Appendix 8 – Mentalising skills (Unexpected transfer task and Wisconsin card sorting task) protocol

Cognitive flexibility and mentalising skills

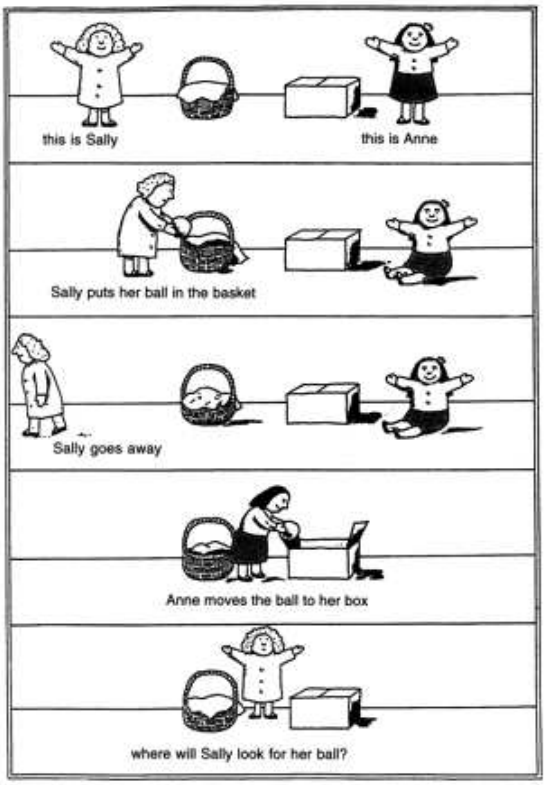
This project intends to assess the effects of a current intervention of nutrition education

(Teaching Kitchen) on slum women and their children, through a multidisciplinary approach focusing on wellbeing and cognition.

We aim to assess mothers'/ caregivers' knowledge and awareness of diet and lifestyle, but also their mentalizing skills in relation to their child's nutritional preferences, attitudes and needs. 'Mentalizing' refers to the mothers' or caregivers' ability to predict, understand and cater for their children's psychological needs. Investigating mothers' mentalizing skills towards children's nutritional needs is a novel aspect of the proposed work. Mentalizing is a form of imaginative mental activity about others or oneself. It includes perceiving and interpreting human behaviour in terms of intentional mental states (e.g. needs, desires, feelings, beliefs, goals, purposes, and reasons). A lot of mentalizing is not conscious, deliberate, and reflective but rather automatic, intuitive, and implicit.

Mentalizing can be assessed through standard Theory of Mind tasks examples of which are presented below:

Unexpected Transfer Task: (Wimmer & Perner, 1983):



Adapted from 'Sally-Anne Test' - Baron-Cohen, Alan Leslie &UtaFrith (1985)

Control questions:

- Where did Mary put her ball? …….
- Where is the ball now? ……

Belief question:

- Where does Mary think the ball is?
- Why does Mary believe the ball is in the basket? (justification question)……

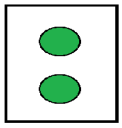
Target/ action question:

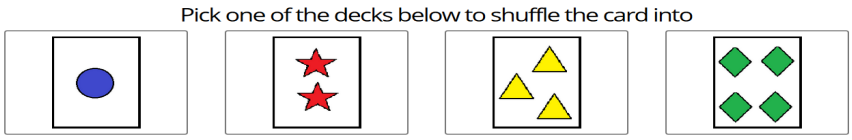
- When Mary goes back, where will she look for her ball first? ……
- Why will she look there? (justification question)…….
- Will she find the ball when she looks in there? ……
- Why/ Why not? ……..

Wisconsin Card Sorting Task (WCST) - Grant & Berg, 1948

The task involves a set of cards which are comprised of all the different combinations of 4 colours (red, blue, yellow, green) , 4 shapes (crosses, stars, circles, squares) and 4 numbers (1, 2, 3, 4). This makes 64 cards e.g. 3 red circles, 2 yellow stars. The participant is shown 4 of these cards which display all of the features. An example of this may be 1 red circle, 2 green stars, 3 blue squares and 4 yellow crosses. The participant is then shown one of the other cards, and must match it to one of these 4 on the basis of one of these features. The participant is then told if they sorted that card correctly. On the basis of this feedback, the participant must work out the rule as to which feature they are sorting the cards by. However, over the course of the experiment the rule changes. How quickly the participant is able to adjust their responses to the new rule set according to feedback is indicative of their level of cognitive flexibility. The rules normally change every 10 cards.

Here is an example of how the screen would look:





Here the participant can either sort the card into the first pile (shape), second pile (number) or fourth pile (colour). The participant will receive feedback to tell them if their match was correct or not.