Approaching the Self & Avoiding Others: Evidence for Self-Prioritization using the Manikin-Based Approach Avoidance Task in an Online Study

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1 Introduction

Preferential processing for the self has been documented not only for familiar stimuli like the self-name, self-face etc. but also arbitrary geometric stimuli momentarily associated with the 'self', 'friend' or 'stranger' (Sui, He & Humphreys, 2012). This advantage referred to as the *self-prioritization effect* has been documented across various tasks and stimuli and across different cognitive domains. Given these robust findings that have also been replicated across different cultures, researchers (Sui & Humphreys, 2017) have argued for a special role of the self-representation in integrating information across multiple sensory modalities and thus enables a sense of continuity in experiences.

Interestingly, however, the implications of self-prioritization have not been adequately tested for social and affective behaviors; although a group of studies (Enock, Sui, Hewstone & Humphreys, 2017) have demonstrated that the self-prioritization effect may extrapolate to manifest in preference for a self – related in-group as opposed to an out – group (for instance, favorite football team vs. a rival team).

For the current work, we decided to compare the implicit evaluative attitudes for the self as compared to an irrelevant stranger using a manikin – based approach – avoidance task. The manikin-based approach avoidance has been shown to be adept at tapping into individuals' implicit attitudes towards different attitude objects, events etc. (Degner, Essien & Reichardt 2016 etc). To begin with, asked our participants to form associations with 3 instances of shape-color exemplars with the labels 'self' and 'stranger' and later asked them to participate in an approach – avoidance task, wherein they were asked to evaluate exemplars that resembled either the 'self' – associated cohort or the 'stranger' – associated cohort. We found that our participants were faster to approach and slower to avoid 'self' – related stimuli, while at the same time being faster to avoid and slower to approach the 'stranger' – related stimuli. The effects have been discussed in reference to how self-prioritization may modulate affective social behaviour.

2 Methods

***Participants*:** Data of 35 right-handed students (mean age = 22.8 years, SD = 1.62 years; 31M, 4F) who participated in the Experiment through Pavlovia was analysed.

Stimuli: A sample of colour-filled shapes (colour variations- shades of cyan/yellow, shapes: different triangles/pentagons) with either of the social labels of 'Self' or 'Stranger'.

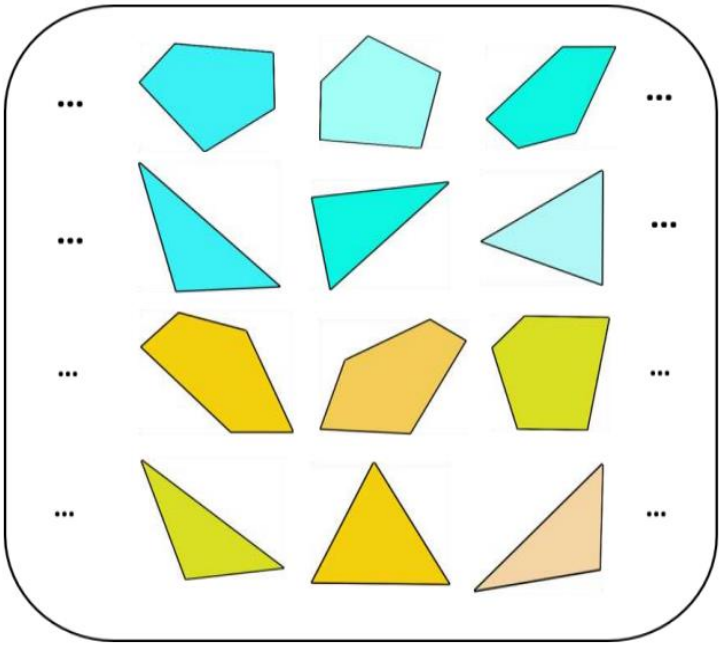

Figure 1.1: Families of Coloured-shape Exemplars of triangles and pentagons of colours cyan and yellow a limited subset of which has been familiarised with associations while the AAT task is then performed on a much larger collection of exemplars, even novel ones, sharing the same two defining features of an exemplar category.

Procedure: After habituation with manikin movement (block A), Participants were first instructed to associate presented shapes with labels (B) and then perform a very short and simple association test of recognising different colour shape combinations by responding with assigned keypresses (eg. 1. Stranger 2. Self 3. None) to ensure that participants remembered the associations. Then the subjects undertook the main Manikin-based Approach Avoidance test where they were presented with collectives with unfamiliarised stimuli from each category and a manikin in either the lower or upper half of the screen and the participants had to respond by keypress ('Y' or 'B') whether they wanted to move the manikin up or down to approach or avoid. In one block they had to avoid the shapes which have been associated with 'Self' and approach those associated with 'Stranger' while in the next block they had to do just the reverse. The order of the presentation of the stimuli was randomised and the order of the blocks was counterbalanced across participants

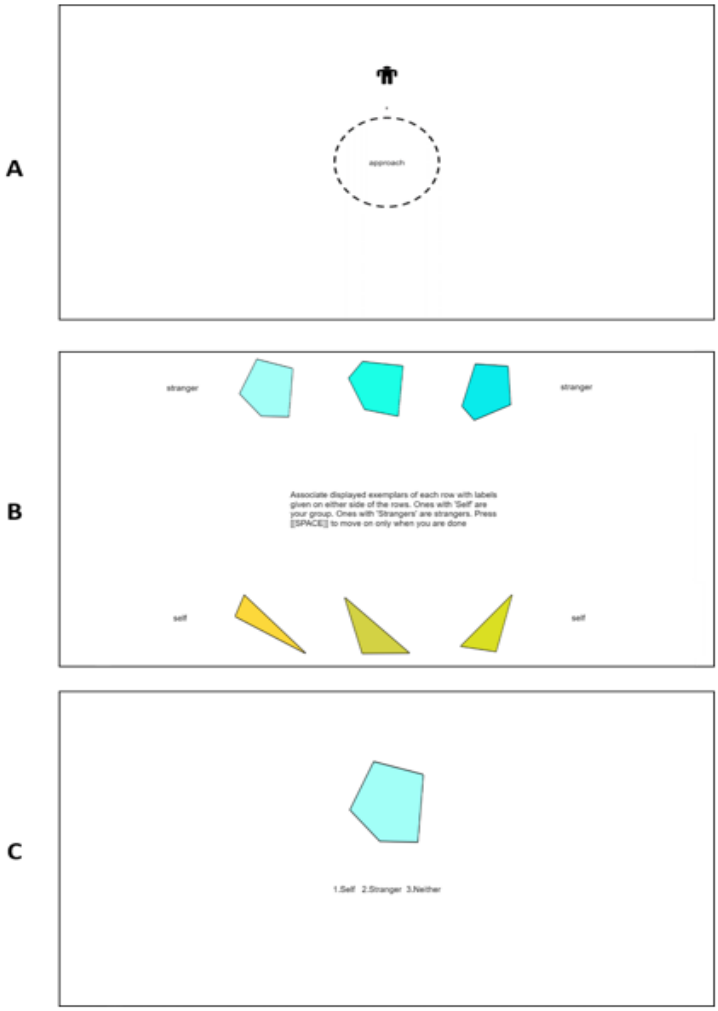

Figure 1.2: The flow of the (A) Stage-II, (B) Stage-III, and (C) Stage-IV of the experiment

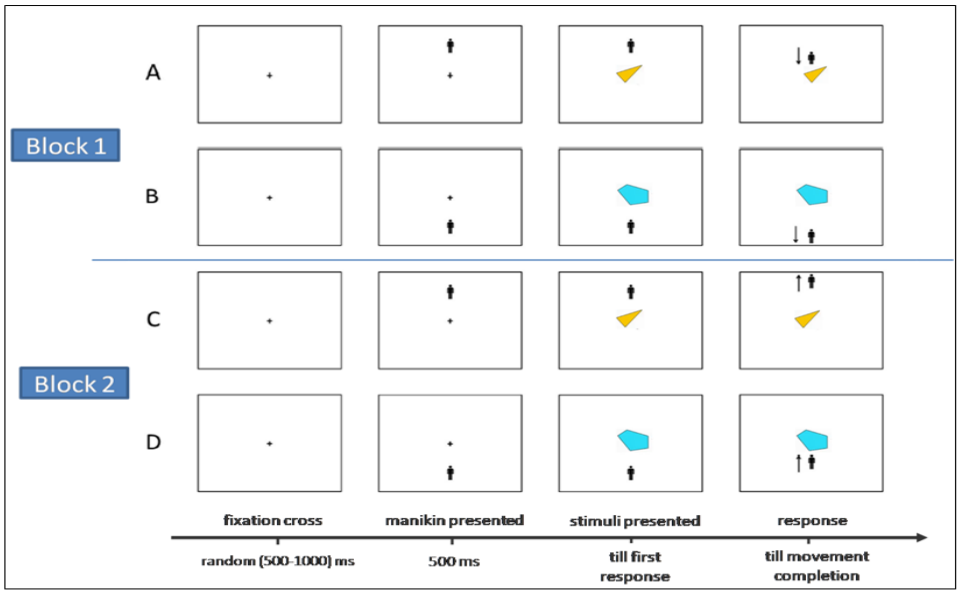

Figure 1.3: The flow of the Approach-Avoidance Movements with the manikin in Stage-V of the experiment. Block 1: Self-matched exemplars approached, and Stranger avoided. Block 2: The reverse condition. A. Trials where participants approach colour-shape stimuli of Self with manikin at top. B. The Stranger-associated stimuli where participants avoid it with manikin presented below the exemplar in the lower half. C. Participants required to avoid Self -associated coloured-shapes. D. Participants approach Stranger-associated exemplars.

3 Results

The mean RT for approach-avoidance movements for Self and Stranger are as Table 1.1.

Table 1.1: Mean and SD of Reaction Times for Approach and Avoidance

Action	RT for Self (in seconds)		RT for Stranger (in seconds)	
	M	SD	M	SD
Approach	0.766	0.223	0.859	0.226
Avoid	0.897	0.292	0.791	0.201

Note M= Mean; SD= Standard Deviation; RT- Reaction Time

A 2 (Stimuli Category: Self, Stranger) X 2 (Action: Approach, Avoid) repeated measures ANOVA found that in responses over all trials, there was a significant effect of the Stimulus Category x Action, F(1, 34)= 21.658, p < 0.001, η_p^2= 0.389. Post-hoc analysis showed significantly faster approach for the whole collective of Self-associated exemplars (Mean RT= 0.766 ± 0.223 seconds) than they approached Stranger-related shapes (Mean RT= 0.897 ± 0.292 seconds) with t(34) = -3.276, p_{holm}= 0.007, Cohen's d= -0.390. Conversely, they were significantly slower (Mean RT= 0.859 ± 0.226 seconds) in avoiding the Self-associated exemplars than they were in avoiding the exemplars associated with Strangers (Mean RT=0.791 ± (0.201) seconds) with t = 3.734, p_{holm} < 0.001, d=0.444. Participants were faster in approaching Self-exemplars than they were in avoiding the same, t = -5.111, p_{holm} < 0.001, d= -0.550 while they were just significantly faster for avoiding Stranger-exemplars than in approaching them t = 2.641, p_{holm} = 0.032, d=0.444.

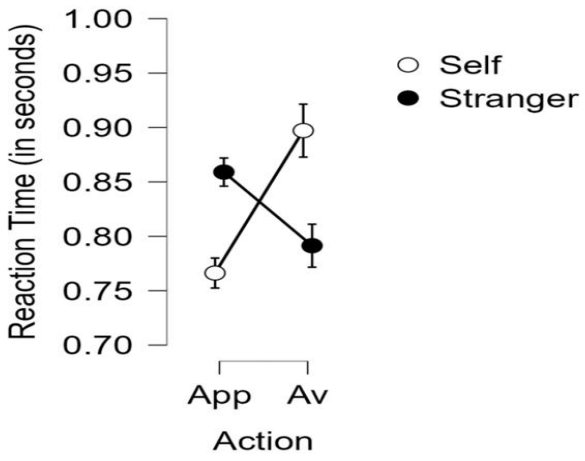

Figure 1.4: Approach (App) and Avoidance (Av) measures for the group of Self and Stranger associated exemplars along with their Standard Error bars

Participants thus also recorded an evident approach-bias (AAT Score= Avoidance RT - Approach RT]) for self (t(34)=4.652, p< 0.001, Cohen's d= 0.771) and conversely an avoidance bias (t(34)= -3.059, p=0.004, d= -0.517) compared to neutral state of zero for Strangers (Table. The differences in tendency for Self vs Strangers were also significant t(34)=4.654, p_{holm} < 0.001, d=1.310.

Table 1.2: AAT Scores for Self and Stranger categories

AAT Category	AAT Score	
	M	SD
Self	0.131	0.170
Stranger	-0.068	0.131

Note M= Mean; SD= Standard Deviation

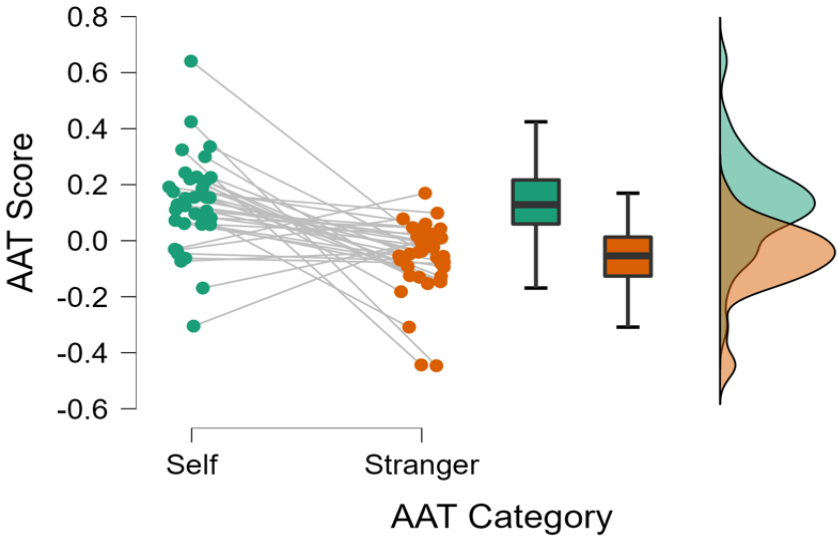

Figure 1.5: Raincloud plot depicting the differences in AAT Scores across Self-Stranger categories, the Mean, Median, Confidence Intervals and the probability distributions

4 Discussion

In the current study, we set out to evaluate implicit affective attitudes towards the 'self' – related stimuli relative to 'stranger' – related stimuli. In confirmation with our hypotheses, we found that our participants responded with a faster approach and slower avoidance tendencies for shapes associated with the 'self' and slower approach and faster avoidance tendencies for the shapes associated with the 'stranger'. The same pattern was also replicated in the AAT scores where participants displayed a strong approach bias towards self -related stimuli as opposed to stranger related stimuli.

The results are in line with the notion that information associated with the self is evaluated positively, and hence may trigger approach tendencies in comparison to information related to a 'stranger'. For instance, Barton, Constable, Sparks & Kritikos (2021) demonstrated that participants evaluated self-owned objects more positively than items owned by the experimenter and displayed approach bias in the initiation time as well as movement duration. Also previous research refers to the positivity bias for self-associated stimuli as one of the causal factors for speeded responses towards self-associated stimuli in comparison to others.

Since, the participants were responding to a cohort of self-related vs. stranger – related stimuli, the results can be interpreted also in terms of demonstrating a strong in-group bias relative to an out-group, in line with previous studies (Moradi et al., 2015). Also, the results are in line with similar studies which have used to AAT task to guage inter-group biases and behaviors, like Rougier et al., (2019).

Finally, such a finding may lead one to conclude that self-prioritization biases may not only manifest in lower-level cognitive decisions as perceptual preferences, better attentional allocation or better memory, but rather in relatively more complex behaviour as reflected in the approach-avoidance tendencies towards an entire class of stimuli. Further research is needed to investigate whether these preferential biases also translate to more generic biases present for other social categories like religion, caste, language group etc.

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