



## 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 (Unpublished)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>  
contact [lib-eprints@bbk.ac.uk](mailto:lib-eprints@bbk.ac.uk).

or alternatively

# Capturing attention modulation in a habituation paradigm

E. S. Piccardi<sup>1</sup>, M. H. Johnson<sup>1,2</sup>, T. Gliga<sup>1,3</sup>

(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.