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“Ooo look!”, “What’s that?”: A comparison of maternal communication strategies in attention directing in the United Kingdom and Uganda

Examining cross cultural variation in mothers’ communication strategies to direct their infants’ attention to objects

Background

- **Joint attention (JA)** = The ability to share and coordinate social attention with another (Mundy et al., 2007), (Bakeman & Adamson, 1984)
- Engagement in JA is an important **predictor of children's later language and social cognition development** (Carpenter, Nagell, Tomasello, Butterworth, & Moore, 1998)
- Responding **to JA (R-JA)** = the ability to follow another person's attention directing strategies (Carpenter et al., 1998)
- Research on JA is usually conducted in **controlled laboratory** environments with a **restricted participant population**

Attention directing in the lab

- Tends to use controlled **unrepresentative** paradigms (Butterworth & Cochran, 1980), (Flom, Deák, Phill, & Pick, 2004)
- Often an **experimenter** directs the infants attention (Carpenter et al., 1998), (Striano & Bertin, 2005b), (Mundy et al., 2007)
- **Restricting** infants JA skills? (Bakeman & Adamson, 1984)
- Focus on a **limited number of strategies**
  - usually gaze, pointing and verbalisations
  - (Butterworth & Cochran, 1980), (Morisette et al., 1995), (Carpenter et al., 1998), (Flom et al., 2004), (Striano & Bertin, 2005b), (Mundy et al., 2007)

Attention directing in the lab

- It is still unclear how engaging in joint attention emerges spontaneously in a natural environment
- Deák et al (2008, 2018) argues infants show **lower levels of gaze following and overall levels of JA** when in a more clustered **naturalistic environments**
- **Overemphasis of results?**

Mother's as a scaffolder for joint attention

- Infants appear to be **more likely to R-JA** when they are interacting with their **own mother** (Bakeman & Adamson, 1984)
- If a mother uses a **lot of different strategies**, it could indicate they are **more capable at initiating JA** as they have many resources to direct attention (Deák et al., 2008)
- Mothers that **combine multiple strategie**s have been shown to be **more effective** at engaging their infant in JA (Flom et al., 2004), (Deák et al., 2008)

Joint Attention Project

- Professor Slocombe's research team is currently investigating **cross-cultural JA differences**
- They asked Ugandan (UG) and British (UK) mothers to direct their infants attention to an object
- Preliminary results suggest **UG infants R-JA earlier at around 6 months**
- Could it be that the **variation in the attention directing strategies used cross culturally is linked to the difference in R-JA?**

Procedure

- The UK and UG mothers were **asked to direct their infants attention to an object in anyway they usually would** (without touching the object)
- Mothers did this for four trials at different distances:
    - **Two trials for a proximal object** (50-80 cm)
    - **Two trials for a distal object** (1.5 - 2 m)
- Infants were **'passers' if they saw the object on the left and right at the same distance**
- The mothers were **filmed** directing their infants attention and the videos were synced and coded for the strategy
    - IOR: duration 0.94 (almost perfect), frequency 0.70 (substantial)

My project

- To **expand on previous research** we wanted to investigate if **UK and UG mothers differ in the types of attention strategies they use**
  - Frequency?
  - Duration?
  - Successful?
- Are the strategies used in **lab based JA studies representative**?
- We know from the preliminary results UG infants can follow their mothers attention directing at younger ages than UK infants, but do they also **follow cues faster**?

‘Passer/pass’ = two passed trials at the same distance

Research Questions

1. Are **‘passer’ UG infants faster at engaging in JA** than ‘passer’ UK infants when their mother is directing their attention to an object?

2. Do **‘passer’ UK and UG mothers differ in the rate of specific strategies** used when directing their infant’s attention to an object?

‘Passer/pass’ = two passed trials at the same distance

Research Questions

3. Do **more ‘pass’ mothers use specific strategies** compared to ‘failed’ mothers?

4. Do ‘**pass’ mothers use higher rates of specific strategies than ‘fail’ mothers** when directing their infants attention to an object? And is there an interaction with culture?

5. What strategies do **Mothers use** that are and are **not included in lab based experimenter R-JA experiments**?

Participants - 57 mother infant pairs

UK(30), UG(27)
All infants aged 6 months

Successful trials

- 2 trials coded for each participant and averaged
- Proximal infants: UK (11), UG (16)
- Distal infants: UK (2), UG (7)

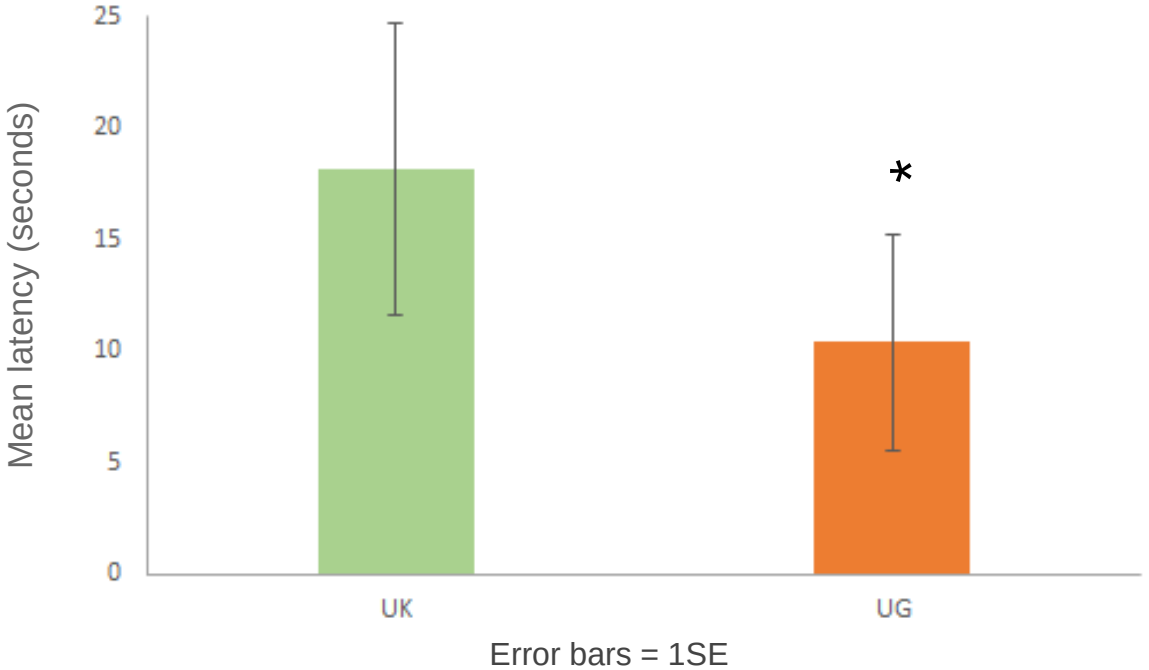
Unsuccessful trials

- 1 proximal trial coded per participant
- Infants: UK (18), UG (9)

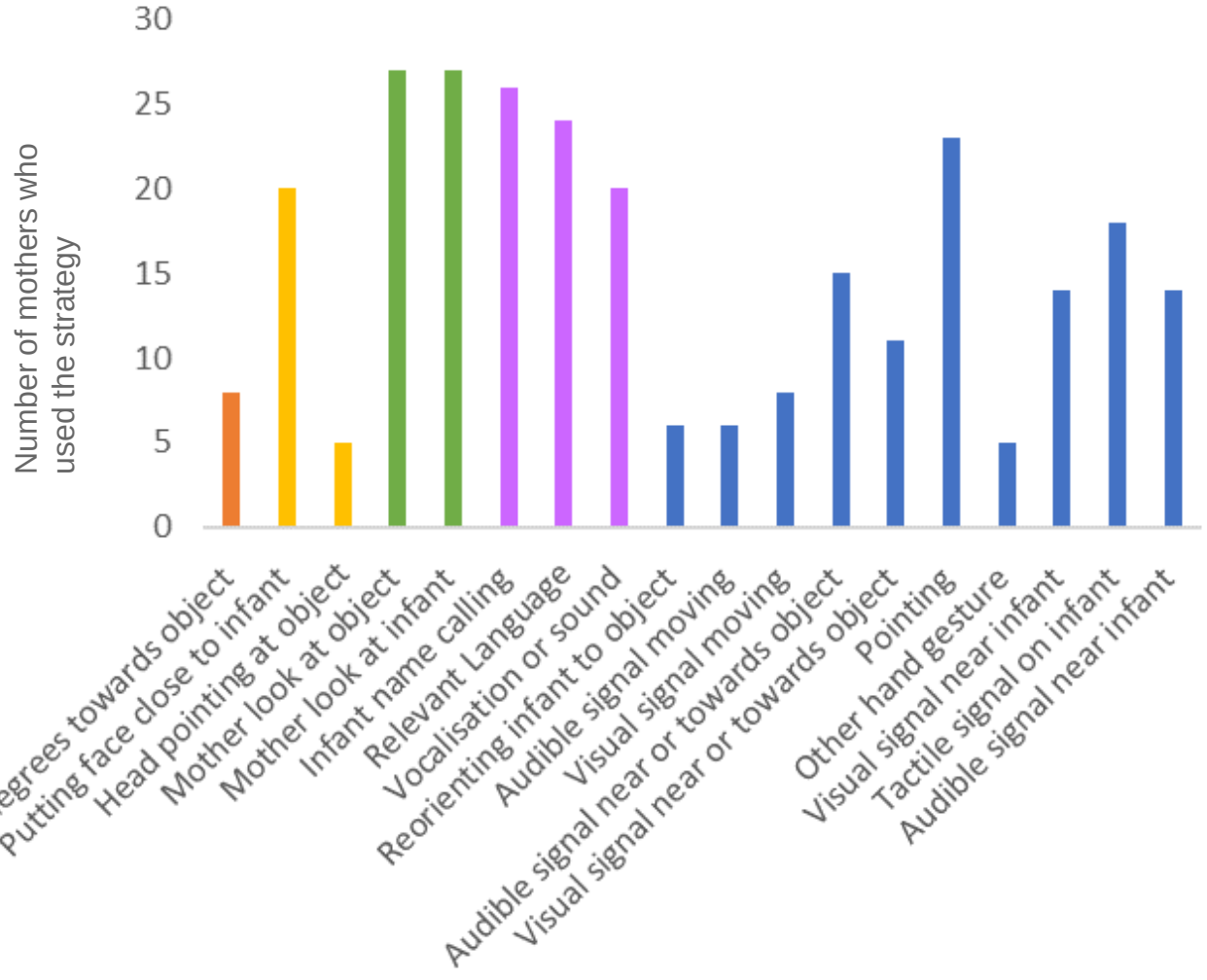
1. **Are ‘passer’ UG infants faster at engaging in JA than ‘passer’ UK infants when their mother is directing their attention to an object?**

An independent sample t-test revealed that UG infants looked significantly faster at a proximal object than UK infants.

(t(25)=3.58, *p* = .001).



The most common strategies used by the mothers who passed the proximal trials

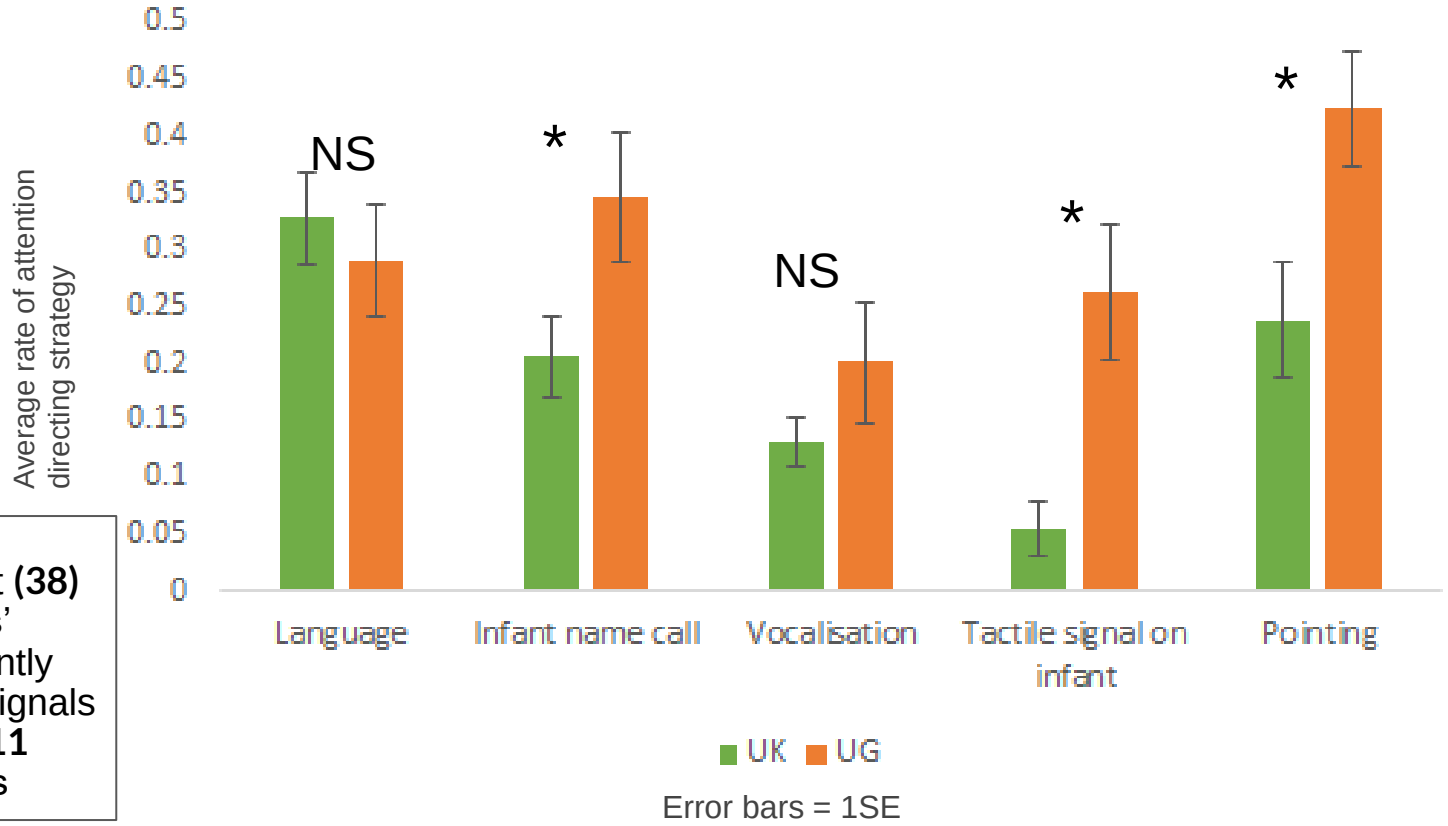


2. Do 'passer' UK and UG mothers differ in the rate of specific strategies used when directing their infant's attention to an object?

Rate = number of frequency bouts of a strategy/average trial length per infant

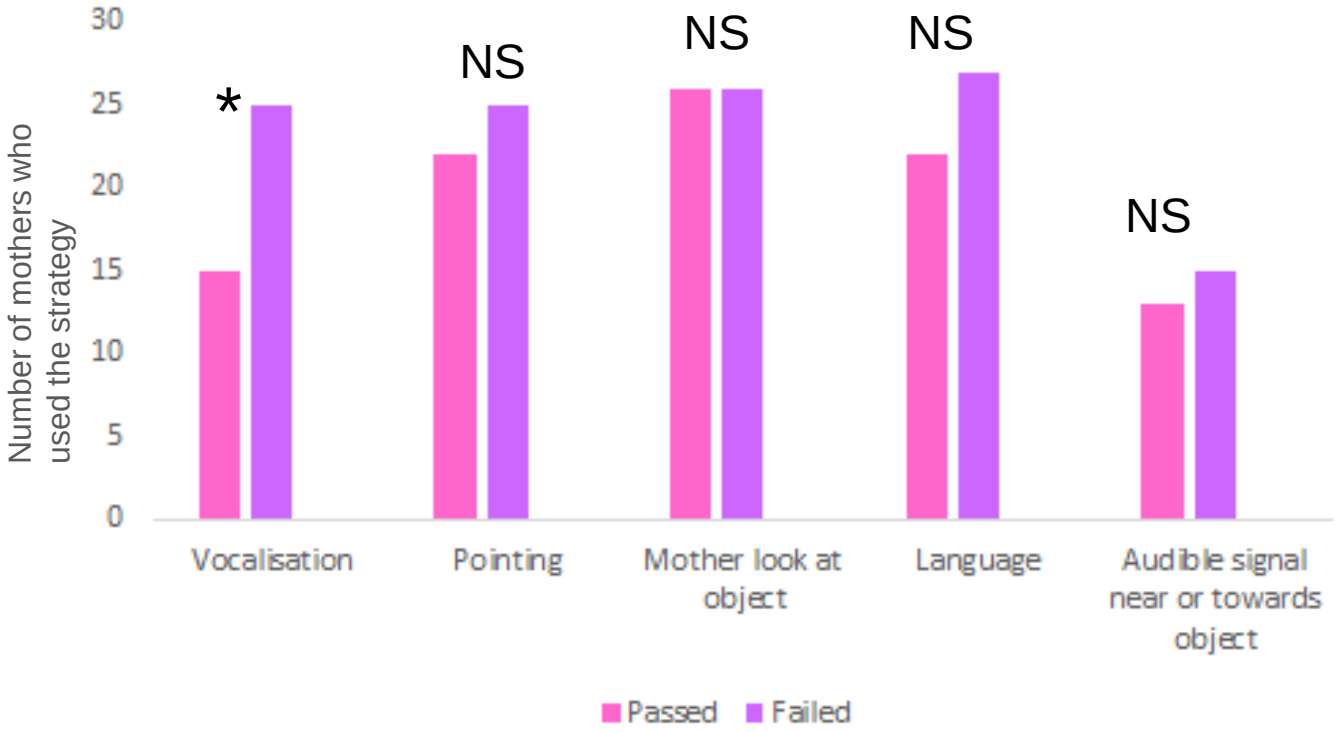
An independent sample t-test revealed that UG 'pass' mothers used significantly higher rates of pointing **(t(25)= -2.48 , *p* = .020)** and infant name calling bouts **(t(23.69)= -2.11, *p* = .046)** than UK 'pass' mothers

A Mann Whitney U test **(38)** revealed that UG 'pass' mothers used significantly higher rates of tactile signals on their infants , ***p* = .011** than UK 'pass' mothers



3. Do more ‘pass’ mothers use specific strategies compared to ‘failed’ mothers?

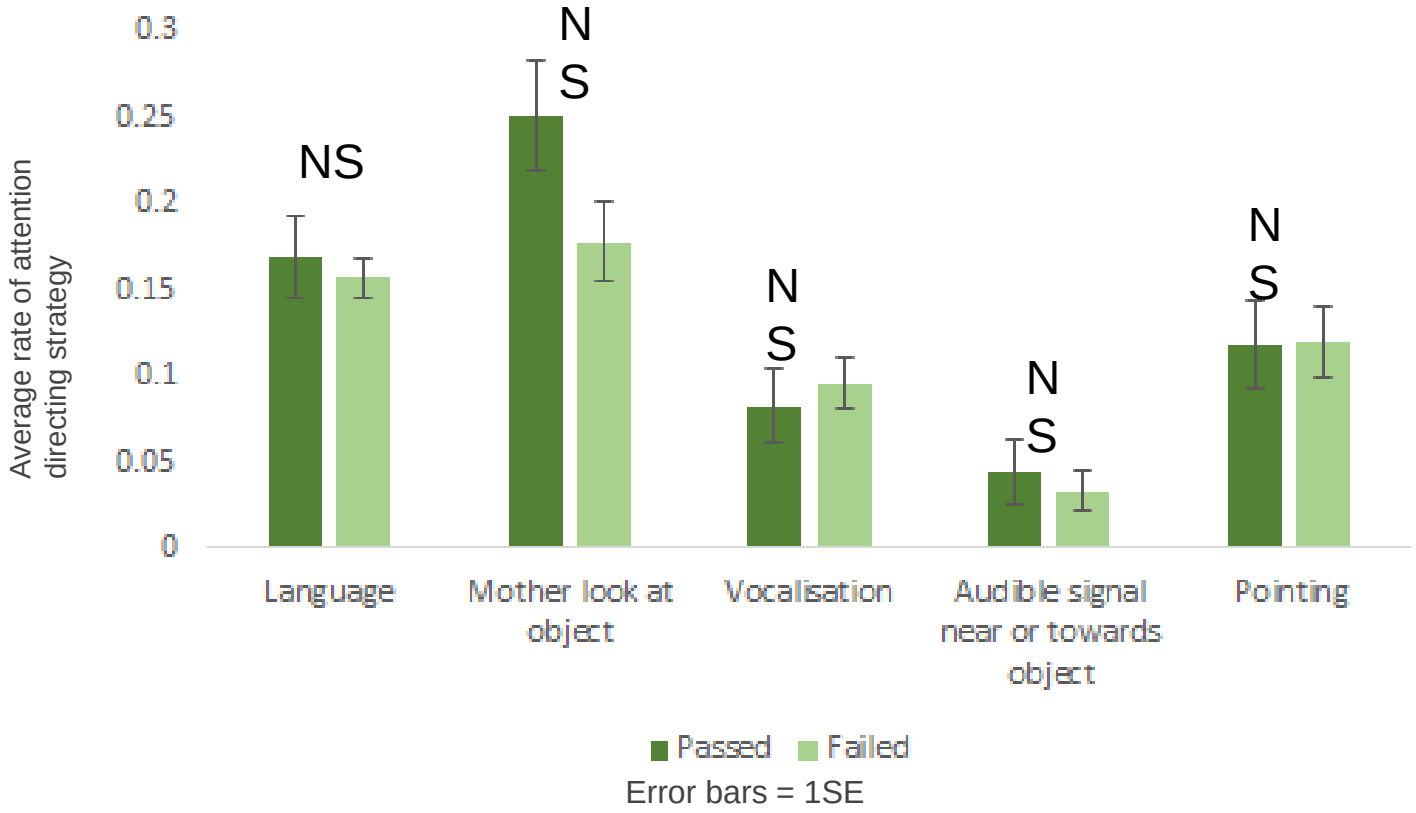
A Fischers exact test revealed significantly less ‘pass’ mothers used vocalisations than ‘fail’ mothers ***p* = 0.004**



UK

2x2 Factorial ANOVA assumptions failed

4. Do ‘pass’ mothers use higher rates of specific strategies than ‘fail’ mothers when directing their infants attention to an object? And is there an interaction with culture?

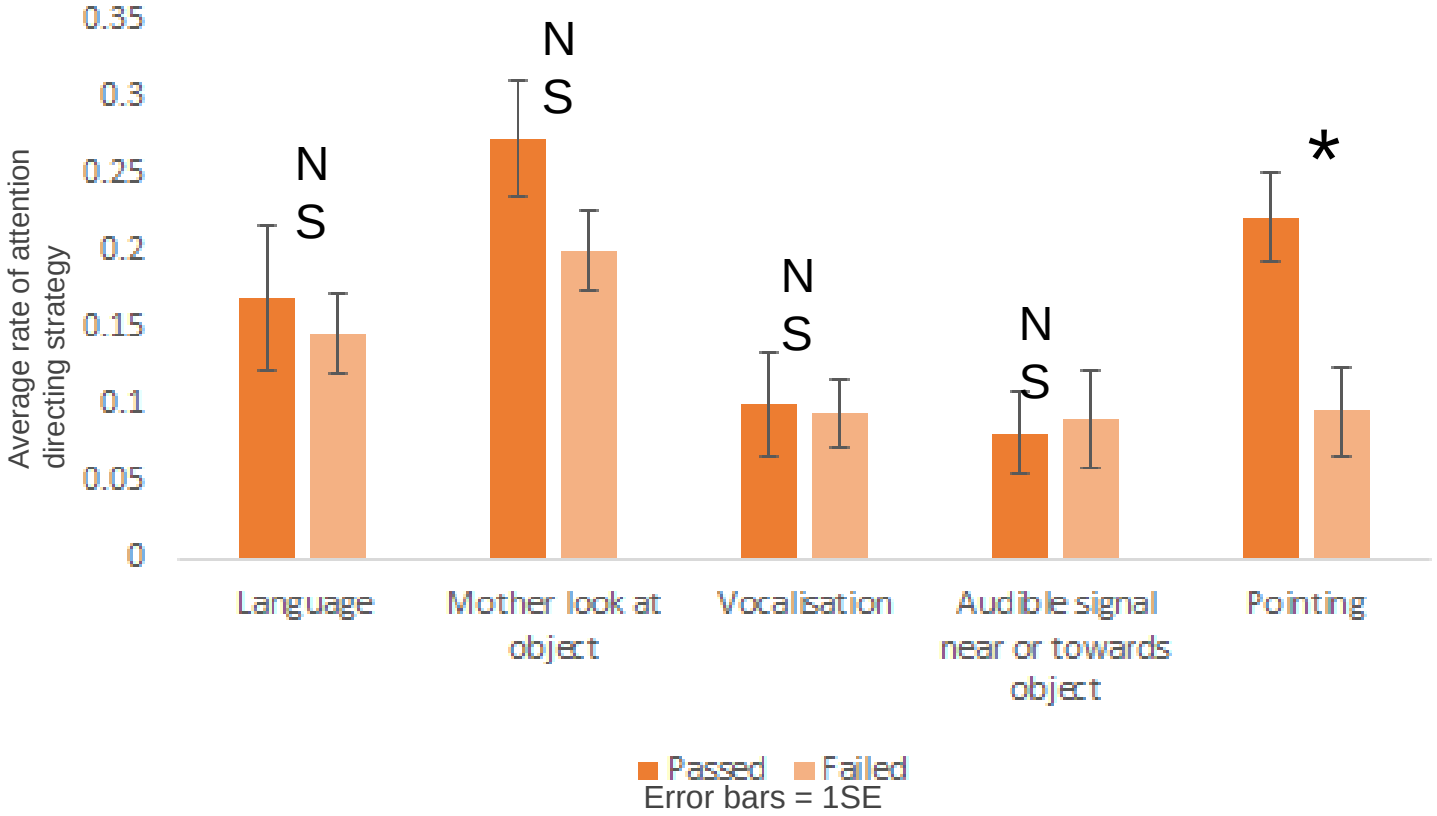


UG

4. Do ‘pass’ mothers use higher rates of specific strategies than ‘fail’ mothers when directing their infants attention to an object? And is there an interaction with culture?

An independent sample t-test revealed that UG ‘pass’ mothers used significantly higher rates of pointing bouts than UG fail mothers

(t(23)=2.87, *p* = .009).



5. What strategies do Mothers use that are and are not included in lab based experimenter R-JA experiments?

strategy	**Number of studies that looked at this strategy** (out of 6 studies)	**Percentage of our proximal mothers that used the strategy**
Gaze	6	100%
Pointing	5	88%
Showing	1	41% (visual signal near object)
Verbalisations	2	89%
Infant name call	1	96%
Tease infant with toy	1	NA

5. What strategies do Mothers use that are and are not included in lab based experimenter R-JA experiments?

Strategy not included in previous studies	Percentage of our proximal mothers that used the strategy
Audible signal near to infant	52%
Audible signal near or towards the object	56%
Visual signal near infant	52%
Vocalisation or sound from mouth that isn't language	74%
Mother putting their face close to their infant	74%
Tactile signal on the infant	67%

Next steps

- It’s still open if maternal strategies are influencing the differences between UG and UK infants response to JA
- Further analysis is needed:
  - Analysis of distal trials
  - Further analysis on all maternal strategies (including strategy rate and duration)
    - E.g. **10 UK** mothers used a **visual signal near their infant in the proximal trials**, only **4 UG** mothers
  - Coding and analysis for infants who passed one trial and failed another

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THANK YOU!

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