



BIROn - Birkbeck Institutional Research Online

Piccardi, Elena Serena (2019) Capturing attention modulation in a habituation paradigm. In: BCCCD 2019, 3-5 Jan 2019, Budapest, Hungary. (Unpublished)

Downloaded from: <https://eprints.bbk.ac.uk/id/eprint/28909/>

Usage Guidelines:

Please refer to usage guidelines at <https://eprints.bbk.ac.uk/policies.html> or alternatively contact lib-eprints@bbk.ac.uk.

Capturing attention modulation in a habituation paradigm

E. S. Piccardi¹, M. H. Johnson^{1,2}, T. Gliga^{1,3}

(1) Centre for Brain and Cognitive Development, Birkbeck University of London, London, United Kingdom;

(2) Cambridge University, Department of Psychology, Cambridge, United Kingdom

(3) East Anglia University, Department of Psychology, Norwich, United Kingdom

Background: Evidence from infant looking time studies indicates that information encoding occurring during phases of endogenous sustained attention supports learning and memory and affects performance in habituation paradigms.

Objectives: An issue still to explore concerns the role of learning and memory in biasing online selection of information and determination of perceptual priority in habituation designs.

Design: An EEG/ERP habituation design was employed to investigate the role of learning and memory in biasing online selection of information in 10-month-old infants. 128 black-and-white checkerboards were randomly flashed on top of a cartoon scene repeated 12 times.

Methods: Continuous EEG was recorded and two indices extracted: P1 peak amplitude time-locked to checkerboard presentation; pre-stimulus theta-band oscillations time-locked to scene presentation.

Results: Analysis of post-stimulus P1 and pre-stimulus theta revealed a non-linear modulation due to scene repetition. A decrease in P1 amplitude occurred during the first half of the session ($p < .001$). Contrarily, an increase in P1 amplitude occurred during the second half of the session ($p < .001$). Theta oscillatory power increased during the first half of the session ($p < .05$) This was followed by a decrease during the second half of the session ($p < .001$). The two measures were negatively correlated ($p = .001$).

Conclusions: A key function of information encoding during endogenous sustained attention is that of supporting learning and memory. Documenting a non-linear profile of neural activity modulation due to scene repetition, this research expands on looking time studies and points to a role of learning and memory in biasing online selection of information and determination of perceptual priority in habituation paradigms.