Insights from novel measures of visual statistical learning in children

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Insights from novel measures of visual statistical learning in children

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BACKGROUND
Statistical learning is usually tested through:
- Exposure to continuous stream of stimuli
- Offline test-phase: 2-AFC

Importance of online measure: provides information about the learning trajectory during exposure.
Several researchers have shown that online measures provide reliable results with adult participants [1, 2, 3].

Present study: we assessed children’s VSL abilities using
- an online reaction time (RT) measure [3]
- two distinct offline question types

METHODS
Participants
53 Dutch children aged 5;9 – 8;7 (mean = 7;3)

Self-paced VSL task
- Familiarization:
  - Continuous stream of individually presented aliens
  - Four triplets, presented 24 times divided over 4 blocks [4]
  - Online measure: RT to each alien is recorded. We expect that RT’s to unpredictable aliens (alien 1) are longer than RT’s to predictable aliens (aliens 2 and 3) [3]
- Offline test phase:
  1. Pattern recognition: 24 2-AFC (“Choose the familiar group”) Chance = 50%
  2. Pattern completion: 16 3-AFC (“Complete the missing alien”) Chance = 33%

RESULTS
Offline test phase measures
- Comparison children’s performance to chance level:
  - Not above chance on 2-AFC questions (p = .372)
  - Above chance on 3-AFC questions (p = .042)

Online RT measure
- Main effect of alien:
  - Alien 1 > Alien 2 (p < .001)
  - Alien 1 > Alien 3 (p < .001)
  - Alien 3 > Alien 2 (p = .037)

RESEARCH QUESTIONS
1. Are children able to extract statistical regularities from visual input?
2. Can we improve the methodology to measure statistical learning in children?

REFERENCES

CONCLUSIONS
1. 3-AFC and online measures show that children are able to learn the structure.
2. Online measure provides additional insights about the learning trajectory.

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