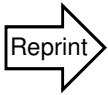


Contextual salience modulates, but does not eliminate, the Other-Race Effect



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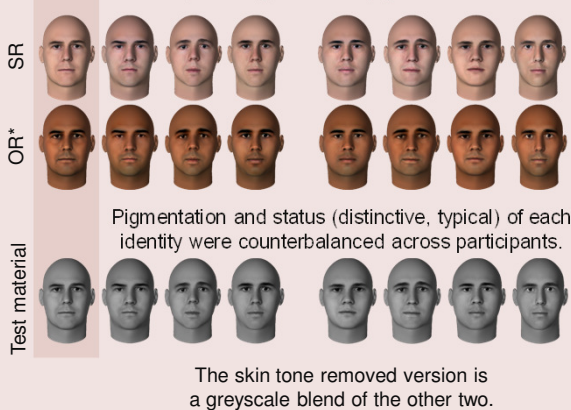
Background and aims

- The other-race effect (ORE) is the disadvantage observed when processing faces from a different ethnic background than one's own.
- It seems partly due to reduced contact or individuation needs with people of racial outgroups (Singh et al., 2022).
- The mechanisms by which exposure to one's own group leads to enhanced memory for novel faces belonging to that group compared to others is unclear.

We tested the cost-efficient encoding hypothesis (Devue & de Sena, 2023), which proposes that when a salient feature (e.g. skin colour) makes a face distinctive, it receives greater weight during learning at the expense of finer facial details. Moreover, features that are not inherently salient may become salient in a specific learning context (Reedy, 2020). Thus, manipulating contextual distinctiveness through skin tone/perceived ethnicity could potentially reverse the other-race effect (ORE).

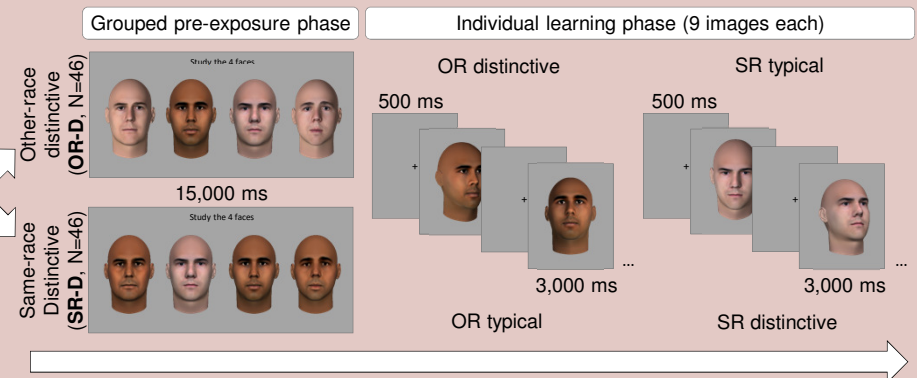
Materials

Three versions of eight FaceGen identities (4 targets, 4 foils), only differing in surface pigmentation.



Learning procedure

Two groups (OR-Dist, SR-Dist) of **Caucasian participants*** (N = 96) learned four faces. One face had a unique skin tone (**distinctive** status) and three shared the same one (**typical** status).



Recognition test

Old/new recognition task - Two blocks of 144 trials each (72 targets, 72 foils). The order of the two blocks is fixed (skin tone removed, restored) to prevent additional learning from colour. Test images (18 images per identity) show different combination of lighting and orientation than during learning, to insure identity-based rather than image-based recognition.

Experimental block – Skin tone removed

Assessment of the encoding of facial information beyond pigmentation.

Main cost-efficient hypothesis:
Since individuation needs : typical > distinctive
Then, recognition : typical > distinctive,
regardless of skin tone.



Results : Face status x Group interaction, $F(1,94) = 5.67$, $p = .019$, $\eta_p^2 = 0.057$.

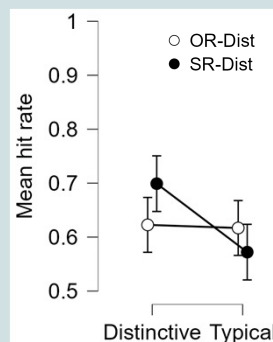
The distinctive same-race face is recognised substantially better than typical other-race faces in the SR-D group ($d = 0.620$).

No such difference in the OR-D group.

False alarm (FAs) rates are comparable in both groups (SR-D = 32.1% $\pm$ 19, OR-D = 34.5% $\pm$ 18.7)

Alternative hypotheses:
If only pre-experimental exposure matters:
SR faces > OR faces, regardless of status
in the experiment.

Combined ORE and distinctiveness effect.



Control block – Skin tone restored

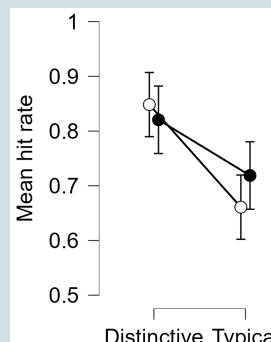
Manipulation check: to test if skin tone helps recognition in a superficial manner.

Hypothesis:
Distinctive > typical, regardless of skin tone,
both for hit and false alarm rates.

Results : For hits, large main effect of face status in the expected direction, $F(1,94) = 23.369$, $p < .001$, $\eta_p^2 = 0.199$.
No significant effect of Group or interaction.

For FAs, no main effect or interaction, all F s < 1.

Performance globally higher in the control block than in the experimental block, but possible training effect.



Conclusions

While contextual saliency can modulate the ORE in a superficial way (cf. control block), representations of distinctive same-race faces seem more robust, consistent with long-term experience-based tuning.



These findings suggest that while surface-level distinctiveness attracts attention during learning, robust encoding of identity-related facial features depends on pre-existing expertise with the face category.

References

- Devue, C. & de Sena, S. (2023). The impact of stability in appearance on the development of facial representations. *Cognition*, 239, 105569.
- Reedy, M. (2020). Saliency in context: the effect of context on the diagnosticity of facial features [Master thesis, Victoria University of Wellington].
- Singh, B., et al. (2022). Does Cross-Race Contact Improve Cross-Race Face Perception? A Meta-Analysis of the Cross-Race Deficit and Contact. *Personality & Social Psychology Bulletin*, 48(6), 865–887.

Supplementary information

- Participants: 49 female, 46 male, 1 other; Mean age = 28.8 years, SD = 4.16
- Both groups reported similar levels of contact with Caucasian > non-Caucasian individuals.
- *OR faces were not intended to represent any specific real-world ethnic group, which also precluded recruiting participants from an ethnic group that could be meaningfully matched to these stimuli.