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THE INFLUENCE OF SEX DIFFERENCE ON SELF-REFERENCE
EFFECTS IN A MALE-DOMINATED CULTURE^{1,2}

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—52 secondary school students from the Chaoshan, China, area, where males are highly valued, were examined for self-reference, mother-reference, and father-reference. In the Chaoshan culture, it was predicted that male participants would demonstrate a father-

highlights the importance of researching subcultures such as the Chaoshan subculture to gain a comprehensive understanding of self-construal.

performance when dealing with materials connected with one's self (Rogers, Kuiper, & Kirker, 1977), has been studied intensively for decades. The literature (e.g., Keenan & Baillet, 1980; Qi & Zhu, 2002). In addition, although it is well established that males and females of the same culture (e.g., Kashima, Yamaguchi, Kim, Choi, Gelfand, & Yuki, 1995), it is still unclear whether self-construal held by dif-

The concept of self is a rich and highly sophisticated construct sustained by long-term memory. This construct can enhance the memory performance of an individual with respect to self-related information, making

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it more memorable than information only relevant to strangers. Since the attention from researchers. Rogers and colleagues (1977) found that, when information to be remembered was relevant to the self, memory performance across the globe have consistently found that the self plays a critical role in memory formation, organization, and retrieval (Wagar & Cohen, 2003).

self-reference not only enhances memory through the elaboration of the encoding process but also by contributing to the organization of encoded information. Ferguson, Rule, and Carlson (1983; see also Andersen & Reder, 1979; Keenan & Baillet, 1980) suggested that the self-reference. They further suggested that self-reference encoding is an elaborated type of encoding that can leave especially impressive marks on the memory. Organizational processing (Klein & Kihlstrom, 1986) describes the encoding of connections among words, including the direct connections between words and the indirect connections between the domains a word belongs to. The organizational processing of a series of words can enhance memory in two ways. Firstly, this process establishes connections between items throughout the encoding process, creating pathways by which words can be accessed during the retrieval process. Secondly, this process also encodes the names of the domains, which increases the number of retrieval cues. Klein and Kihlstrom (1986) argued that self-reference "relevant to myself" and "not relevant to myself"), which in turn enhances the organizational processing of the connections between words, thus aiding memory retrieval. Some researchers found that memory performance

than memory performance under semantic encoding conditions, which supports Klein and Kihlstrom's theory. At present, researchers suggested self-reference not only enhances memory through the elaboration of the encoding process but also by contributing to the organization of encoded information (Klein & Loftus, 1988). Based on this theory, Symons and is a structure that is easily developed and frequently used and can therefore promote both the elaboration and organization of information during the encoding process.

Self is a holistic concept encompassing an individual's personality, attitudes, ideals, beliefs, relationships, thinking style, and behavior patterns

as they have been shaped through socialization. The concepts of culture

iors. Markus and Kitayama (1991) made a distinction between the independent self and the interdependent self. They argued that people from Western cultures generally have an independent self-construal, meaning that they believe it is human nature to be independent of each other, to discover and express one's unique characteristics, and to organize one's behavior based one's own thoughts and feelings. This type of self-construal

titudes that are individualistic, egocentric, idiocentric, isolated, and self-contained. Eastern cultures, however, are more likely to foster an interdependent self-construal. Individuals with this type of self-concept believe that people are interconnected; they view themselves as part of a social

great extent, by the thoughts, feelings, and behaviors of close others, for example parents, family members and close friends. As a result, this self-construct is typically described as socio-centric, holistic, collective, composite,

and the East. For example, in an experiment conducted by Zhu and Zhang (2001), Chinese participants were divided randomly into four experimental groups: the self-referential group, the mother-referential group, the other (Lu Hsun, a famous Chinese writer) referential group and the semantic group. The participants were asked to make judgments about personal ad-

the self-referential group on the memory test that followed the presentation of the adjectives. Qi and Zhu (2002) used the same paradigm to test Chinese college students and found that the memory performances of the

ality memory in the context of Eastern culture. They discovered that, in

hance an individual's

and Baillet (1980) found that, in American participants, the memory per-

ence between the parent-referential group and the semantic group was

tial processing is similar to semantic processing. In their study, Yang and Huang (2007) introduced participants to processing tasks that referenced the collective self (collective-reference processing). They compared the recognition rates and performance of Chinese subjects as they made "remembered" and "known" judgments during memory processing tasks that were either Chinese-referential or American-referential. The results indicated that recognition performance on Chinese-referential tasks was sig-

ing. Compared to individuals from Western cultures, collective-reference

als, and the collective self has a more important position in the Chinese self-concept. The above-mentioned results support the interdependent self and independent self-models proposed by Markus and Kitayama (1991). Compared to Westerners, relational self- and collective self-constructs

A meta-analysis by Symons and Johnson (1997) revealed that in 129

smaller when the memory materials were nouns than when they were adjectives because people engaged more frequently in self-oriented processing when learning adjectives. Moreover, when the referenced subject in-

fect. With this in mind, the present study examines the self-reference effect in Chaoshan culture, in which males are highly valued. Two hypotheses were developed. H1: Both male and female participants would show

status of males. H2: Only female participants will show mother-reference use mothers are role models only for females.

Fifty-two secondary school students (26 females, age = 15.4 years, Guangdong Province, were recruited. All participants were native to Chaoshan and had normal vision or corrected visual acuity. All of the participants were right-handed and were familiar with computers. Participants language used in the experiment was Mandarin.

The experiment stimuli consisted of 384 two-character adjectives adopted from the research of Zhu and colleagues (Zhu, Zhang, Fan, & Han, 2007). Half of the adjectives were positive and half were negative, but all described personal characteristics (see the Appendix). These adjectives were further divided into two sets. One set was used in both the practice and test phase. The adjectives in the second set were used exclusively in the test phase as distracters in the recognition task. All experimental stimuli were presented on a 17-in. CRT monitor with a resolution of 1024 × 768 and a refresh rate of 85 Hz. The software Presentation (Science Plus Group BV) was used to conduct the experiment.

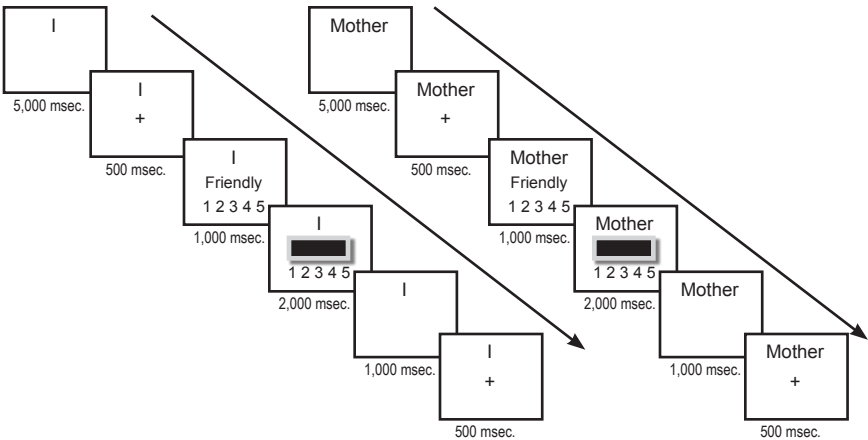
The experiment was a 4 (reference type: self, mother, father, vs other) × 2 (sex: male vs female) design. Reference type was considered a within-subjects variable. During the experiment, the other-reference target was Li Ka-Shing, a Chaoshan celebrity. Sex was considered a between-subjects variable.

The experiment consisted of two phases, namely, a practice phase and a test phase. During the practice phase, the experimenter introduced the experiment to participants, saying, "You are going to make judgments -
tle or name of your target (e.g., father) will be presented on the screen." The name of the target appeared for 5,000 msec. to ensure that participants were focusing on the current target instead of thinking about the previous screen, and participants were asked to judge whether the adjectives described the target (his/her mother, his/her father, or a famous other) and rate the resemblance on a 5-point Likert-type scale with anchors 1: Not at all and 5: Yes, very much. A block design was used in the practice phase: each reference task comprised four blocks, and each block comprised 12 trials. The order of the blocks and trials was randomized. The purpose of the practice phase was to accustom participants to the four types of en-

coding so they could recognize them implicitly without intentional memory. The referenced target was presented at the top center of the screen throughout the practice phase.

center of the screen for 500 msec. Then, the adjective was presented in the center of the screen for 1,000 msec., followed by a black rectangle mask for 2,000 msec. During the presentation of the adjective, a 5-point Likert-type scale was presented below the adjective and remained on the screen until the mask disappeared. Participants indicated their judgments using a mouse. The interval between trials was 1,000 msec. (see Fig. 1).

a short break followed by a surprise memory test (the test phase). During this test, a total of 384 adjectives were presented, in a random order, on the computer screen. The participants were asked to judge whether they had seen the adjectives during the practice phase. In this phase, the next recognition question was not presented until the subject answered the previous one, and no time limit was enforced. In order to test whether participants truly accepted the male-dominate cultural norm, a self-developed 8-item scale about male-dominance (sample item includes the males in the family are highly valued) was administrated on a 3-point, Likert-type scale (1: Yes, 2: Neutral, and 3: No). A smaller value indicates higher level of male-dominance with 2 as the mid-point, suggesting participants considered males and females as equally important in the family. All materials were prepared in Chinese.



F . 1. Experimental Procedure (Single Trial) for the Practice Phase

In order to test the assumption that in Chaoshan culture males are valued more highly than females, one sample t test was conducted to compare reference was found ($t_{51} = 1.90, p = .01$), participants all held the idea of male-dominance ($M = 1.90, SD = .28$). Moreover, a follow-up one sample t test to compare the average scale score against the mid-point in both males and females found that males ($t = 1.84, p = .02$) held a stronger idea of male-dominance ($t_{25} < .01$), whereas females ($t = 1.95, p = .02$) tended to consider male and female as equally important ($t_{25} < .01$).

The descriptive statistics are presented in Table 1. Recognition accuracy was calculated by subtracting the false alarm rate from the hit rate of each reference type. A mixed model ANOVA, for which reference type (self, mother, father, vs other) was the within-subjects variable and sex (male vs female) was the between-subjects variable, was conducted on found ($F_{1,50} = 19.56, p < .01, \eta^2 = .28$) type \times sex interaction ($F_{1,50} = 5.67, p = .02, \eta^2 = .10$).

To further explore the observed reference type \times sex interaction, a repeated-measure ANOVA was conducted for male and female participants not for males ($F_{3,75} = 2.44, ns$). A 3×2 ANOVA analysis revealed that for female participants, the recognition accuracy for self-reference, mother-reference, and father-reference targets, $p < .01$. For male participants, however, only the father-reference target was significantly larger than other-reference targets ($F = .04$). Self-reference was marginally larger than other-reference targets for males. These results suggest that the memory performance of females

TABLE 1

	Males (N = 26)		Females (N = 26)	
Age	15.58	.86	15.31	.62
Hit Rate (self-reference)	.64	.20	.70	.13
Hit Rate (mother-reference)	.62	.22	.67	.15
Hit Rate (father-reference)	.65	.21	.67	.14
Hit Rate (other-reference)	.61	.20	.61	.15
False Alarm	.42	.24	.41	.19

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Chiu, 2007). Unlike previous studies, however, in the present study, partic-

constructs between males and females in a culture with strong male dominance. Chaoshan culture is known for its male chauvinism and traditional preference for sons, and males and females in this culture are assigned distinct roles. For example, males are given an important position in their

more self-aware and self-suppressed. In such a social environment, both males and females could be seen as being repressed to some extent by the cultural expectations.

The present study does have limitations. Firstly, the conclusion that Chaoshan males look only to their fathers as role models and not their mothers, whereas females may look to both parents as role models, is only a preliminary result. Secondly, all of the participants were teenagers, which might limit the study's ability to thoroughly examine how the social values of cultures shape the individual's

the level of intimacy they share with their mother. Zhou and Su (2008) found in their study, the group with high-level actual intimacy showed a lower level of self-referential intimacy into consideration to rule out the possibility of interference from this factor. Despite these limitations, the present study clearly demonstrates the differences between males and females' self-constructs and, as a result, their consequential memory performance.

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