

Experiment 4: Vicarious learning and heart rate

This experiment investigated whether vicarious fear learning could affect children's heart rate responses to stimuli and had three main objectives. To establish whether:

- a) Observing short video clips of female adults interacting fearfully with animals could lead to increases in children's fear beliefs and avoidance preferences for the animals
- b) Observing video clips of female adults interacting fearfully with animals could lead children to show increased avoidance of the animals
- c) Observing video clips of female adults interacting fearfully with animals could lead to increases in children's heart rate responses to animals

Procedure and measures:

Children filled in two computer-based questionnaires, watched a short film clip in which female adults responded either fearfully or neutrally when asked to place their hand in a box apparently containing a novel animal (a quokka or a cuscus). Fear-related beliefs and approach/avoidance behavior for the animals were measured using a series of measures.

1. Nature Reserve Task (NRT)

Children were asked to imagine that the board was a nature reserve containing one of the animal CSs. One of the animals, depicted by a photograph, was at one end of the reserve. Children are asked to place a Lego model representing themselves on the board where they would most like to be. The distance between the animal and the Lego figure was measured and indicated children's avoidance preferences for the animals. The same procedure was then repeated for the second animal. The order that animals were presented in was counterbalanced across children.

2. Fear Beliefs Questionnaire1 (FBQ1)

Children fill in a computer-based fear beliefs questionnaire to measure fear-related beliefs for the two animals. The questionnaire contained seven questions for each animal; for example, "Would you be scared if you saw a quokka?" and "Would you be happy to have a cuscus for a pet?" Children responded on a 5-point Likert scale: 0 (*No, not at all*), 1 (*No, not really*), 2 (*Don't know/Neither*), 3 (*Yes, probably*), and 4 (*Yes, definitely*). There were a total of 14 questions. Mean fear beliefs scores for each animal was calculated for each child.

3. Vicarious learning (VL)

Children were shown one of two short video clips, either fear or neutral modelling, on a computer screen. The video showed three female adults being asked to approach a box apparently containing a quokka or a cuscus and place their hand in the box to touch the animal. The fear modelling video showed the adults acting fearfully, and hesitant about placing their hand in the box. A second video clip (the "neutral film") was similar but showed the adults walking up to the box, showing no fear, and happily place their hand in the box.

4. NRT2

Children completed the NRT a second time to determine whether avoidance preferences had increased or decreased as a result of the procedures.

5. FBQ2

Children completed the FBQ a second time to ascertain if fear-related beliefs changed due to the procedures.

6. Behavioral Avoidance Task and Heart Rate

Children were shown two animal boxes and told there was a quokka in one and a cuscus in the other. They were asked to stand on a line positioned 1m from the boxes and were given verbal instructions to approach the quokka. The stopwatch was started as soon as the instructions had been given and stopped when children had put their hand in the box. This was repeated for the other animal. Children's heart rate was recorded at four points in time: 0 seconds, after 5 seconds, after 10 seconds and after 15 seconds. Heart rate measures were also taken at four 'action points': pre-instructions, approaching animal, putting hand in box, and withdrawing hand.