from photographs of the eyes, with participants selecting emotions from a list.
- **RMF:** Evaluates recognition of complex emotions through short film clips (5-30 seconds). Participants identify the main character's emotions from four adjectives, **with clips translated and dubbed into Italian for ecological validity.**
- **Autism Spectrum Quotient (AQ):** A self-report questionnaire measuring autistic traits, consisting of 50 items. Higher scores indicate more pronounced autistic traits ( $\geq 24$ ), using the validated Italian version for cultural suitability (manipulation check).

## Participants

- **Sample Size:** 44 participants (20 males, 24 females), aged 19-39 years ( $M = 23.4$ ;  $SD = 3.77$ ), determined via G\*Power analysis ( $\alpha = .05$ ; effect size  $= .5$ ).
- **Group Division:** high (HATs; AQ score  $\geq 24$ ) and low (LATs; AQ score  $< 24$ ) autistic traits groups, each with 22 participants.
- **Recruitment:** Low AQ group: Students from Milano Bicocca University. High AQ group: Individuals from Scuola Futuro Lavoro attending a film-making course, diagnosed with autism without cognitive impairments (Level 1).

# DATA ANALYSIS

## Descriptive analysis

- Responses to the RMF test were analyzed to determine the percentage of correct identifications for each of the 22 target emotions (table 1).
- The accuracy of participants in the current study and compared to Golan et al. (2006) (in Table 2).
- Notable differences in accuracy rates between participants with high and low autistic traits were identified for several emotions.

**Table 1.** *Correctly recognized %*

Emotion/mental state	<i>High autistic traits group</i>	<i>Control group</i>
Seccato	95	82
Goffo	18	23
Sminuito	41	27
Amareggiato	18	18
Preoccupato	100	91
Sconcertato	64	82
Prova antipatia	32	41
Imbarazzato	36	32
Divertito	54	41
Esasperato	82	91
Furibondo	54	68
Commosso	100	82
Lieto	32	36
Pungente	54	50
Riflessivo	50	45
Risentito	41	50
Rassegnato	100	91
Compiaciuto	32	44
Duro	32	27
Afflitto	50	64
Senza pretese	45	36
Preoccupato	77	73

**Table 2.** *Correctly recognized (%)*

Emotion/mental state	<i>AS/HFA group</i>	<i>Control group</i>
Annoyed	77	73
Awkward	64	86
Belittled	45	68
Bitter	18	18
Concerned	55	77
Disconcerted	45	91
Disliking	50	82
Embarrassed	64	68
Enjoying	64	100
Exasperated	64	82
Incensed	68	86
Overcome	59	82
Pleased	77	91
Prickly	36	14
Reflective	50	64
Resentful	36	41
Resigned	59	73
Smug	73	86
Stern	64	55
Troubled	50	59
Unassuming	73	95
Worried	73	73

# DATA ANALYSIS

## Independent Sample T-Tests

- Two independent sample t-tests showed no significant performance differences on the RMF and RMET between low and high autistic traits groups :
- RMF ( $t(42) = 0.0800$ ,  $p = 0.937$ );
- RMET ( $t(70) = 0.654$ ,  $p = 0.515$ ).

### Test t a campioni indipendenti

Test t a campioni indipendenti

		Statistiche	gdl	p
prop	t di Student	-0.0800	42.0	0.937

Nota.  $H_a: \mu_{AQ0} \neq \mu_{AQ1}$

### Test t a campioni indipendenti

Test t a campioni indipendenti

		Statistiche	gdl	p
prop	t di Student	0.654	70.0	0.515

Nota.  $H_a: \mu_0 \neq \mu_1$

# DISCUSSION AND CONCLUSIONS

## Successful Translation and Dubbing of RMF Test:

- The dubbing process accurately conveyed emotions, matching the original study by Golan et al. (2006).
- The congruence in response accuracy validates the rigorous translation process.

## Unexpected result:

- Participants with high and low autistic traits showed similar performance in emotion recognition tasks, deviating from what is typically reported in the literature.

→ **Impact of Film-related Training may be protective factor**: High autistic traits participants' strong performance may be explained by their involvement in film and media courses, suggesting that exposure to emotional cues in media enhances recognition skills.

# DISCUSSION AND CONCLUSIONS

## Limitations and Future Research:

**I. IQ formal assesement:** Unlike Golan et al. (2006), our study did not include an objective IQ assessment for the all autism sample. While we assumed participants were within the normal IQ range based on high-functioning criteria.

However, our autistic participants fall within the normal IQ range since they were all attending a post diploma school.

**I.I. Future research:** should include IQ measurements to have their cognitive profiles.

**II. Cultural and Temporal Relevance of RMF Clips:** Some film clips used in the RMF test may not fully reflect contemporary Italian sociocultural contexts, which could affect participants' ability to identify emotions accurately.

**II.II. Future research:** Future research should adapt test materials to better reflect participants' cultural and everyday experiences, ensuring greater ecological validity.

**III.I. Sample Size and Generalizability:** The relatively small sample size of 44 participants and the peculiarity of our sample limits the generalizability of the study's findings.

**III.II. Future research:** While the study provides valuable pilot data, a larger sample of autistic participants with different backgrounds is necessary for stronger statistical conclusions and ensure that the findings can be applied to a wider population.

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The background of the slide is a complex network of interconnected nodes and lines. The nodes are represented by small circles in various shades of brown, tan, and gold. The lines connecting them are thin and light-colored, creating a web-like pattern across the entire slide. The overall aesthetic is clean and professional, suggesting a theme of connectivity or technology.

**THANK YOU FOR YOUR ATTENTION**

*if you have any questions, please don't hesitate to ask*