CORE STUDY #2: BARON-COHEN ET AL. 2001 (READING THE MIND IN THE EYES TEST)

- Autism Spectrum Disorder (ASD) - A neurodevelopmental disorder impairing a child's ability to communicate and interact. Symptoms: repetitive behaviour, little or no eye contact and can't recognise facial expressions. High Functioning Autism is HFA.

- Aspergers Syndrome (AS) - Autism spectrum disorder that affects language and communication skills. Symptoms: restricted & repetitive behaviours and trouble identifying facial expressions.

- Autism Spectrum Quotient Test (AQ) - self-report questionnaire with scores ranging from 0 to 50. A high score suggests that the person has more autistic traits.

- Theory of Mind (ToM) - the ability to understand the view of another.

Aim

- To assess the effectiveness of the modified 'Reading the Mind in the Eyes' (RET) test in distinguishing participants with High Functioning Autism (HFA) or Asperger's Syndrome (AS) from the general population.
- To explore the potential negative correlation between RET scores and Autism Quotient (AQ) in a sample of typically developing adults.
- To investigate gender-based variations in RET performance among typically developing adults.

Hypotheses

1) Participants with autism (AS/HFA) would exhibit significantly lower RET scores compared to the control group.
2) Participants with autism would achieve significantly higher scores on the AQ test.
3) Within the 'normal' group (comprising Groups 2 & 3), females would score higher on the RET than males in those groups.
4) Males in the 'normal' group would score higher on the AQ measure than females.
5) There would be a significant negative correlation between AQ and RET scores.

Background

According to Baron-Cohen's theory, individuals with autism may possess an underdeveloped Theory of Mind (ToM). To evaluate ToM in individuals, Baron-Cohen devised the 'Reading the Mind in the Eyes' task, where participants' ability to identify others' emotions based on photographs of their eye expressions is assessed.

Method

Participants
- Group 1:
  - Comprised 15 adult males with AS/HFA who were recruited via self-selection from the UK National Autistic Society through a magazine advertisement.
  - The group had an average IQ of 115 and represented various socio-economic and educational backgrounds.
- Group 2:
  - Consisted of a comparative control group of 122 adults drawn from the adult community, educational classes in Exeter, and public library users in Cambridge.
  - This group comprised 55 males and 67 females, with diverse occupations and educational backgrounds.
- Group 3:
  - Another comparative control group included 103 undergraduate students from Cambridge, comprising 53 males and 50 females.
  - Assumed to have a higher average IQ.
- Group 4:
  - Comprised IQ-matched control individuals, randomly selected, with an average IQ of 116, matching that of Group 1.

Design
- Quasi-experimental design with independent groups.
- Independent Variables: The key independent variables included the presence of AS/HFA or being typically developing and gender.
- Dependent Variables: The primary dependent variables consisted of RET score, AQ score, and gender identification for Group 1.

Procedure

- Development of the Revised Eye Test (RET):
  - The RET was developed by Baron-Cohen and Wheelwright, involving the creation of target words and foils for 36 photos.
  - A pilot study included 8 judges (4 males and 4 females), requiring agreement from at least 5 judges on the target word and limitations on the selection of foil words.
  - If necessary, target words and foils were retested until the criteria were met.

- In pilot tests, Groups 2 and 3 demonstrated a 100% success rate in gender identification. The control group was tested with 40 photos, but 4 were excluded, resulting in a set of 36 items.
- Test Implementation:
  - ∟ Each participant underwent individual testing in a quiet environment at either Cambridge or Exeter.
  - ∟ No time limits were imposed. Participants received a practice test and then evaluated 36 sets of eyes with four potential target words.
  - ∟ Group 1 judged the gender of each photo as a control task.
  - ∟ Participants in Groups 1, 3, and 4 completed the AQ test.
  - ∟ They were given access to a glossary of terms and encouraged to seek clarifications, with the glossary available during the test.

Results

- Scores on the RET ranged from 17 to 35, with a mode of 24.
- Adults with AS/HFA exhibited significantly lower performance on the RET compared to other groups, supporting Hypothesis 1 (H1).
- Adults with AS/HFA scored significantly higher on the AQ test, confirming Hypothesis 2 (H2).
- Female participants achieved higher scores on the RET, supporting Hypothesis 3 (H3).
- A significant negative correlation of -0.53 was observed between AQ and RET scores, aligning with Hypothesis 5 (H5).

Group	Average Scores		
	Number of Participants	RET Score	AQ Test Score
1	15	21.9	34.4
2	122	26.2	-
3	103	28.0	18.3
4	14	30.9	18.9

Conclusions

- AS/HFA adults exhibit significant challenges in recognizing the emotions of others, and they tend to score notably higher on the AQ test compared to the general population.
- Gender disparities were observed in the Revised Eye Test, with females outperforming males. However, this trend could gain greater significance with a larger sample size.
  - ∟ The Revised Eye Test emerged as a more sensitive gauge of adult social intelligence.

Evaluation

A strength of this study is that it is highly replicable. This is because it was conducted in a controlled laboratory environment with standardized procedures such as using the same sets of eyes and AQ tests for each participant. This means another researcher can simply get another group of participants, repeat the procedure exactly and compare and test the results for accuracy. This allows the findings of the study to be tested, therefore increasing the validity of the study.

Another strength of this study is that it is reliable. This is because the study was done with a standardized procedure which reduced demand characteristics which increased the reliability of the study. The Reading the Mind in the Eyes test was also standardized and improved for reliability. This increases the validity of the results of the study.

A weakness of this study is that it lacks ecological validity. This is because the study was conducted in a laboratory environment with a standardized procedure. In the RET, the participants only focused on the eyes when in real-life situations they had to take into account other factors like body language, facial expressions, and voice tone. This therefore reduces the extent to which the results can be applied to reality, reducing the validity.

Another weakness of this study is that it breaches the ethical guidelines of protection. This is because for the participants with AS/HFA, getting questions wrong on the RET test may have caused high levels of stress, which breaches the ethical guideline of protection from physical and psychological protection which states that the study must not place the participants under emotional stress, and must return them to their original state after the experiment. This therefore reduces the credibility of the study.

Issues and Debates

- Application to Everyday Life: there is potential for the development of programs aimed at assisting individuals with AS/HFA in honing their abilities to interpret emotions. Additionally, enhancements to the eyes test could contribute to the early diagnosis of underlying autistic disorders in individuals.

- Individual vs. Situational: the AS/HFA group exhibited significantly poorer performance on the Revised Eye Test compared to the 'normal' group, suggesting that the capacity to identify mental states is an individual skill developed independently of environmental factors, given the standardized testing conditions (supporting the individual explanation).