Associating Facial Symmetry to Enhanced Memory Retention

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INTRODUCTION

Background

Research has shown that memory is enhanced when processing information with respect to fitness value or survival-relevant information.

- The Survival Processing Advantage shows that when processing words based on their survival value, performance on a memory test would improve [1].
- Previous research shows a higher accuracy of free recall in scenarios of mate selection and raising a child in comparison to the self-reference control scenario. This supports the notion that reproductive-relevant information is efficiently processed in memory. [2].

Many studies support a connection between reproductive success and improved memory, but others have failed to reveal any significant association.

Purpose

This project was designed to test whether aspects of physical attractiveness—facial symmetry—produce better results when determining retention accuracy.

Predictions

We predicted that memory would be better for symmetrical faces than asymmetrical faces. This would display enhanced memory in relation to reproductive success.

METHOD

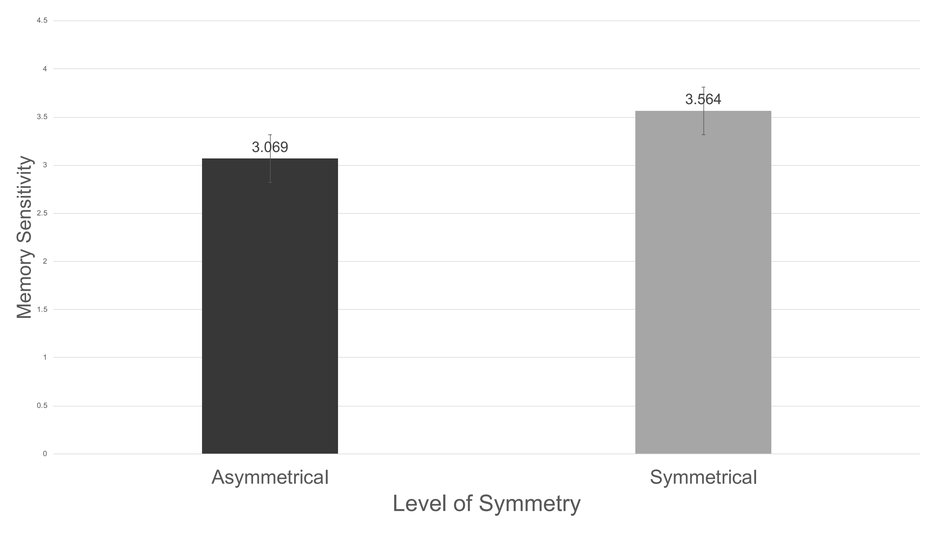
Subjects.

- 73 psychology students participated in exchange for extra credit.

Method.

- Participants were presented with a series of facial images varying in facial symmetry and were asked to rate them on 5 dimensions for an unrelated study.
- Participants were then asked to complete an unrelated questionnaire to separate the interval between seeing the first sequence of faces and the second.
- During this evaluation participants were unaware that they would later be asked to recall some of the faces from the first sequence. D' was calculated as a measure of memory sensitivity for the dependent variable.
- Lastly, participants were presented with a second series of facial images—eight images being from the first sequence and eight faces being new. Based on these faces, participants were asked to determine whether they had seen the face in the first sequence.

RESULTS



- We used a 1-way within-subjects ANOVA and found a main effect of facial symmetry on memory sensitivity, $F(1,72)=6.882$, $p=0.011$

CONCLUSIONS

There was a significant effect on facial symmetry increasing memory sensitivity for the second faces. Further research could determine whether fitness value is encoded highly in memory.

Implications

- These results suggest that faces that present more structural symmetry are more likely to be remembered than faces that are more asymmetrical.
- This research establishes strong evidence for the correspondence between facial symmetry in regard to fitness value and memory retention.
- More broadly, this study supports the relationship between enhanced memory encoding in regard to reproductive-relevant information.
- Future studies could test whether other aspects of reproductive success and fitness value are also encoded to a higher degree than fitness-irrelevant information.

REFERENCES

[1] Nairne, J. S., & Pandeirada, J. N. S. (2016). Adaptive memory: The evolutionary significance of survival processing. *Perspectives on Psychological Science*, *11*(4), 496–511

[2] Weihai, T., Si, X., Yuxia, L., Xuejun, B., & Xiping, L. (2015). Survival-processing memory advantage comes from natural selection: Evidence from cross-age comparison and reproduction scenarios. *Acta Psychologica Sinica*, *47*(4), 503–513