



GLOBAL RESEARCH IMMERSION PROGRAM FOR YOUNG SCIENTISTS

Grips

Cross-Cultural Multisensory Emotion Perception

Asmaa Abdelfattah, Nhan Thanh Dinh (University of Amsterdam, Imperial College London)
Department of Psychology and Behavioural sciences, Zhejiang University, Hangzhou, China



UNIVERSITEIT VAN AMSTERDAM

IMPERIAL

BACKGROUND

Accurate emotion recognition is vital for social interactions. Facial expressions and vocal cues are key indicators of emotional states. While classical studies suggest universal facial expressions [1], recent research highlights cultural differences in both expression and perception [2].

Culture and Multimodal Perception

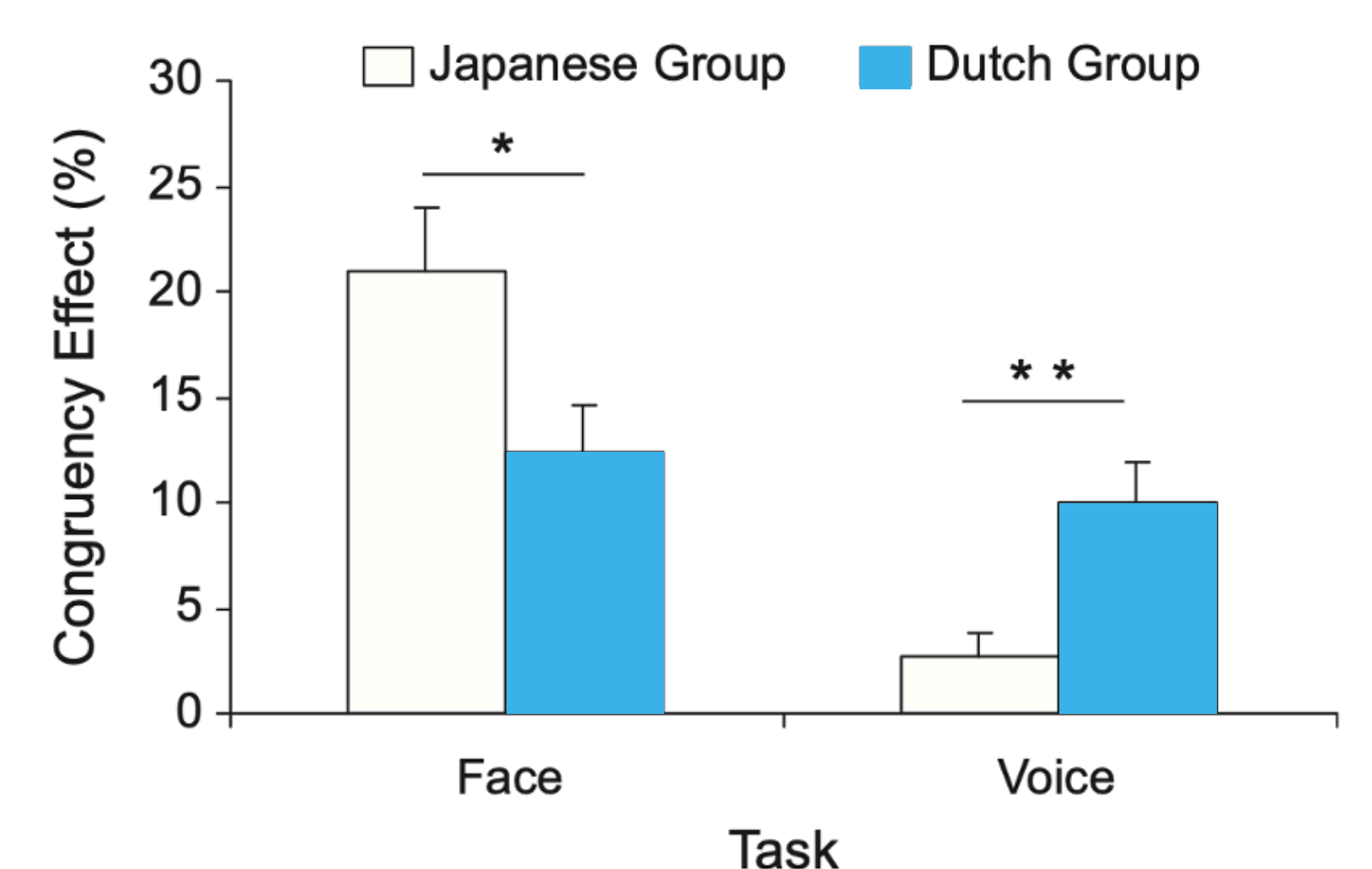
East Asian cultures, such as Japan, often prioritise context (voice) over facial cues in emotion perception [3,4]. This cultural variation extends to multimodal emotion perception, where facial and vocal cues interact [5].

Tanaka et al., (2010) investigated how cultural factors influence the integration of facial and vocal cues in the perception of happy-angry emotion combination [5].

Although both Japanese and Dutch participants relied predominantly on facial expression when perceiving emotion (supporting the Face- central hypothesis), Japanese participants were more sensitive to vocal cues compared to Dutch participants, even when instructed to focus on facial expressions.

Research gap

There is a significant gap in understanding how bicultural individuals navigate these cultural influences. Based on Berry's Model of Acculturation (1992)[6], individuals with higher levels of acculturation adopt the cultural norms of the host culture over their original culture. Thus emotion perception would tend to be more in line with the host culture.



Research aims

- Investigate whether the Face central hypothesis extends to Chinese American participants.
- To examine the interplay of facial and vocal cues in cross-cultural emotion perception among bicultural individuals.

Hypotheses

- Chinese Americans will predominantly focus on facial expressions to judge emotions.
- Higher levels of acculturation will be associated with more facial expression reliance to judge emotions.
- Chinese American participants would be more susceptible to vocal cues than American participants but less susceptible than Chinese participants.

METHODOLOGY

PART 1: STIMULI DEVELOPMENT

Subject Criteria:

- White Male/Female of American/Canadian origin
- Chinese Male/Female
- Age 18-25 years

Subject Task:

Subjects are told to read 5 Neutral sentences (e.g. " I have just arrived at the station"), whilst expressing the emotions of Happiness and Anger, focusing on their facial expression and voice separately.

Stimuli Creation:

The recorded facial expressions and voices are edited to overlap different face and voice combinations, consistent with Bertelson and de Gelder's (2004) immediate cross-modal bias paradigm [7]. This involves comparing both congruent Face and Voice combinations (e.g. Happy face and Happy voice) and incongruent face and voice combinations (e.g. Happy face and Angry voice).

PART 2: PROCEDURE

Participants recruited will be categorised into the following groups:

- Chinese Citizens
- Ethnically Chinese but have resided in the US/Canada
- White US/Canadian Citizens

Participants' level of acculturation will be assessed via the Asian American Multidimensional Acculturation Scale (AAMAS, see Figure 1) [8].

All Participants will be presented with American and Chinese stimuli and asked to select an emotion (Happy or angry) based on the presented task, face-focused or voice-focused (see Figure 2). The experiment is then repeated with the reversed face-voice combination (see Figure 2 Block B).

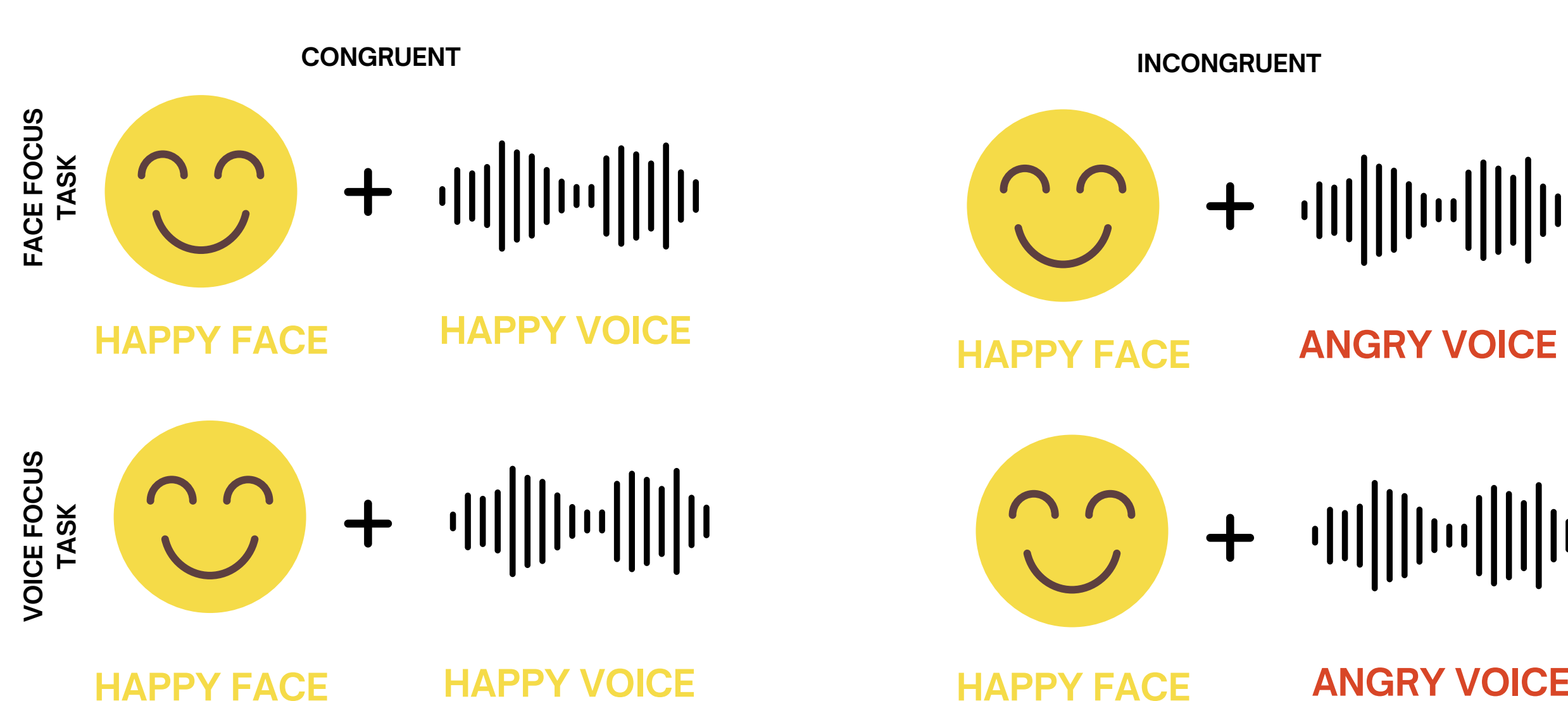
Figure 2. Experiment procedure adopting Cross-modal bias paradigm

Figure 1. Example question from AAMAS

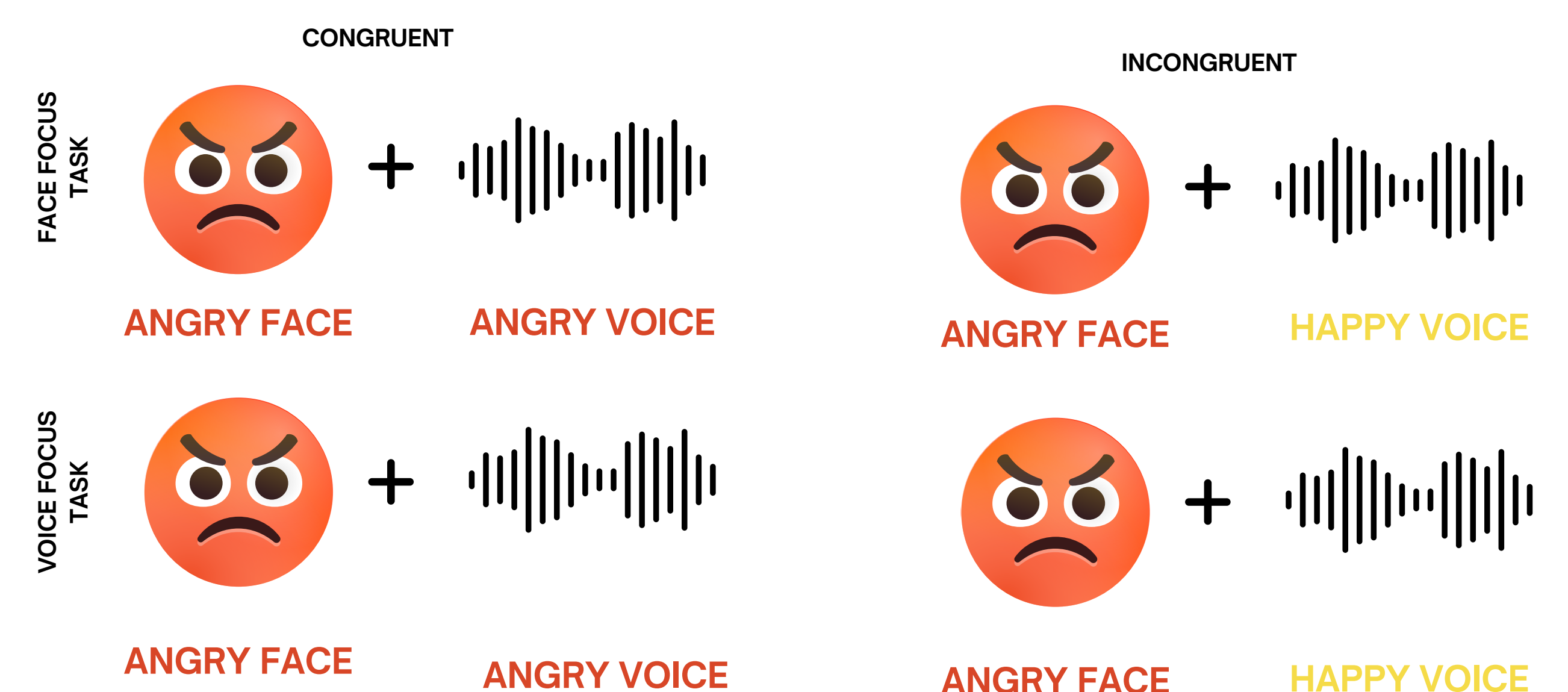
| How much do you feel you have in common from: | 1 | 2 | 3 | 4 | 5 | 6 |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| A. Own Asian culture of origin? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| B. Other Asian groups in America? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| C. White Mainstream Groups? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Note: AAMAS is a 5-point scale, with low scores reflecting high Asian identification and low acculturation to Western culture.

Block A



Block B



PREDICTED FINDINGS

A 2x2x3 mixed-factor analysis of Variance (ANOVA) will be performed to examine the general cross-modal bias. Task (face or voice) x Group (Chinese, Chinese American or American) x Stimuli (in-group or out-group).

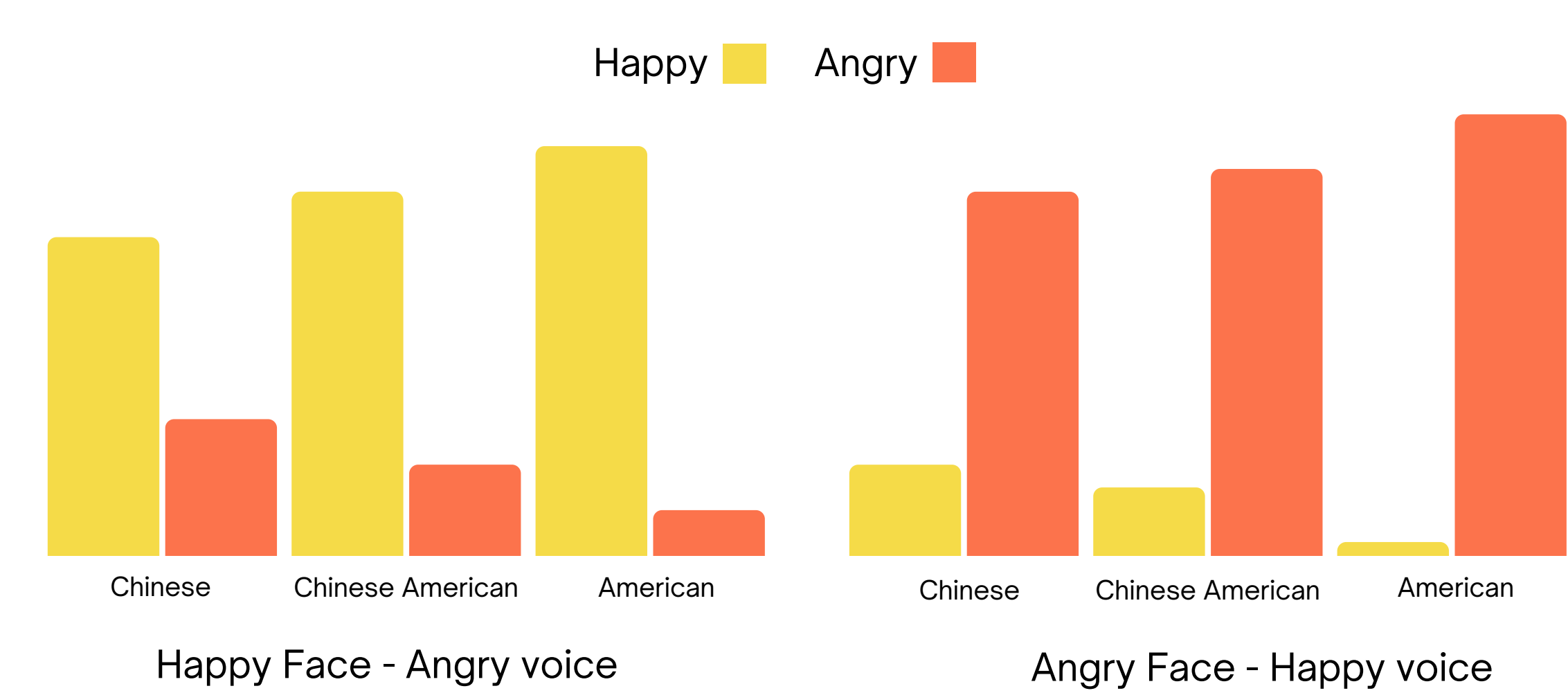


Figure 3. Average scores across both voice and face tasks in Incongruent combinations

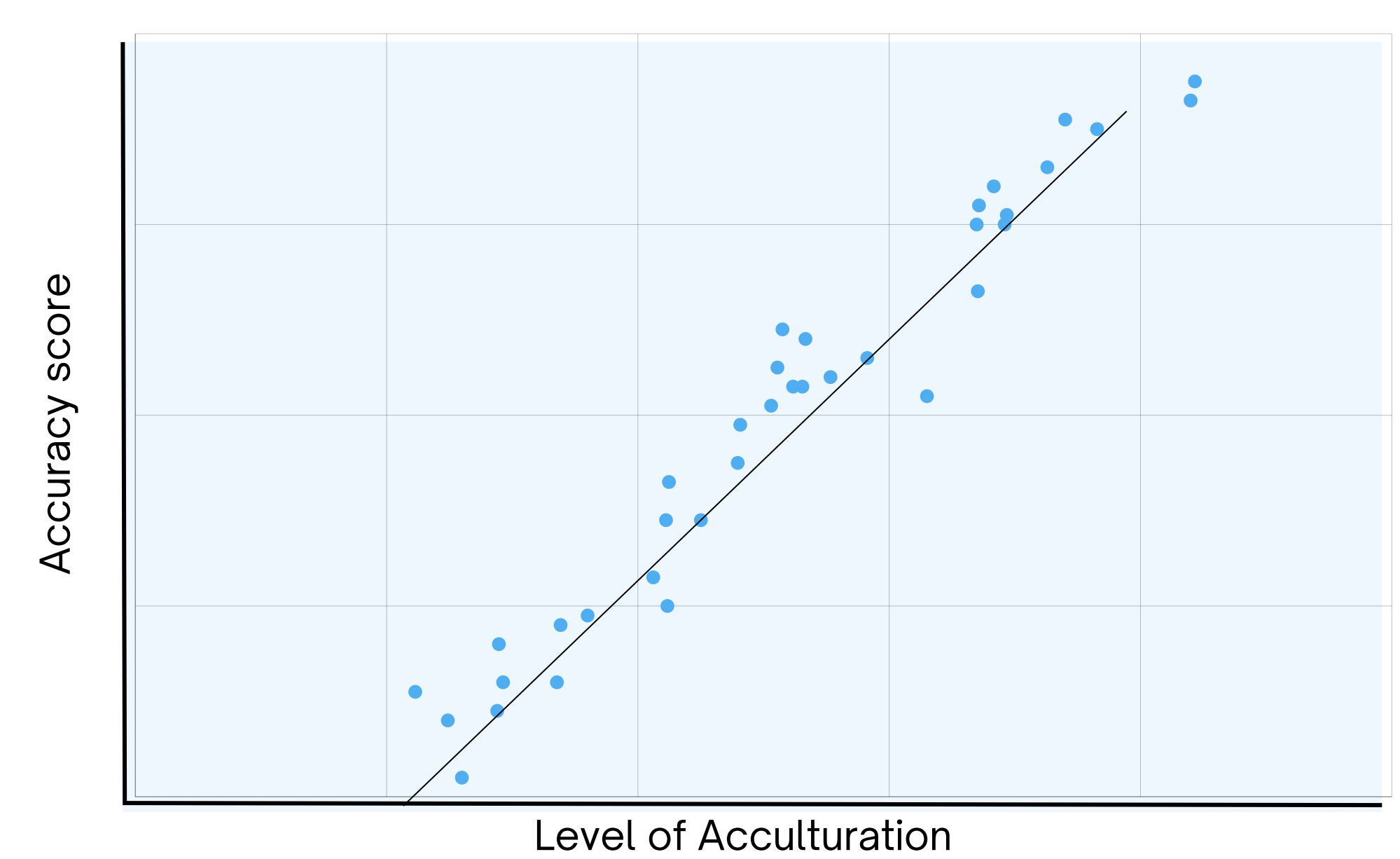


Figure 4. Relationship between level of acculturation and emotion selection based on facial expression (rather than vocal cues).

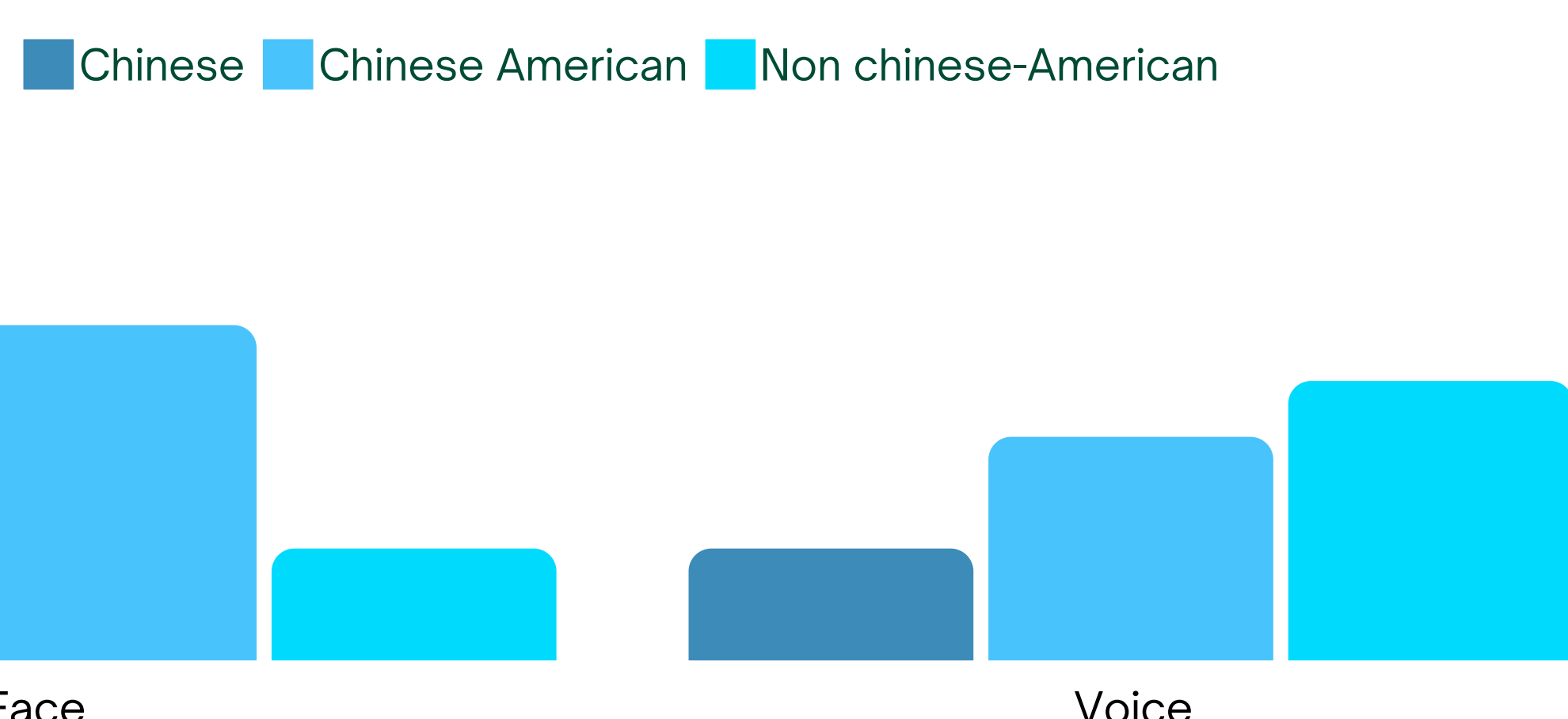


Figure 5. Congruency effect (mean accuracy of congruent combination - mean accuracy in incongruent combination) in the face and voice tasks across each cultural group

REFERENCES

[1] Ekman, P. (1972). Universals and cultural differences in facial expressions of emotion. In J. Cole (Ed.), Nebraska symposium on motivation, 1971 (pp. 207-282). Lincoln: University of Nebraska Press.

[2] Yuki, M., Maddux, W.W., & Masuda, T. (2007). Are the windows to the soul the same in the East and West? Cultural differences in using the eyes and mouth as cues to recognize emotions in Japan and the United States. *Journal of Experimental Social Psychology*, 43, 303-311.

[3] Masuda, T., Ellsworth, P., Mesquita, B., Leu, J., Tanida, S., & van de Veerdonk, E. (2008). Placing the face in context: Cultural differences in the perception of facial emotion. *Journal of Personality and Social Psychology*, 94, 365-381.

[4] Ishii, K., Reyes, J.A., & Kitayama, S. (2003). Spontaneous attention to word content versus emotional tone: Differences among three cultures. *Psychological Science*, 14, 39-46.

[5] Tanaka, A., Koizumi, A., Imai, H., Hiramatsu, S., Hiramoto, E., De Gelder, B., & Com. (2010). *Psychological Science I Feel Your Voice : Cultural Differences in the Multisensory Perception of Emotion. Psychological Science*, 21(9), 1259-1262. <https://doi.org/10.1177/0956797610380698>

[6] Berry, J.W. (1992). Acculturation and adaptation in a new society. *International migration*, 30, 69-69.

[7] Bertelson, P., & de Gelder, B. (2004). The psychology of multi-modal perception. In C. Spence & J. Driver (Eds.), *Crossmodal space and crossmodal attention* (pp. 151-177). Oxford, England: Oxford University Press.

[8] Gim Chung, R. H., Kim, B. S., & Abreu, J. M. (2004). Asian American multidimensional acculturation scale: development, factor analysis, reliability, and validity. *Cultural diversity and ethnic minority psychology*, 10(1), 66

DISCUSSION

- Facial expressions are a primary mode of emotion communication across cultures, as supported by the face central hypothesis and Tanaka's research. However, the degree to which facial expressions are relied upon may vary across cultural groups.
- Chinese American participants will be influenced by voice to a lesser extent than Native Chinese (but to a larger extent to White Americans).
- Higher Acculturation scores amongst Chinese Americans would indicate higher facial expression reliance in emotion perception, reflective of Chinese Americans adoption of host culture norms.
- Overall, this research is expected to contribute to a more nuanced understanding of how cultural factors shape emotional processing in individuals with multiple cultural identities.

CONTACTS

Nhan Dinh: Nd921@ic.ac.uk

Asmaa Abdelfattah: asmaamabdefattah@gmail.com

