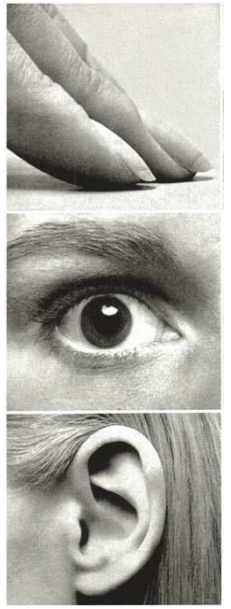


Learning in multisensory environments:

Individual differences. Developmental trajectories.

Paul Matusz, Ph.D.

The Laboratory for Investigative Neurophysiology
Department of Clinical Neuroscience
Vaudois University Hospital & University of Lausanne
Switzerland

Attention, Brain & Cognitive Group
Department of Experimental Psychology
University of Oxford
UK

CISA Emotional Development Centre, University of Geneva, 9th March 2015

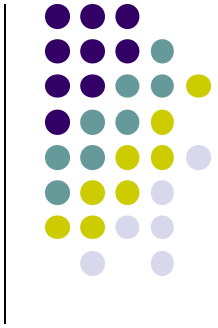
PERCEPTION

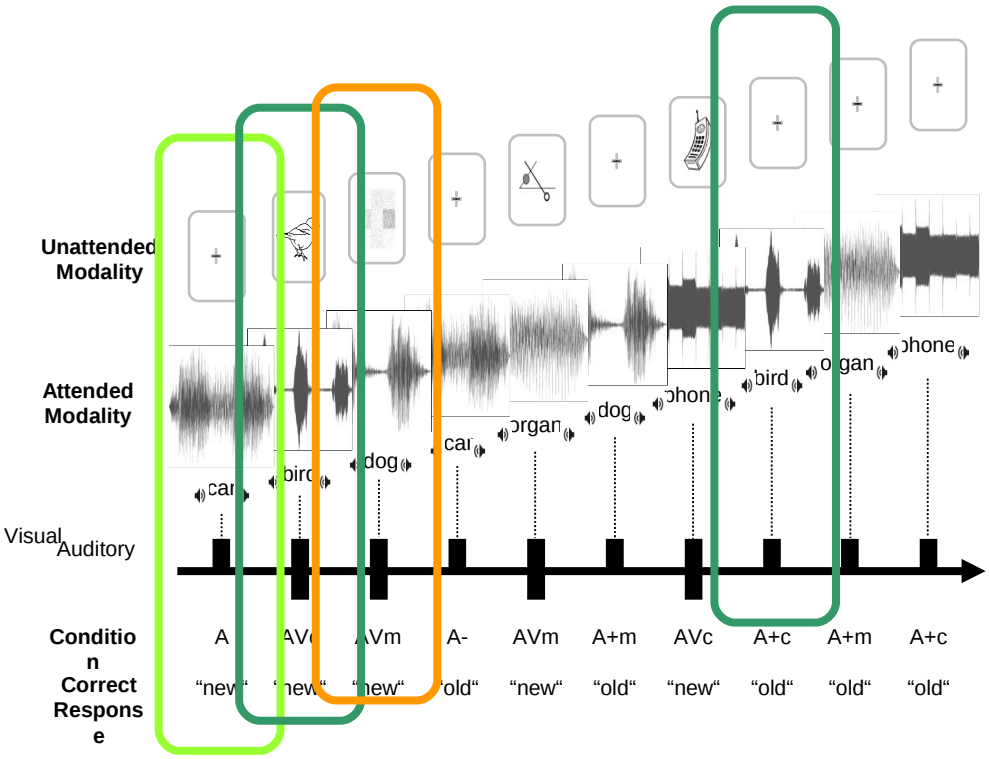
ATTENTIONAL SELECTION

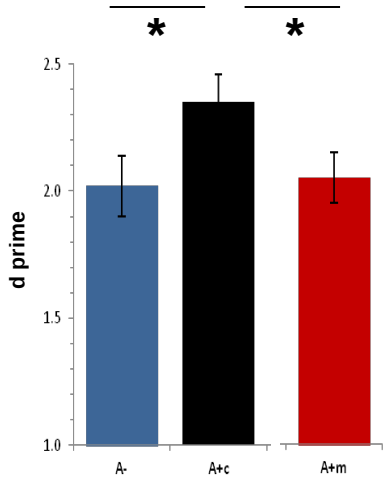
MEMORY

MULTISENSORY PROCESSING FOR LEARNING:

Only learnt benefit?







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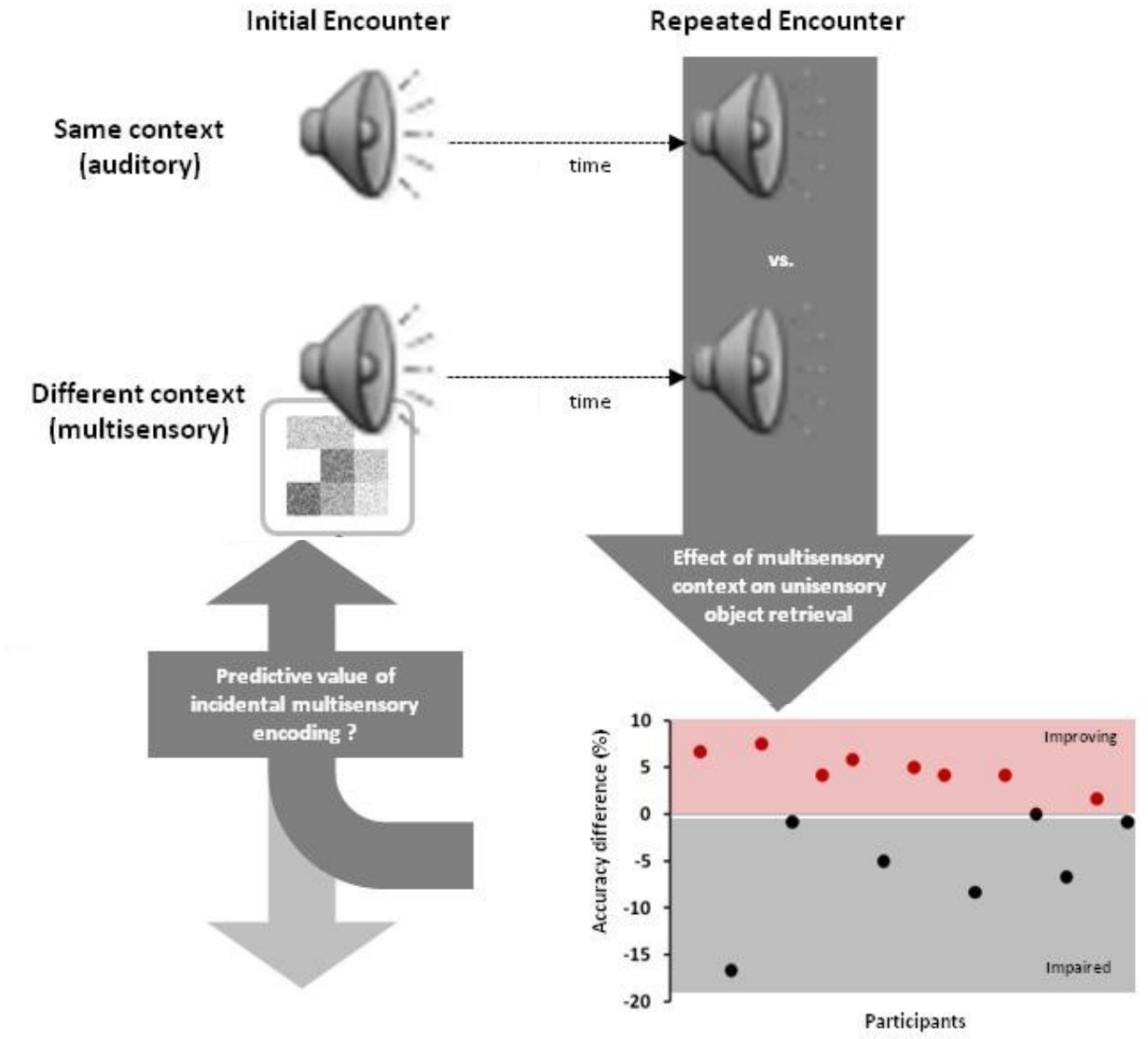
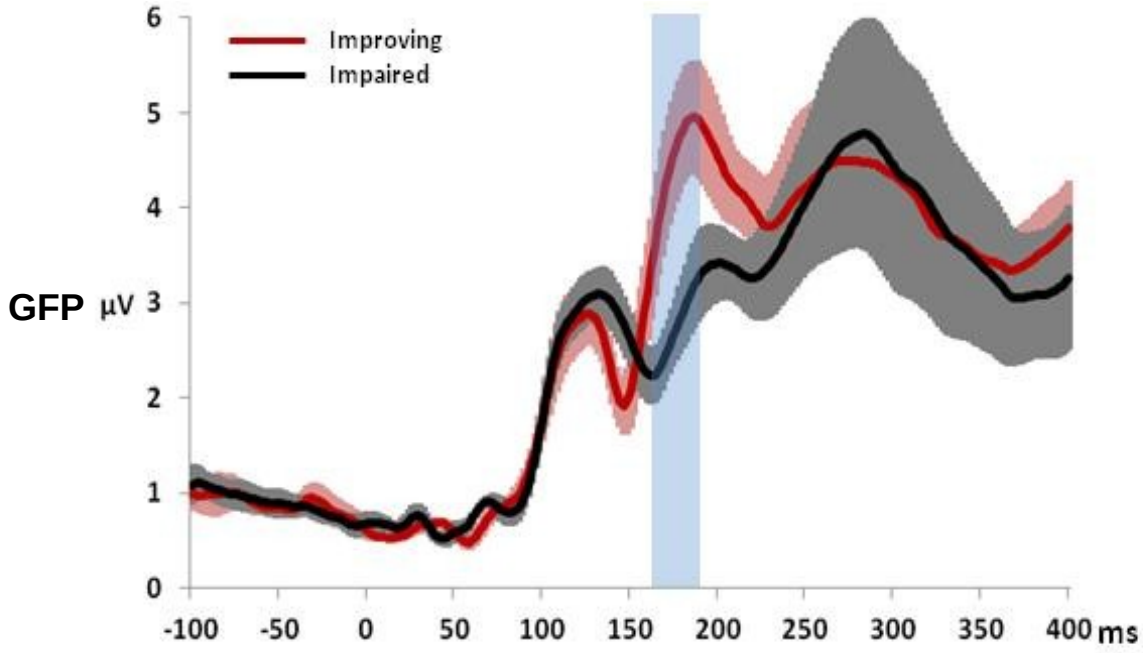
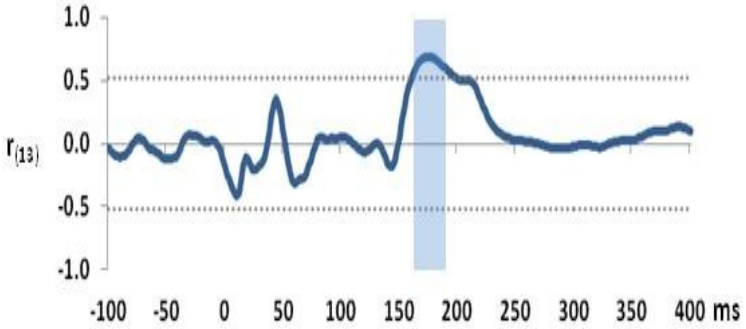
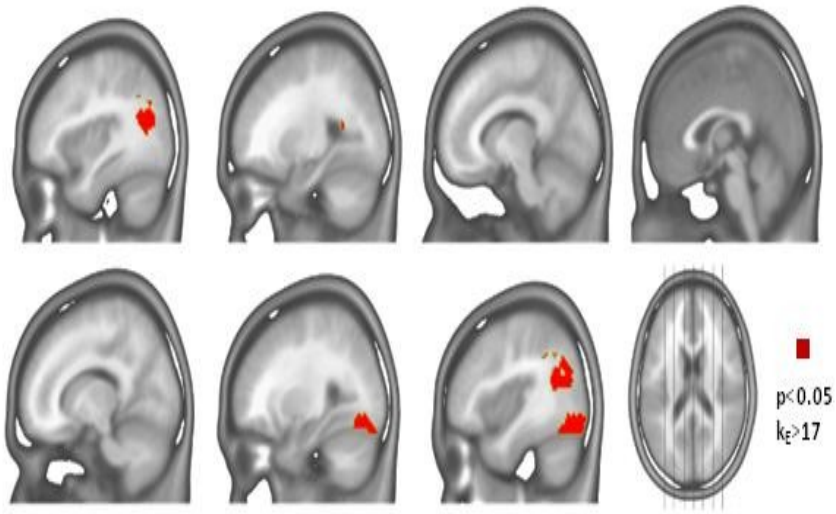


Thelen*, Matusz*, Murray (2014 *CB*)







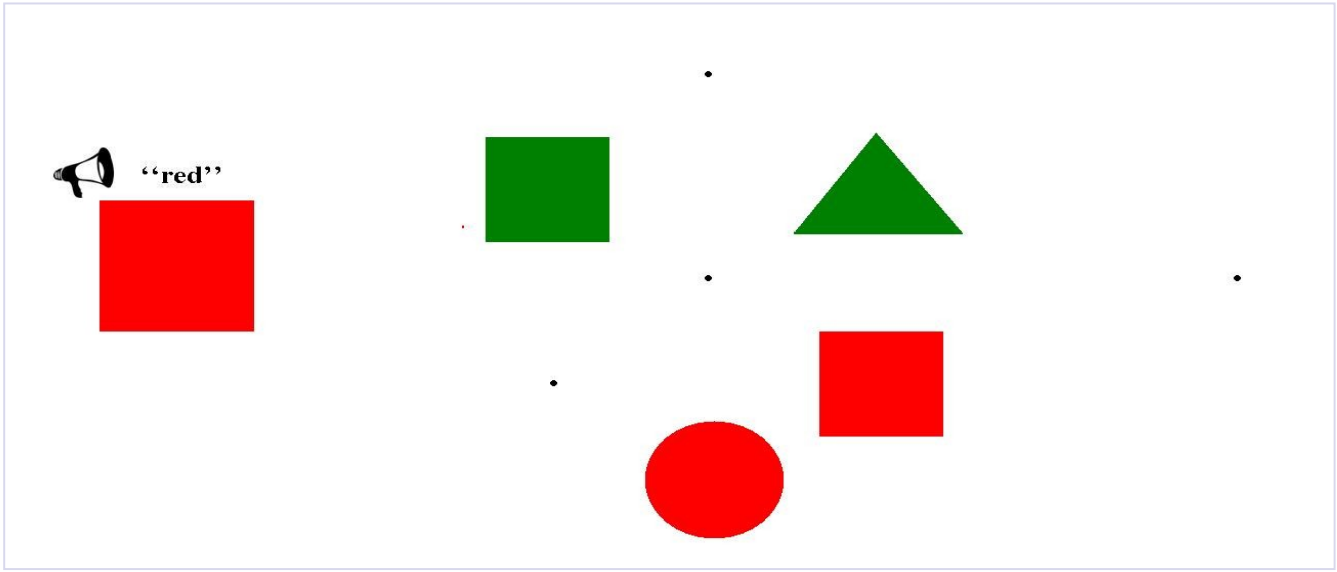
Thelen*, Matusz*, Murray (2014 *CB*)

LEARNING FOR MULTISENSORY PROCESSING ..FOR LEARNING

- Some multisensory processes (that affect learning) likely not critically dependent on it;
  - arbitrary multisensory pairings OK
  - can affect (ie. facilitate) learning **involuntarily,** despite irrelevance of the multisensory 'exposure' context
  - sensitive to individual factors - ***state or trait??*** - but presence of benefits **predictable**.

- Some multisensory processes facilitating learning do depend on learning;
  - learnt, naturally co-occurring audiovisual pairings, eg. naturalistic objects (living, man-made)
  - affect learning involuntarily **across individuals**
  - ***What exactly can learning change in the processing of such pairing?***

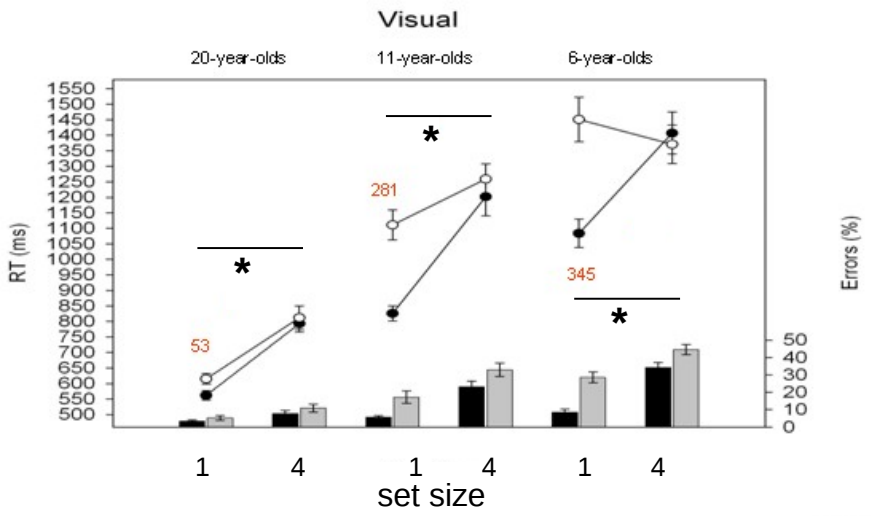
Learning for multisensory processing: THE MECHANISM(S)

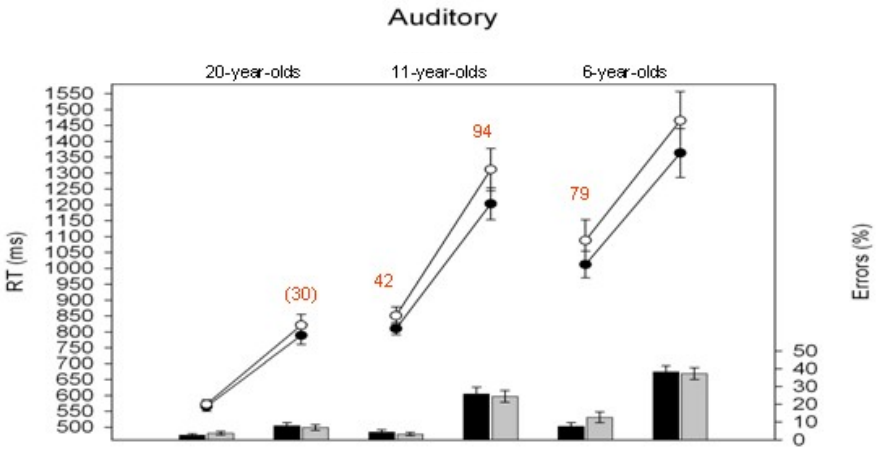


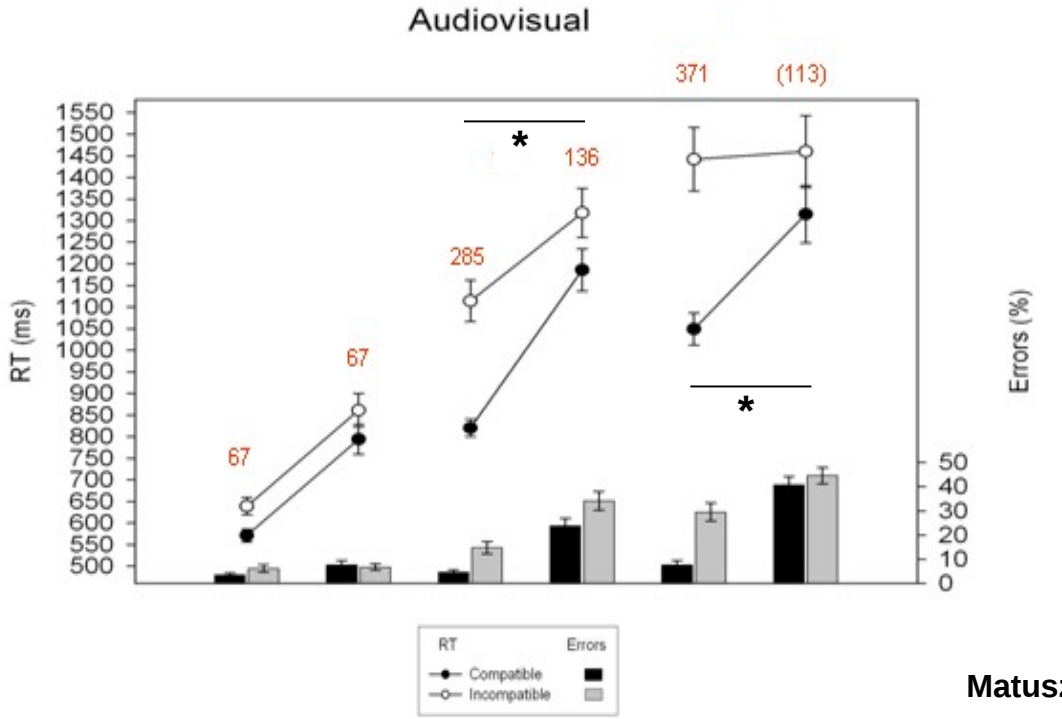
Adaptated fromLavie & Cox (1997)

Does limited selective attention reduce children's distraction from MS distractors when the selective task becomes demanding?

Matusz et al. (2015 *Cognition)*







Matusz et al. (2015 *Cognition)*

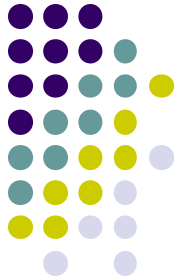
LEARNING FOR MULTISENSORY PROCESSING ..FOR LEARNING
CONCLUSIONS

• Studying learning in within-modal contexts may portray **inaccurate picture** on the information processing in the real world: Object processing & learning follows different rules in multisensory contexts.

• Multisensory processing **typically makes learning 'easier'** – no need for the intent to benefit from the multitude of sources of information.

• In turn, **learning facilitates the multisensory processing that robustly facilitates learning**.

• *How?* Multisensory object **representations likely become activated involuntarily with experience (learning)**.



Thank you for your attention! ☺