Supplemental Online Materials

Supplemental Methods

Stimuli and Procedure of the associative learning task

The associative learning task was a modified version of the task used in Sui et al.'s study (2012), using arbitrary colors (blue [0 162 232], green [34 177 76] and purple [137 87 161]) rather than geometric shapes. Participants were initially instructed to associate one of the colors with the self, one with a named best friend, and one with an unfamiliar person for 60 seconds. These associations were counterbalanced across participants. Then, on each trial of the associative learning task proper, a circle (1.2° × 1.2°) in one of three colors was presented above a black fixation cross at the center of a gray screen. One of three possible Chinese characters (for self, friend, or stranger, 2.4°/3.4° × 1.2°) was displayed below the fixation cross. The visual angle between the center of the colored circle or the word and the fixation cross was 3.5°. Participants had to indicate whether the color-label pairing matched with the instructed association, using the index and middle fingers of the right hand on the keypad keys "1" and "2". Each trial started with a 500 ms fixation cross, followed by a 200 ms pairing probe, after which a blank screen was presented and participants had 1500 ms to press a key as quickly and accurately as possible. The presentation of the blank screen was terminated by key press or after 1500 ms, and the trial ended with a 500 ms feedback display. Each participant performed two blocks of 150 trials following 20 practice trials. Each type of stimuli occurred equally often and in a random order. Thus, there were 50 trials in each condition (self-matched, self-nonmatching, friend-matched, friend-nonmatching, stranger-matched, and stranger-nonmatching).

Supplemental Results

Results of the associative learning task

For all analyses, only correct responses with RTs above 200 ms and within 2.5 standard deviations (SDs) from the subject-specific mean (for each condition) were used for the RT analysis. For Experiment 1, a repeated measures one-way analysis of variance (ANOVA) on the RT data of match trials in the associative learning task showed a significant main effect of social association ($F(2, 52) = 116.21$, $p < 0.001$, $\eta^2 = 0.82$). The RT data showed faster responses to Self- than to Friend-match trials ($p < 0.001$), to Self than to Stranger-matched trials ($p < 0.001$), and to Friend- than to Stranger-match trials ($p < 0.01$). The accuracy data revealed a similar performance pattern, with a significant main effect of color category ($F(2, 52) = 42.19$, $p < 0.001$, $\eta^2 = 0.62$), and the contrasts between each of the three conditions were significant ($ps < 0.001$). Similarly, the main effect of social association for match trials was also significant in Experiment 2 ($F(2, 52) = 97.40$, $p < 0.001$, $\eta^2 = 0.79$ for RT, $F(2, 52) = 17.58$, $p < 0.001$, $\eta^2 = 0.40$ for accuracy), Experiment 3 ($F(2, 48) = 86.11$, $p < 0.001$, $\eta^2 = 0.78$ for RT, $F(2, 48) = 32.03$, $p < 0.001$, $\eta^2 = 0.57$ for accuracy), and Experiment 4 ($F(2, 44) = 53.85$, $p < 0.001$, $\eta^2 = 0.71$ for RT, $F(2, 44) = 15.14$, $p < 0.001$, $\eta^2 = 0.41$ for accuracy). Thus,

the results of the associative learning tasks in Experiments 2–4 replicated the results of Sui et al. (2012), documenting a successful learning of color-word associations with a substantial self-referential bias in RT and accuracy. The RT and accuracy data of the associative learning tasks of all four experiments are presented in **Table S1**.

Table S1. *Mean RTs (ms) and percentage of correct responses (SDs are presented in parentheses) for Self-matched, Friend-matched and Stranger-matched trials in the associative learning task for each Experiment*

	Condition	Mean RTs	Accuracy
Experiment 1	Self	640.62 (57.63)	0.98 (0.01)
	Friend	759.72 (86.25)	0.94 (0.01)
	Stranger	809.47 (94.64)	0.85 (0.02)
Experiment 2	Self	654.36 (63.96)	0.98 (0.02)
	Friend	758.53 (81.74)	0.94 (0.07)
	Stranger	830.20 (98.74)	0.88 (0.10)
Experiment 3	Self	622.66 (50.97)	0.97 (0.03)
	Friend	728.93 (78.27)	0.95 (0.04)
	Stranger	795.49 (80.94)	0.88 (0.07)
Experiment 4	Self	657.12 (71.47)	0.98 (0.02)
	Friend	724.68 (75.74)	0.94 (0.06)
	Stranger	781.71 (87.65)	0.90 (0.08)

Results of the color-label probes in spatial WM task

For Experiment 1, a repeated measures one-way ANOVA on the RT data of the color-label probes in the WM task showed a significant main effect of social association ($F(2, 52) = 22.73$, $p < 0.001$, $\eta^2 = 0.46$), with Self responses being significantly faster than Friend ($p < 0.001$) and Stranger responses ($p < 0.001$). Similarly, the main effect of social association was also significant in Experiment 2 ($F(2, 52) = 9.12$, $p < 0.001$, $\eta^2 = 0.26$) and Experiment 3 ($F(2, 48) = 86.11$, $p < 0.001$, $\eta^2 = 0.78$). Due to the small number of self-match trials, we did not analyze the results of the color-label probes in Experiment 4. The RT and accuracy data of the color-label probes of the first three experiments are presented in **Table S2**.

Table S2. *Mean RTs (ms) and percentage of correct responses (SDs are presented in parentheses) for Self-matched, Friend-matched and Stranger-matched trials of the color-label probe in spatial WM task for Experiments 1, 2 and 3*

	Condition	Mean RTs	Accuracy
Experiment 1	Self	473.10 (64.37)	0.97 (0.04)
	Friend	532.16 (89.01)	0.97 (0.04)
	Stranger	514.91 (82.29)	0.96 (0.05)
Experiment 2	Self	487.64 (86.49)	0.98 (0.03)
	Friend	536.46 (93.66)	0.96 (0.06)
	Stranger	548.32 (110.64)	0.95 (0.08)
Experiment 3	Self	500.77 (77.07)	0.97 (0.04)

	Friend	559.10 (83.52)	0.94 (0.05)
	Stranger	569.02 (85.52)	0.96 (0.07)

Results of the dot-probe for each trial type in Experiment 3

The different possible combinations of the color memory items resulted in three trial types: Self-Friend, Self-Stranger and Friend-Stranger. Each trial type was presented 96 times, with 48 dot probe trials shown at each of the two item locations. We conducted three paired-samples t-tests on the RT data for each trial type, respectively. For Self-Friend, the mean RT at the Self-location was significantly shorter than at the Friend-location ($t(24) = 2.41$, $p < 0.05$, $d = 0.48$). For Self-Stranger, the mean RT at the Self-location was significantly shorter than at the Stranger-location ($t(24) = 3.51$, $p < 0.01$, $d = 0.70$). For Friend-Stranger, the mean RT at the Friend-location was significantly shorter than at the Stranger-location ($t(24) = 3.20$, $p < 0.01$, $d = 0.64$). The RT and accuracy data of the dot-probe for each trial type in Experiment 3 are presented in **Table. S3**.

Table S3. *Mean RTs (ms) and percentage of correct responses (SDs are presented in parentheses) of the dot-probe for trial type in Experiment 3*

Trial type	Condition	Mean RTs	Accuracy
Self-Friend	Self	718.97 (105.55)	0.98 (0.03)
	Friend	732.81 (102.70)	0.97 (0.03)
Self-Stranger	Self	710.37 (102.89)	0.98 (0.03)
	Stranger	731.08 (103.62)	0.97 (0.04)
Friend-Stranger	Friend	720.18 (105.91)	0.98 (0.03)
	Stranger	740.46 (100.49)	0.97 (0.04)