



An online replication of the association between face processing abilities and the amount of visual information required to identify a face

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Context

- The role of holistic vs. featural information in face processing and the importance of replication are recurrent topics in the field. While some support the importance of holistic processing for individual differences in face identification, others reveal the central role of face parts.
- Royer and colleagues (2015)¹ found a strong negative correlation ($R^2 = .62$, $\beta = -.79$, $p < .0001$) between the amount of information required for identification and individual face processing abilities.
- An online replication was attempted using Pack&Go, allowing for a larger and more diverse sample.

Why Pack&Go?

- This platform, supporting the Matlab software and relying on the Psychtoolbox, provides a valuable resource for collecting data on large samples of participants coming from diverse world regions, and this in only a fraction of the time needed to test participants in the lab.
- Another crucial advantage lies in its utilization of streaming technology, enabling the creation of experiments where stimuli can be manipulated in real-time, adapting to participants' behavior.

Method

One Hundred Fifteen (115) participants (58 women, $M_{age}=29$, [18-53]) were tested.

Face recognition task

- Glasgow Face Matching Test 2 (GFMT2; see Figure 1)²



Figure 1 – Example of a trial in the GFMT2

Face matching task

- Participants completed 600 trials of the same paradigm as Royer et al. (2015), which consisted in the presentation of a target whole face displayed in one of three orientations (see Figure 2), followed by two bubbled³ front faces (see Figure 3).
- The task was to decide which of the two bubbled faces matched the identity of the target face.
- The number of bubbles was controlled in real time to achieve a pre-specified accuracy of 75%.

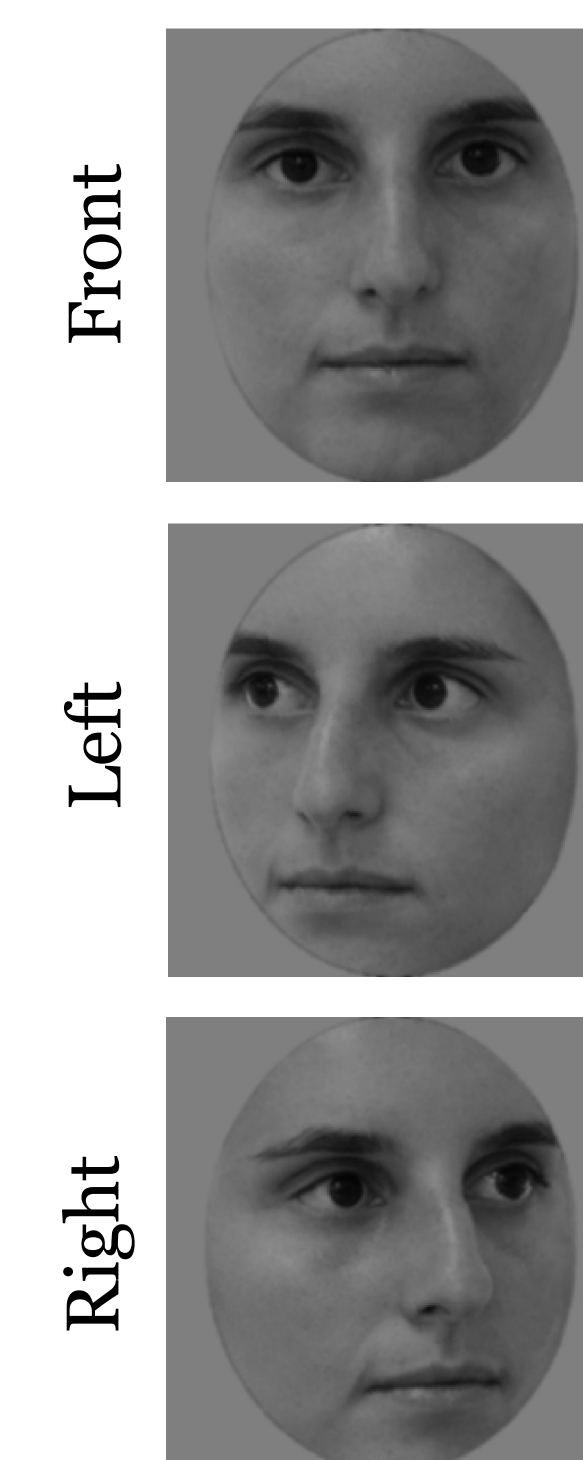


Figure 2 – Three experimental conditions

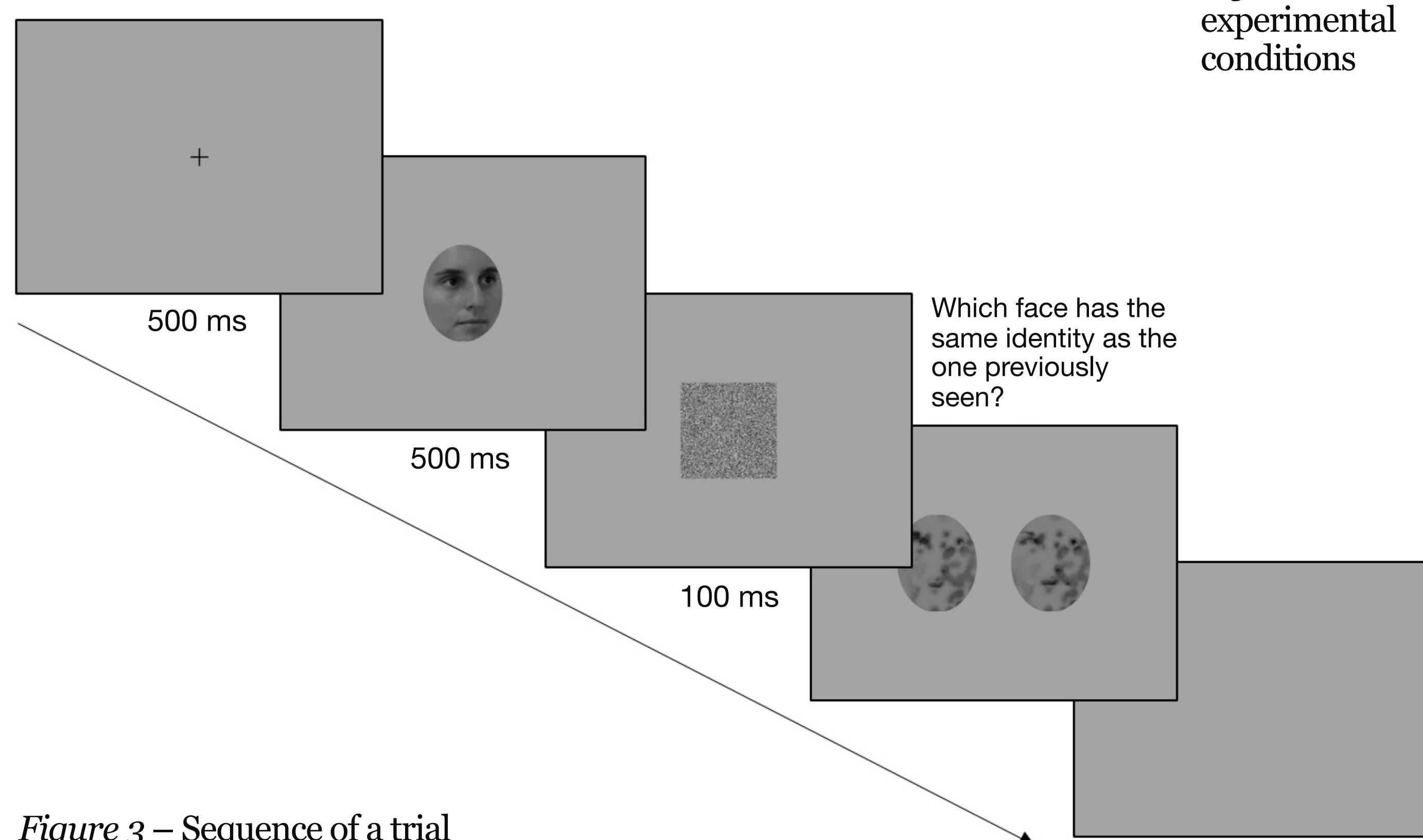


Figure 3 – Sequence of a trial

Analysis and Results

Two linear regressions with the number of bubbles as the IV and the face processing abilities as the DV were conducted for the side and front conditions separately. The number of bubbles in the side conditions explained 27% of the variance ($R^2 = .27$, $\beta = -.52$, $p < .001$), compared with 23% in the front condition ($R^2 = .23$, $\beta = -.48$, $p < .001$). When combined, the mean number of bubbles for both conditions explained 27% of the variance ($R^2 = .27$, $\beta = -.52$, $p < .001$).

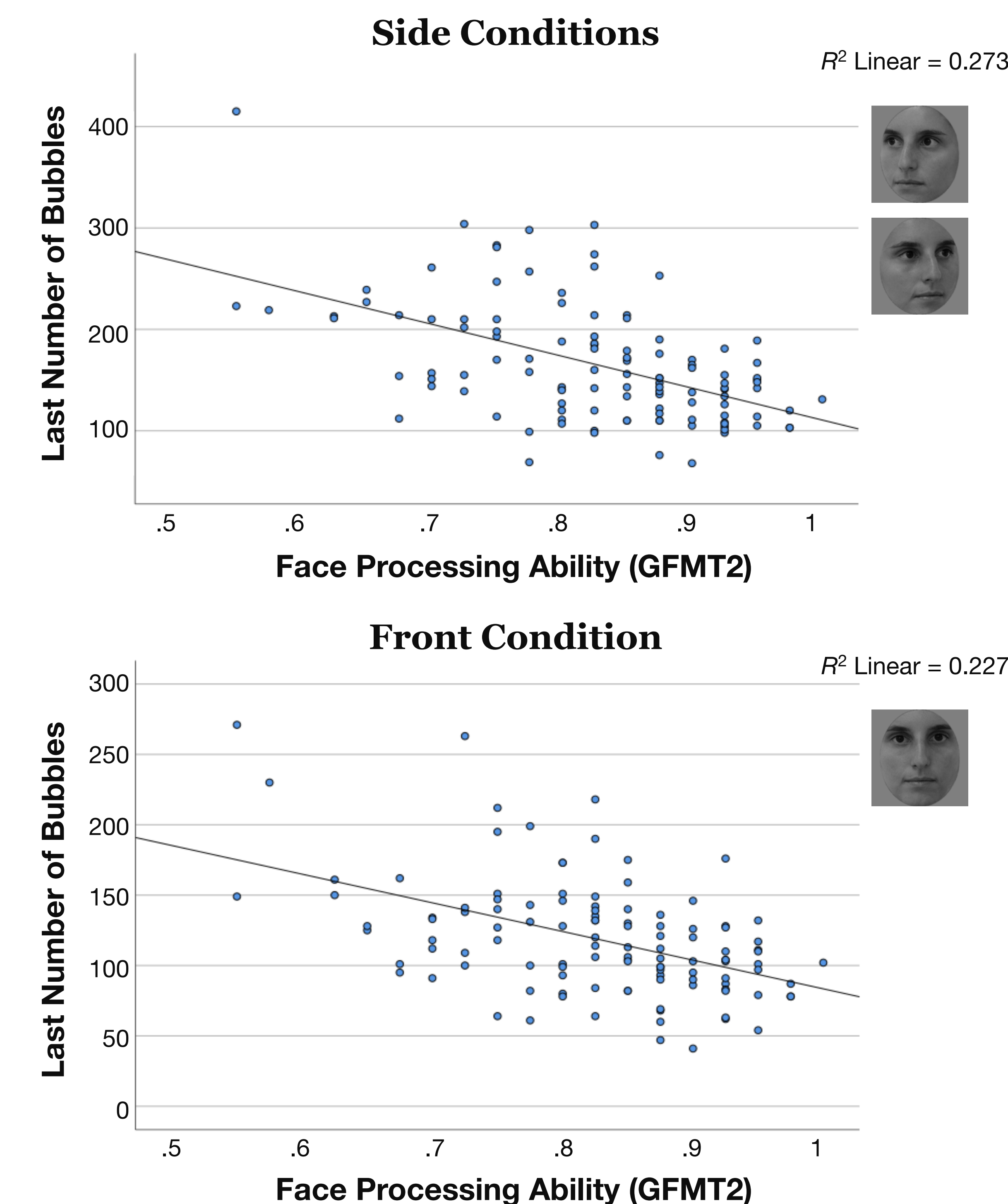


Figure 4 – Face identification ability predicted by the amount of information available

Discussion and Conclusion

- Our results demonstrate the robustness of Royer and colleagues' (2015) results, with similar response pattern even when the task involves 1/3 of trials, a different bubble paradigm, face recognition skills measured with only one test as well as a more diverse sample.
- They also suggest that the Pack&Go platform not only delivers laboratory-quality results very quickly, but also allows more representative results of the population.

References

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2. White, D., Guilbert, D., Varela, V. P., Jenkins, R., & Burton, A. M. (2021). GFMT2: A psychometric measure of face matching ability. *Behavior Research Methods*, 1-9. <https://doi.org/10.3758/s13428-021-01638-x>

3. Gosselin, F., & Schyns, P. G. (2001). Bubbles: a technique to reveal the use of information in recognition tasks. *Vision research*, 41(17), 2261-2271. [https://doi.org/10.1016/S0042-6989\(01\)00097-9](https://doi.org/10.1016/S0042-6989(01)00097-9)

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