

Get up, stand up for your registered reports:

an original study on the impact of audiovisual
correspondences on the attentional system in
12-month-old infants

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outline

- ▶ The storytelling (2)
- ▶ The study (6)
- ▶ The pre-registration challenge (6)
- ▶ Future perspective (looking for the Wise Men's suggestions)
(1)

leitmotiv

"Don't gain the world and lose your soul. Wisdom is better than silver and gold." —Zion Train, from the album Uprising (1980)

the storytelling 1/2



- ▶ Publication bias
- ▶ Replication crisis

the storytelling 1/2



- ▶ Publication bias
- ▶ Replication crisis

the storytelling 2/2



Resources

- ▶ journals policy
https://katiedrax.shinyapps.io/cos_registered_reports/
- ▶ update template
<https://osf.io/zab38/wiki/home/>

The Study : a gap in the literature 1/6

tentative registration in a Q1 Journal
Reviewer 2

aim *The proposed study examines how words influence visual attention in infants. Specifically, how repeated exposures to a consistent word-object association boost attentional disengagement when a peripheral stimulus appears.*

The Study : a gap in the literature 2/6

tentative registration in a Q1 Journal

Reviewer 2

aim

The proposed study examines how words influence visual attention in infants. Specifically, how repeated exposures to a consistent word-object association boost attentional disengagement when a peripheral stimulus appears.

hypothesis

being exposed to a consistent word-object pairing (but not a consistent tone-object pairing OR an inconsistent word-object pairing) will lead to faster disengagement latencies.

The Study : a gap in the literature 3/6

tentative registration in a Q1 Journal

Reviewer 2

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Hp *being exposed to a consistent word-object pairing (but not a consistent tone-object pairing OR an inconsistent word-object pairing) will lead to faster disengagement latencies.*

expected results

[...] should support the idea that words boost the infant's attentional system

The Study : a gap in the literature 3/6

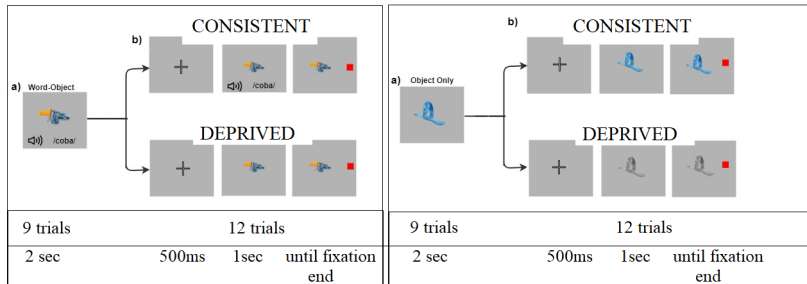
Reviewer 1

"This is a fascinating question that goes beyond the kinds of questions asked by much research in the literature, probing attentional processes and how multiple systems go together [in young infants]."



The Study: Methods and Procedure 4/6

Familiarization + Attentional Overlap



Novel Object and Unusual Name (NOUN) Database

<http://www.sussex.ac.uk/wordlab/noun>

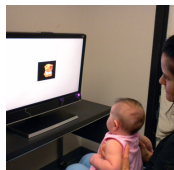
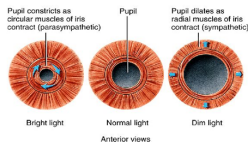
2 Fam X 2 Condition **repeated measures within subjects**

N = 60 (10 individuals for each level of the additive model)

(Austin and Steyerberg, 2015)

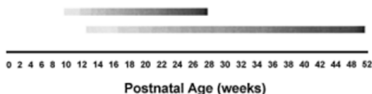
The measures 5/6

- Pupil dilation phasic response as index of resources allocation (Hepach and Westermann, 2016)



- Saccade latency as index of attention disengagement (Petersen and Posner, 2012; Blaga and Colombo, 2006; Johnson, 1994)

Endogenous Attention
Interstimulus Shifts
Sustained Attention



The Study: Statistical Analysis 6/6

- ▶ take care of the family distribution of data
 - ▶ many errors along the way: give a chance to influential cases
 - ▶ don't skip the (generalized mixed effects) model selection
 - ▶ don't forget the random effects (enjoy the high variability of infants)
 - ▶ now, interpret the estimate coefficients of the (so far) best model to continue the storytelling
- > see my pipeline for pupil dilation analysis

the pre-registration challenge 1/6

Back to the '*not yet collected data*' time

Reviewer 3 *Overall, the research question is timely and important, and other than a few methodological suggestions, I really like the idea of using the [attentional] overlap procedure to test object knowledge and/or effects of words on visual attention.*

the pre-registration challenge 2/6

Back to the '*not yet collected data*' time

Reviewer 3 *Overall, the research question is timely and important, and other than a few methodological suggestions, I really like the idea of using the overlap procedure to test object knowledge and/or effects of words on visual attention.*

Reviewer 2 *The proposed research study is interesting, methodologically sound, and analytically appropriate.*

the pre-registration challenge 3/6

Back to the '*not yet collected data*' times

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the pre-registration challenge 4/6

Back to the 'not yet collected data' times

Reviewer 2 *The proposed research study is interesting, methodologically sound, and analytically appropriate.*

Reviewer 1 *In general the methodological details are clear and complete [...] The experimental design does have appropriate conditions to test the hypotheses.*

H O W E V E R,

a registered report seems premature. This is a new area of inquiry, and it is unknown whether the language has any influence on the attentional template.

That is, this study is an interesting first step, but it is not clear that the results will be informative regardless of the outcome.

...meanwhile Mitsven, Cantrell, Luck, and Oakes, 2018

the pre-registration challenge 5/6



the pre-registration challenge:

was the pre-registration process worth it? 6/6

dark side

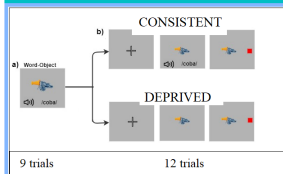
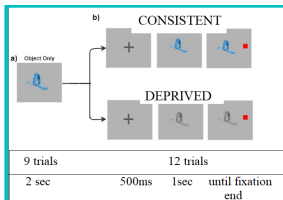
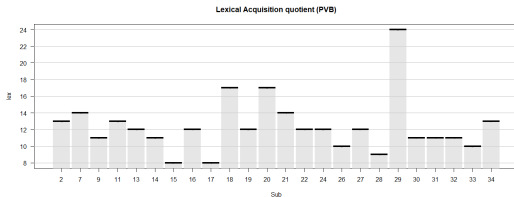
- ▶ **time** to accomplish the requirement of the registered report (before starting data collection)
- ▶ **added time** for the revision process (in my case 3 months)
- ▶ **powered elevation of time** for infants data collection

bright side

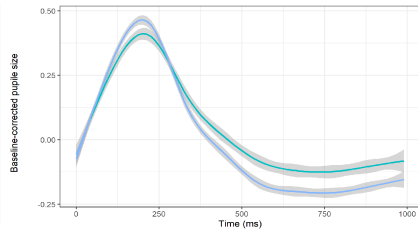
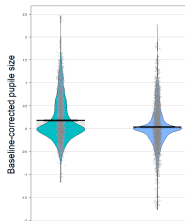
- ▶ peer-review before data collection (I am sure) saved resources
- ▶ the *a priori* debate about the scientific ideas does rise the awareness of (many more) theoretical and methodological issues involved in a research project
- ▶ sharing problems and solutions does reduce the arbitrariness along the way of the project implementation
- ▶ the feeling of a deep reflection on the real value of the project

The study so far N=24(34)

lexical age 12.2 months (sd = 3.3)



The study so far N=24(34)



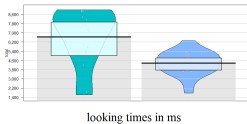
consistent



object

word

deprived

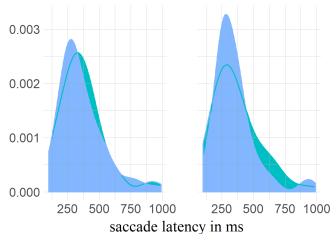


looking times in ms

FAMILIARIZATION

consistent

deprived



ATTENTIONAL OVERLAP

take home message

audiovisual correspondences have a pervasive impact on the strategies used by infants during the deployment of visual attention.

next step:

Do linguistic audiovisual correspondences (vs non-linguistic audiovisual correspondences) have a unique role in promoting the orienting behaviour since infancy?

STAY TUNED data coming from [my] adult studies suggest a specific effect of word-object correspondences on the orienting of attention network

thanks to

- ▶ you, the people of Psicostat
- ▶ my collaborators Eloisa Valenza, Simone Sulpizio, Francesco Vespignani and Sofia Russo
- ▶ the students: Giulia Bini and Valentina Bologna for their help in data collection
- ▶ the babies and their families
- ▶ The pre-registration process (?)