

Observers implicitly predict future actions from past behaviour patterns

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Design and aims

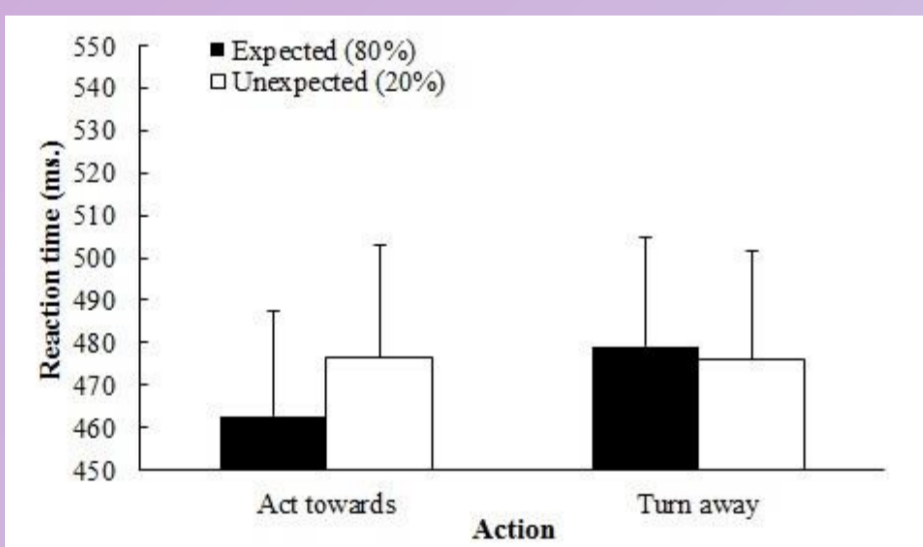
The studies investigated whether participants implicitly learn how different people behave in different circumstances, and reactivate these behavioural tendencies in future interactions to make predictions for future actions and to attribute attitudes to these people.

Participants were shown photographs of two actors (John/Claire) with two objects (computer/ball) in an apparent motion paradigm, and reported whether the person interacted or turned away from the object. Unbeknownst to participants, one actor tended to interact with one object and turn away from the other, whilst the other actor did the reverse.

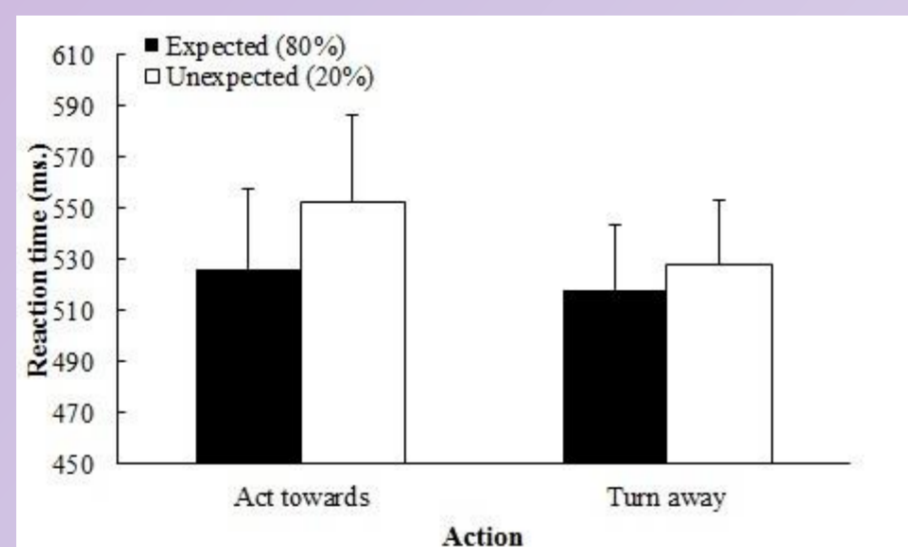
Experiment Two

(46 participants)

- As in Ex 1 but after 80 trials they were asked to identify the pattern in the stimuli
- Asked to identify the pattern every 40 trials
- Finally, asked to select the pattern from a list of 7 potential choices



Implicit Awareness



Explicit Awareness

Four participants identified the pattern during free recall/ten during forced recall. However, the unaware participants still identified actions towards objects more quickly when they were expected rather than unexpected, $t[29] = 2.400, p = .023, d = .19$. Again, no effect for the turn away trials.

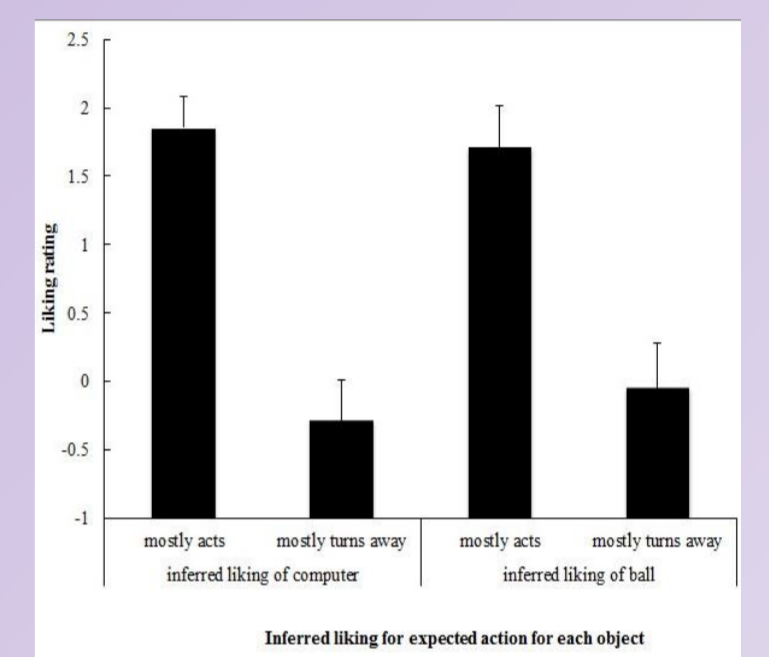
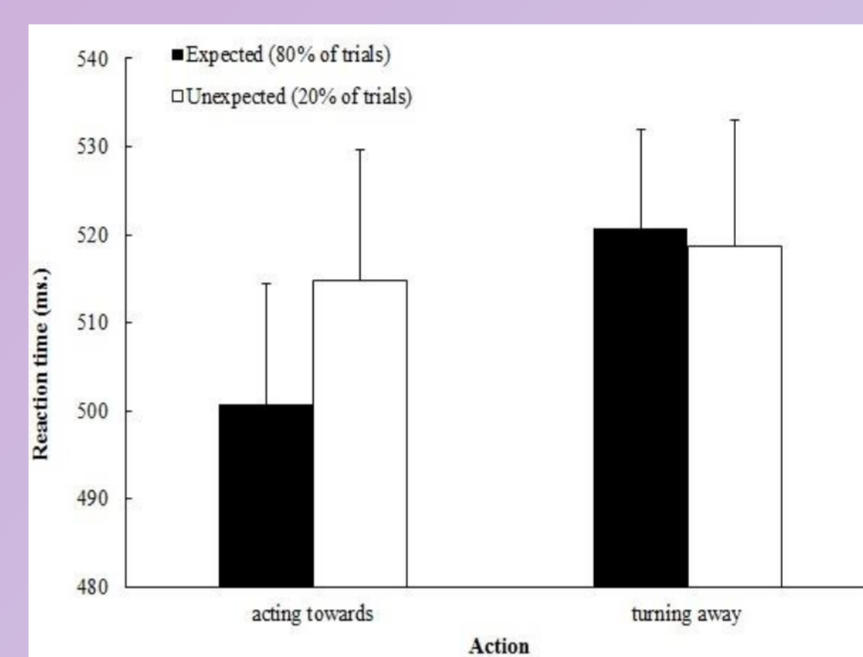
Background

For successful relationships we need to predict the behaviour of others. Past research has focused on the use of available cues, but the current research proposed that prior information also has a key role.

Experiment One

(42 participants, 3 excluded)

- 240 trials; in 80% actors perform their expected action e.g., John kicks the ball, in 20% they perform the unexpected action e.g., John types at the computer
- How much did each actor like each object
- Did you notice any patterns in the stimuli? Participants who detected the patterns were excluded.



Actions towards objects were identified quicker when they were expected rather than unexpected, $t[38] = 3.016, p = .005, \text{Cohen's } d = .15$, but there was no effect for turn away trials. Objects were rated as more liked by the actor if they were mostly seen interacting with that object.

Summary and Conclusion

Participants make links between the actors and their behavioural tendencies towards objects and use these to make predictions. When the actors go against expectation a prediction error is activated which leads to a slower response.

Crucially, this process occurs in a highly implicit manner. When questioned directly and specifically about the associations (as seen in the perceived liking/frequency ratings), participants are able to use the covariations, but they are still unable to explicitly articulate these rules in terms of the pattern seen, even attention is explicitly directed to these patterns.

