Attractive Faces in One's Own Race are More Eye-catching:
Evidence from the Continuous Flashing Suppression Paradigm

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Introductions

- The face inversion effect (FIE): Compared to inverted faces, upright faces are easier to be detected and identified.
- Continuous flashing suppression (CFS) paradigm: To suppress stimuli entering our awareness for few seconds, the non-dominant eye is presented with the target stimulus while the other eye is presented with random continuous flashing masks.
- Previous studies using the CFS paradigm indicated that: 1) facial attractiveness can be processed without consciousness[1], and 2) own-race faces have a stronger FIE than other-race faces[2].
- The present study aims to examine whether the perception of facial beauty and race information is both processed unconsciously and to investigate whether these two attributes interact with each other.

Methods

Participants

30 Taiwanese college students (15 female, age range: 20~26 years, average age: 20.7 years) were recruited to make judgment on the spatial position of each face.

Design & Stimuli

- Based on a pilot rating study (N = 30) on 200 faces prepared by Crookes, K., Akindele-Obe., Z., & Rhodes, G. (2018, October), 192 faces in different races (96 Chinese, 96 Australian), genders (96 female, 96 male) and attractiveness (96 attractive, 96 unattractive) were selected.
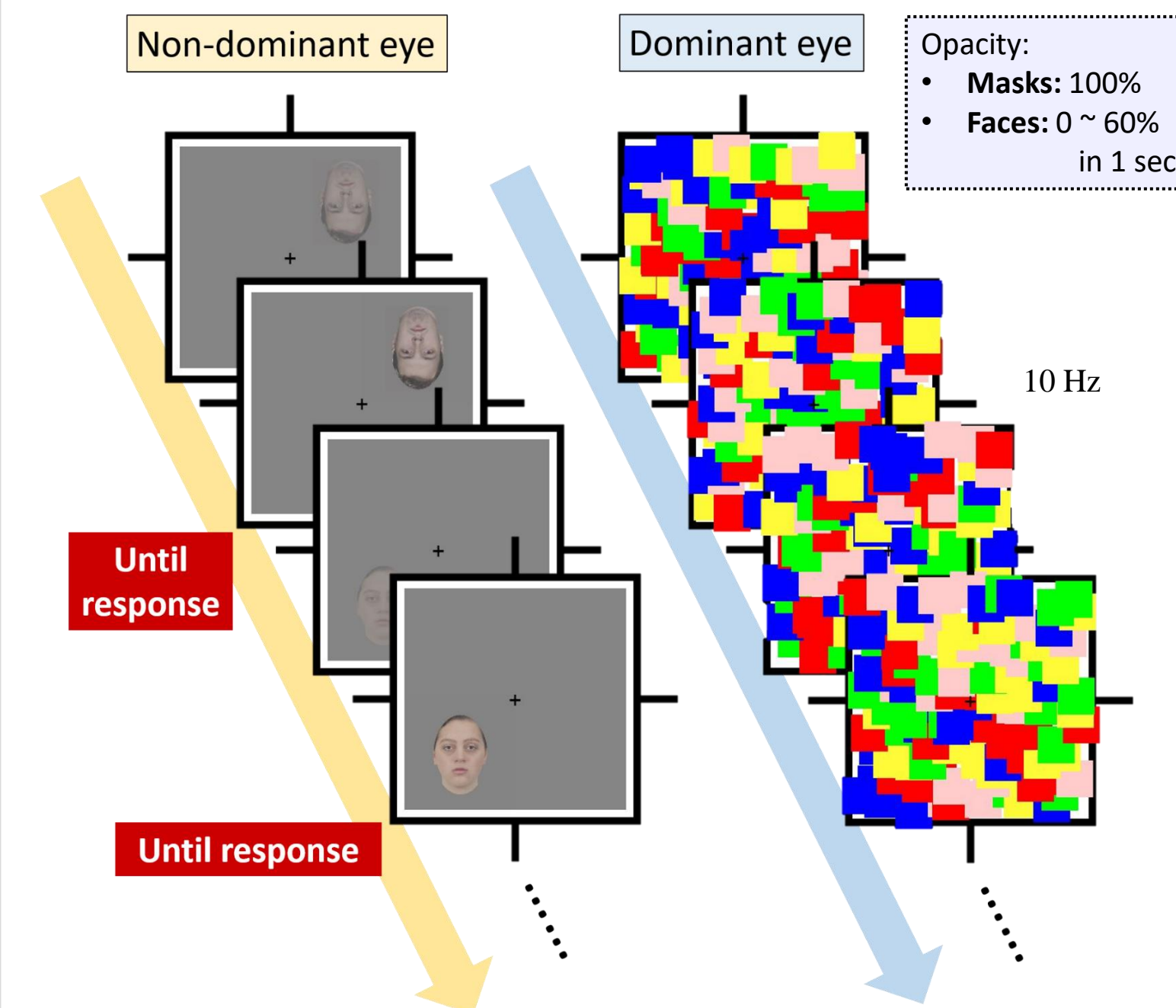
	Female		Male	
	Attractive	Unattractive	Attractive	Unattractive
Chinese (Average attractiveness rating ± SD)	24 faces (4.57 ± 0.29)	24 faces (3.65 ± 0.29)	24 faces (4.30 ± 0.31)	24 faces (3.55 ± 0.22)
Australian (Average attractiveness rating ± SD)	24 faces (4.92 ± 0.40)	24 faces (3.90 ± 0.39)	24 faces (4.72 ± 0.26)	24 faces (3.90 ± 0.33)

- The upright and inverted faces in different categories of race, gender and attractiveness were employed in the continuous flashing suppression paradigm.

Position judgment task

(adopted from Korb, S., Osimo, S. A., Suran, T., Goldstein, A., & Rumiati, R. I. (2017))

384 trials (192 faces in their upright and inverted orientations) divided into 13 blocks

Non-dominant eye Dominant eye

Opacity:
- **Masks:** 100%
- **Faces:** 0 ~ 60% in 1 sec

10 Hz

Until response

Until response

Race Contact Questionnaire (RCQ)

16 questions were about the participants' contact experience with Chinese and Caucasian people (based on Hancock, K. J., & Rhodes, G. (2008)), and 4 questions were about their travel and media experience.

① I know lots of **Chinese** people.
② I interact with **Chinese** people on a daily basis.
③ I interact with **Chinese** people during recreational periods.
④ I live, or have lived in an area where I interact with **Chinese** people.
⑤ I generally only interact with **Chinese** people.
⑥ I went to a high school where I interacted with Chinese students.
⑦ I socialize a lot with **Chinese** people.
⑧ I'm interested in learning more about **Chinese** culture.

① I know lots of **Caucasian** people.
② I interact with **Caucasian** people on a daily basis.
③ I interact with **Caucasian** people during recreational periods.
④ I live, or have lived in an area where I interact with **Caucasian** people.
⑤ I generally only interact with **Caucasian** people.
⑥ I went to a high school where I interacted with **Caucasian** students.
⑦ I socialize a lot with **Caucasian** people.
⑧ I'm interested in learning more about **Caucasian** culture.

* 1~7 points (1 = strongly disagree, 7 = strongly agree)

Results

Face Orientation

| Accuracy	0.98	0.966

Upright / Inverted, $p < 0.001$, $p = 0.038$
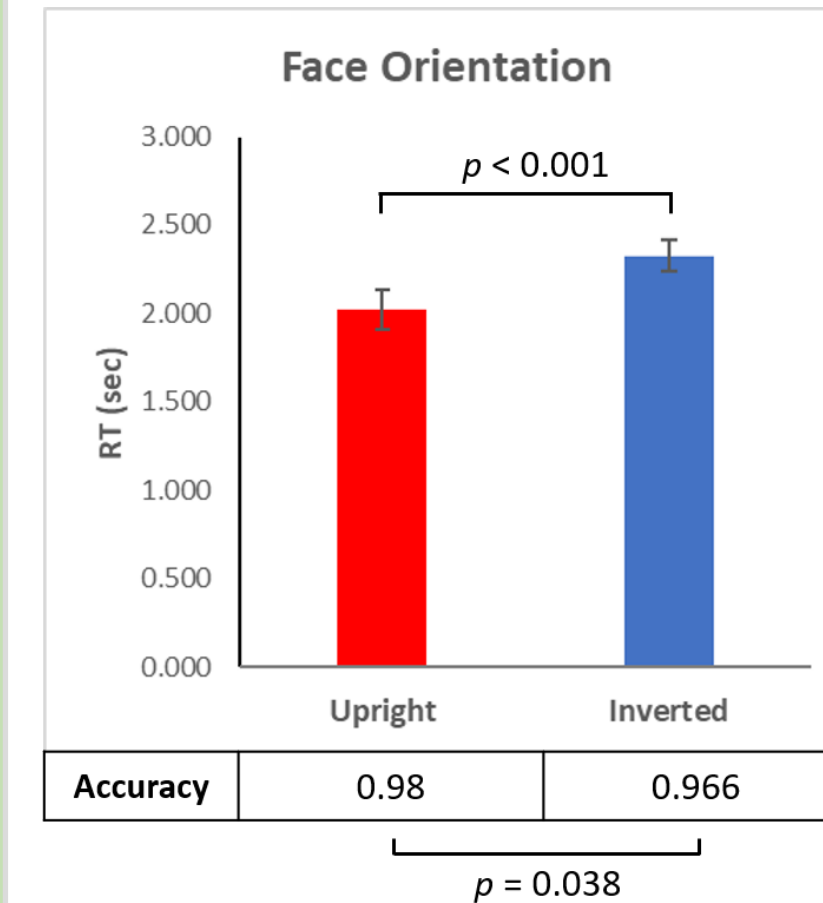
- Mean accuracy = 0.973 (range: 0.878 ~ 1, SD = 0.03).
- A robust face inversion effect (FIE).
- The advantages on detection of own-race (i.e., Chinese) and female faces.

Face Race — Chinese / Australian, $p < 0.001$

Face Gender — Female / Male, $p < 0.001$
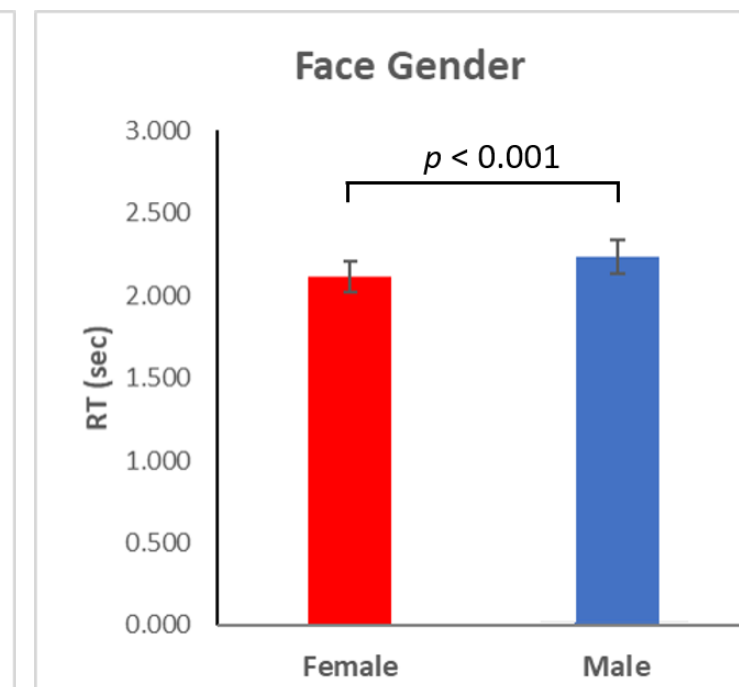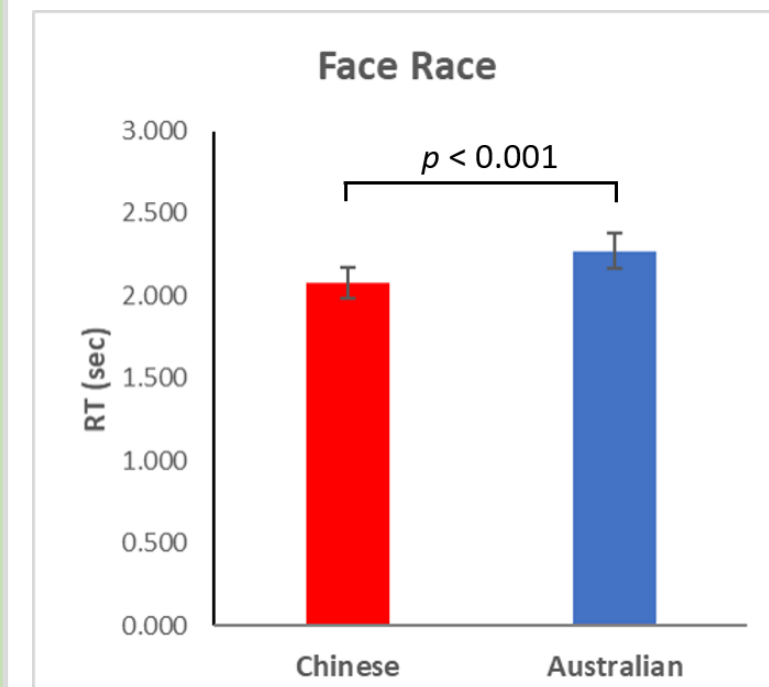
The FIE of Race, Gender and Attractiveness
(Difference of RTs: Inverted faces - Upright faces)

$p = .031$
$p = .165$ $p = .203$

Chinese / Australian

■ Attractive ■ Unattractive
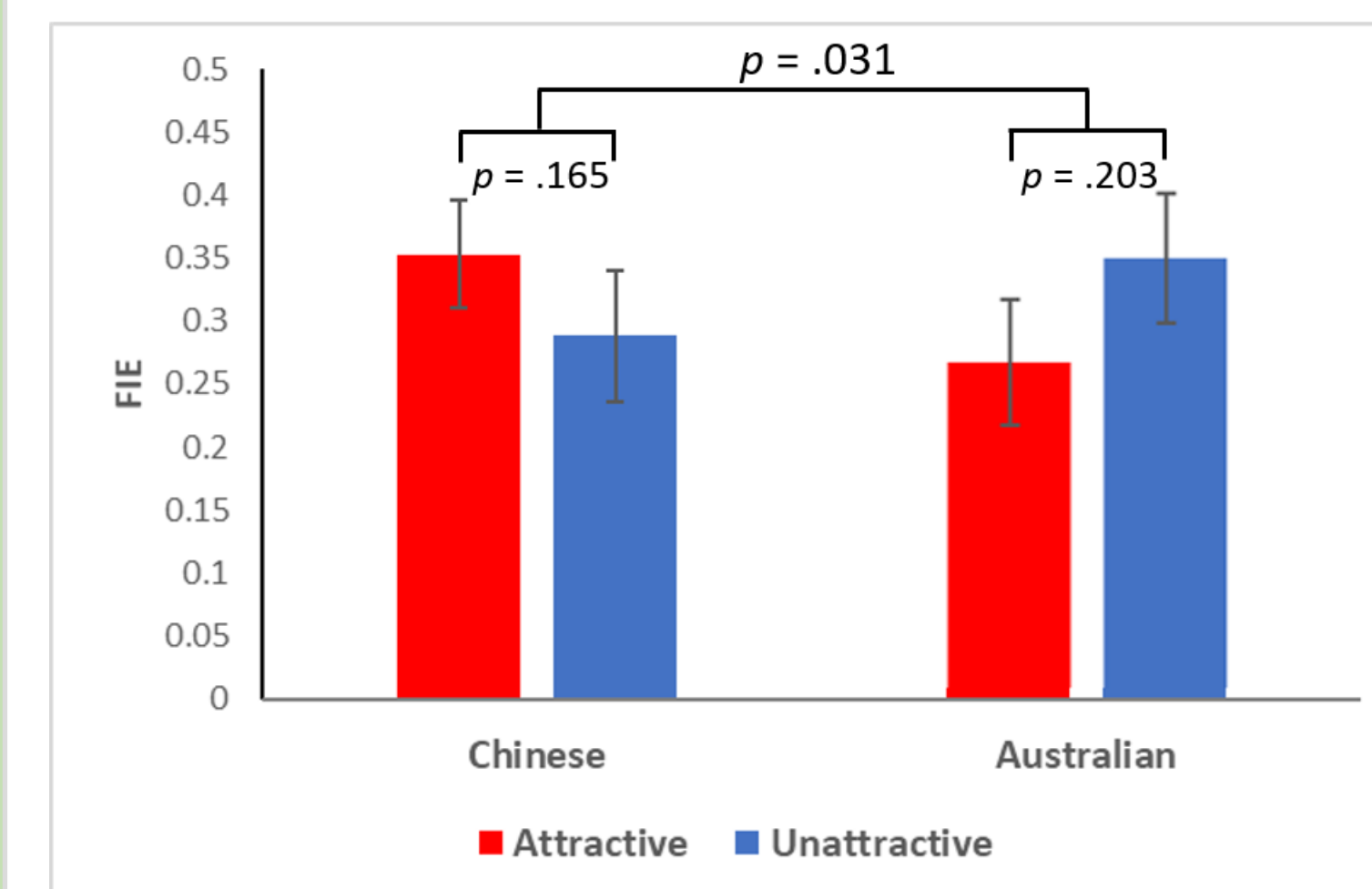
- Opposite patterns of FIE in different races:
  Own-race (Chinese) faces: Attractive > Unattractive
  Other-race (Australian) faces: Unattractive > Attractive

The RCQ Scores

● Experience with Chinese people ● Experience with Caucasian people
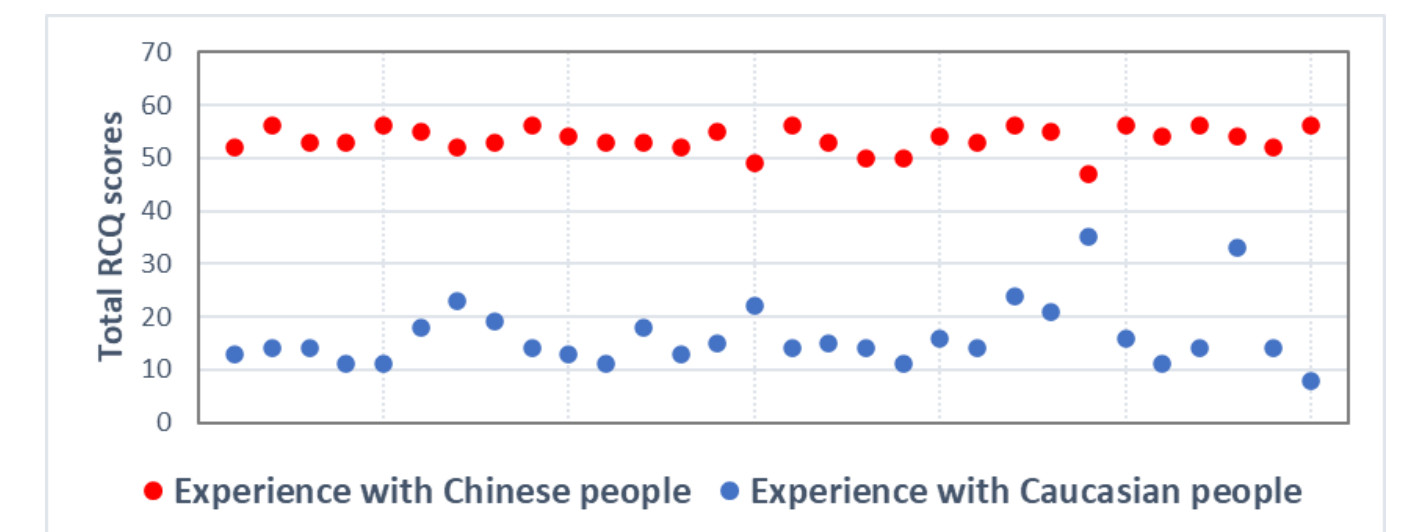
- No significant correlation between RCQ scores and RTs of position judgment:

	RT $_{Chinese}$	RT $_{Caucasian}$	FIE Difference (Chinese - Australian)
RCQ score $_{Chinese}$	- 0.189		
RCQ score $_{Caucasian}$		- 0.125	
RCQ scores Difference (Chinese - Caucasian)			- 0.115

Discussion & Conclusions

- Consistent with previous studies, the race of faces is processed unconsciously. On the other hand, facial beauty might also be perceived without consciousness, though the effect were less strong.
- Moreover, the unconscious perception of facial attractiveness is modulated by race, potentially due to life-long experience.
- No correlation between RCQ scores and RTs of position judgment might be due to 1) not enough variability in experience with Caucasian people in Taiwanese participants or 2) not enough sensitivity of RCQ questions to different experience with Caucasian people.

References

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