SIMULTANEOUS INTERPRETING AND COGNITIVE CONTROL: ARE THE MEASURES UP TO PAR WITH THE COMPLEXITY OF THE TASK?  
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Abstract  
Domain-general cognitive benefits of multilingualism are a longstanding topic of debate. Evidence increasingly indicates that the impact on cognitive control mechanisms depends on an important degree on individual differences in language biographies and use (De Luca et al., 2019; Lehtonen et al., 2018; Titone et al., 2017).

Simultaneous interpreting (SI) as a complex form of multi-language processing (Seeber, 2015; Paradis, 1994) involves high cognitive demands (Hervais-Adelman et al., 2015) and provides a particularly intriguing paradigm to investigate language-use induced cognitive control changes.

The complexity of the SI task and the lack of a complete understanding of the subtasks and skills (e.g. comprehension and production), however, pose a challenge with regard to the choice of measures and the interpretation of results.

METHODS AND MATERIALS  
PARTICIPANTS  
N = 64 | L1 = DE, L2 = EN, L3 = FR  
normal/corrected-to-normal vision  
4 sub-groups of n = 16:  
1: SIs (diglossic): M = 44.8y, SD = 13.6; 13F  
2: SIs (non-diglossic): M = 43.8y, SD = 12, 11F  
3: Non-SIs (diglossic): M = 33.9y, SD = 9.8, 13F  
4: Non-SIs (non-diglossic): M = 43.1y, SD = 11.2, 11F  

PROCEDURE  
Example: Visual World object-identification task. Please click on [target]  

RESULTS I  
Time-course analysis of fixation distributions:  
- both diglossic groups co-activated the task-irrelevant variety during comprehension  
An identical analysis on data gathered during a task that was set up like the comprehension task, but required participants to simultaneously interpret a whole sentence or translate the target word from English to German:  
- data provide no indication of the competitor being processed

RESULTS II  
The degree of variety co-activation in comprehension did not appear to depend on SI expertise, but on the amount and variety of use of the two TL varieties. The non-verbal cognitive control measure was unaffected by SI or diglossia status.

DURING COMPREHENSION, the patterns of activation observed follow the predictions: Phonological competitors of both varieties attract significantly more fixations than unrelated fillers.

When a production component is added, as in SI, the same no longer seems to apply. It is unlikely that this is due to an absence of co-activation of same- or cross-variety phonological cohorts during production.

Therefore:  
- If there is a discrepancy between phenomenon and measure, where does the measure fail?  
- How could the reliability of the measure be verified?

CONCLUSIONS  
- Applying new methods and measures to SI research requires an in-depth understanding of the measures and their limitations  
- New methods and measures do not solve the initial problem of breaking down complex tasks such as SI for experimental purposes

REFERENCES  


