Journal of Integrated Social Sciences
www.JISS.org, 2015 - 5(1): 1-26

Original Article:

A CULTURAL EXAMINATION OF SELF-COMPLEXITY

Aaron A. Shilling, Ph.D.
The College of Idaho, USA

Christina M. Brown, Ph.D.
Arcadia University, USA

Abstract

This article examines self-complexity in cultural samples known to differ in individualism and collectivism. Individualism and collectivism are linked, respectively, to independent and interdependent patterns of self-construal. These patterns of self-construal may promote corresponding cultural differences in self-complexity. However, this possibility is contingent on self-complexity arising from the same interpersonal processes that contribute to self-construal. If, instead, self-complexity arises from intrapersonal processes like cognition and memory, then it is possible self-complexity may not vary across cultures. In Study 1, we compared a sample of Chinese-born students studying in the U.S. to U.S.-born students and found that the Chinese students had lower self-complexity. In Study 2, we compared adult Indian respondents to adult U.S. respondents and found no differences. These results are discussed in relation to cultural theories and intrapersonal, cognitive explanations.

Keywords: Self-complexity, self-construal, culture, China, India

AUTHOR NOTE: Please address all correspondence to Dr. Aaron A. Shilling, Department of Psychology, 2112 Cleveland Blvd., The College of Idaho, Caldwell, ID 83605. Email: ashilling@collegeofidaho.edu

INTRODUCTION

For well over 20 years, psychologists have studied the relationship between culture and self. Markus and Kitayama (1991) predicted that individuals from collectivistic, relationally-focused cultures think of themselves in vastly different ways than people from individualistic, self-focused cultures. In addition, other theorists have specified that cognitive differences in self-representation (i.e., self-knowledge) may have their origin in the person's culture. For example, people from collectivistic cultures may represent the self in terms of personal relationships (Brewer & Chen, 2007) or relationship self-aspects (McConnell, 2011), whereas people from individualistic cultures may represent the self in terms of individual distinctiveness (Brewer & Chen, 2007) or "the real me" self-aspects (McConnell, 2011).

Researchers have already investigated whether self-construal, or how the self is *perceived, defined, or represented in the person's mind*, varies between cultures (e.g., Kitayama, Park, Sevincer, Karasawa, & Uskul, 2009; Singelis, 1994), but researchers have not yet examined the important question of whether culture may influence the way in which the self is *organized* in memory (e.g., quantity and interrelatedness of different aspects of the self). The difference is one of studying, across cultures, how one knows about or defines oneself (e.g., "I am a shy person," which is a stable personality trait, or "I am a daughter," which is a relationship attribute) versus studying how that information is organized or related to other information (e.g., do people qualify, or contextualize, their self-definitions, or do they perceive unity and coherence in how they describe themselves). The primary aim of the current work is to examine self-complexity, a measure of self-concept organization, in cultural samples previously observed to vary in collectivism and individualism. Secondarily, the present work seeks to understand how interdependent (e.g., relational or collective) and independent self-construals relate to self-complexity within differing cultural samples.

Self-Complexity

Self-complexity refers to how people organize their self-concepts, making it a measure of self-concept *structure* (McConnell & Strain, 2007). People use attributes to define themselves, which represent some of the *content* of the self-concept. In contrast, the structure of the self-concept (e.g., self-complexity) is the way in which people organize those attributes across different facets of the self. These different facets, known as "self-aspects," are meaningful parts of the person's life or self. For example, they can represent relationships (e.g., "me with my spouse"), social identities (e.g., "me as a Catholic"), contexts (e.g., "me around strangers"), and roles (e.g., "me as a father").

Self-complexity is often measured by having participants sort attributes (e.g., traits, behaviors, emotions) into groups, each of which represents a self-aspect (e.g., Linville, 1985; McConnell et al., 2005). Importantly, attributes can be used for more than one self-

aspect. When self-aspects share attributes, that means those self-aspects are similar and connected in memory (McConnell, Rydell, & Brown, 2009). People with greater self-complexity have more self-aspects and/or fewer shared attributes, whereas people with lower self-complexity have fewer self-aspects and/or more shared attributes.

Because self-complexity has been shown to predict important outcomes such as mood stability (Linville, 1985), suppression of negative thoughts about the self (Renaud & McConnell, 2002), and well-being (McConnell, Strain, Brown, & Rydell, 2009), gaining a better understanding of whether and how this variable is linked to culture may lead to many beneficial outcomes, such as knowledge about how to improve public health in the same or different ways across cultures. For example, McConnell, Strain et al. (2009) observed with participants from individualistic cultures that it is particularly important for people with low self-complexity to receive consistent social support to maintain well-being. If people from collectivistic cultures differ in self-complexity, they might also differ in the importance of social support for their well-being. By taking a cross-cultural approach, our research aimed to open up such lines of inquiry in addition to informing diverse areas of social study such as religion and politics, which will also be discussed.

Self-complexity has primarily been studied with American samples (e.g., McConnell, Rydell, et al., 2009), and it has also been investigated in separate Chinese samples (e.g., Luo & Watkins, 2008; Luo, Watkins, & Lam, 2009). However, to our knowledge, self-complexity has not been directly compared across cultures.

The goal of the present research is to compare self-complexity in different cultural samples. There are reasons both for and against the existence of cultural differences in self-complexity. There are reliable cultural differences in self-construal, demonstrating that self-construal substantially reflects social and cultural experiences. Self-construal differences may have implications for self-complexity. On the other hand, there is also evidence that self-complexity may arise from other intrapersonal factors (i.e., basic mental processes, such as memory and development of cognitive ability with age), which may not vary substantially from culture to culture. This would result in no cultural differences in self-complexity. Of course, there may be both cultural influences on self-complexity and intrapersonal influences as well. We discuss each type of influence in turn.

Reasons for Cultural Differences: Self-Construal

Individualism is a worldview that generally entails focusing on differences between individuals, whereas collectivism involves focusing on group-based bonds and obligations (Oyserman, Coon, & Kemmelmeier, 2002). Measures of these variables have been successfully used to compare the cultures of countries worldwide (Hofstede, 1980; Oyserman et al., 2002). For example, a great deal of research has found that certain countries, such as the United States and Canada, are more individualistic and less collectivistic than other countries, such as China and India (see Oyserman et al., 2002, for a meta-analysis).

Markus and Kitayama's theoretical framework (1991) describes the effects of individualism and collectivism at the level of the self. Specifically, at the core of their theory is the assumption that a psychological construct, known as self-construal, develops in a cultural context of social norms and beliefs and can explain the relationship between culture (e.g., individualism and collectivism) and cognition, affect (i.e., emotion), and motivation (Matsumoto, 1999). People from individualistic cultures like the United States and Canada are thought to be relatively higher in independent self-construal (Markus & Kitayama, 1991). An independent self-construal involves defining oneself in terms of internal attributes, motives, or abilities that are perceived as stable across time and context. Alternatively, people from collectivistic cultures like China and India are thought to be relatively higher in interdependent self-construal. Interdependent self-construal includes defining oneself in terms of attributes that occur in relation to other people (or groups) and that are experienced as unstable, flexible, and adjusted or tuned to the situation (Brewer & Gardner, 1996; Markus & Kitayama, 1991).

Since Markus and Kitayama introduced their theory, a number of empirical studies have shown support for their ideas (e.g., Heine, Lehman, Peng, & Greenholtz, 2002; Kitayama, Park, Sevincer, Karasawa, & Uskul, 2009; Singelis, 1994; Singelis & Sharkey, 1995). However, recent literature reviews indicate some unexpected self-construal findings (Cross, Hardin, & Gercek-Swing, 2011; Levine et al., 2003; Matsumoto, 1999). Indeed, when self-construal is actually measured and compared between individualistic and collectivistic countries, sometimes no differences have emerged (e.g., Gudykunst, Matsumoto, Ting-Toomey, & Nishida, 1996) or differences were in the opposite direction predicted by theory (e.g., Kleinknecht, Dinnel, Kleinknecht, Hiruma, & Harada, 1997; see Matsumoto, 1999 for a review). Cross and colleagues (2011) point out that whether these mixed results indicate theoretical limitations (Matsumoto, 1999) or measurement issues (Heine, Lehman, Peng, & Greenholtz, 2002; Kitayama, Park, Sevincer, Karasawa, & Uskul, 2009) remains the subject of debate.

Thus, in the present research, we take care not to assume that participants varied in independence and interdependence based upon meta-analytic data. While our samples were intended to reflect countries that have been found to differ in individualism and collectivism according to Oyserman and colleagues' (2002) meta-analysis, we also directly assessed independence and interdependence using a variety of commonly-used self-construal scales (Cross, Bacon, & Morris, 2000; Gabriel & Gardner, 1999; Singelis, 1994). These efforts were meant to ensure that our conclusions about the potential role of self-construal remained as conservative and evidence-based as possible.

One reason for a possible cultural difference is that, because self-construal is thought to develop in a context of social norms and beliefs, individuals differing in independence and interdependence may process social experiences differently, leading to self-complexity differences. One possibility that was tested by the present research is that samples thought to have a more interdependent self-construal may also have higher self-

complexity because they may be more likely to incorporate social experiences as distinct self-aspects (e.g., they may perceive many different important domains in their life, each associated with different relationships they have). Expanding the self with the addition of distinct self-aspects would increase self-complexity.

A large proportion of self-aspects are social in nature. Indeed, in his analysis of a large sample of self-complexity data, McConnell (2011) reported that situations (18%), relationships (17%), roles (16%), and public images (2%) make up a collective 53% of self-aspects. These high percentages suggest that several self-aspects are formed from interpersonal experiences. If this is so, it is plausible that interdependent individuals may have more self-aspects and thus more self-complexity.

Thus, having a more interdependent construal, in contrast to a more independent self-construal, may increase number of self-aspects through the incorporation of distinct interpersonal experiences in the self-concept. Put another way, everyone may use interpersonal experiences to construct social self-aspects; however, when those with a more interdependent self-construal have a given interpersonal experience, they may be more likely to represent the experience in their self-concept than those with a more independent self-construal. A person whose self-construal is more interdependent sees his or her self as flexible and contingent on the situation and other people, perhaps readily forming distinct self-aspects that represent the person with different people or in different roles (e.g., "Myself around Jane" or "Myself as a teacher"). These self-aspects are also likely to be different from one another, which should result in the person exhibiting relatively greater self-complexity (i.e., more non-overlapping self-aspects). In fact, perhaps seeing their different relationships and behaviors as all being part of their larger "self-concept" makes them more comfortable living with inconsistency (as evidenced by people in collectivistic cultures demonstrating less cognitive dissonance reduction, which is when people attempt to reduce the discomfort felt from behaving hypocritical or inconsistently; Heine & Lehman, 1997). In our research, we measured participants' self-construal and self-complexity to test if construing the self in a more interdependent way predicts having a more complex self-concept, and if this relationship is the same or different in our individualistic and collectivistic cultural samples.

Reasons for Cultural Similarities: Cognitive Processes

Another possibility is that self-complexity will not vary between our cultural samples. If self-complexity is similar, we suspect that intrapersonal variables (e.g., basic memory and developmental differences) other than self-construal may underlie these similarities. Among the other intrapersonal variables that may influence self-complexity are cognitive processes like attention capacity (i.e., the amount of information one can temporarily hold in mind) and cognitive complexity (i.e., general categorization ability). Previous research by Conway and White-Dysart (1999) found a positive relationship between self-complexity and two measures of attentional resources: processing speed and

working memory (i.e., temporary storage and processing of information). Suszek (2004) similarly found that short-term memory, as assessed by the WAIS-R Digit Span task, positively correlated with the number of self-aspects reported by participants. However, Brown, Young, and McConnell (2009) found no relation between general cognitive complexity, which is the way one categorizes and distinguishes between various stimuli (unrelated to the self), and self-complexity. This finding held across seven measures of cognitive complexity.

Memory development may influence self-complexity as well. Evans (1994) notes that, as people grow older, self-aspects should become greater in number and more independent because of Werner's (as cited in Evans, 1994) principle that "development [occurs] from global undifferentiated states toward greater specificity and articulation" (p. 174). He has shown that, during adolescence, age is positively related to self-complexity. Other research has suggested that identity formation, including the development of self-related goals, occurs at roughly the same ages (15-25) among the Chinese and Americans (Conway, 2005; Conway, Wang, Hanyu, & Haque, 2005). Thus, not only do developmental variables seem to shape self-complexity, this could mean the development of self-complexity does not vary by culture.

Whereas self-construal differences may be responsible for cultural differences in the formation of self-aspects from social experiences, memory and development may be responsible for cultural similarities in the formation of self-aspects from both social and nonsocial experiences. Thus, to the extent that general cognitive and developmental variables are involved, self-complexity may not vary across cultures. Furthermore, intrapersonal self-aspects present the opportunity for a great deal of variance in self-complexity due to such general factors. Indeed, McConnell (2011) reported that affective self-aspects (13%), "true me" self-aspects (13%), goal self-aspects (10%), temporal self-aspects (5%), and "when I'm alone" self-aspects (1%) make up 42% of the self-concept. Whereas there is reason to believe that more interdependent people develop more self-aspects and less overlap, the potential for cognitive and developmental influences means that such a link might not be present.

The Present Research

To our knowledge, self-complexity has never been examined cross-culturally. Because of the novelty of comparing self-complexity across cultures and the divergent conceptual propositions that could be made about the outcome, we do not make specific predictions regarding differences or similarities between cultural samples. Instead, in two studies we sought to identify samples likely to vary on cultural variables thought to be relevant to self-complexity (i.e., individualism and collectivism), to measure self-construal and self-complexity within these samples, and finally, to compare self-construal and self-complexity between them. Specifically, we selected Chinese international students (Study 1) and Indian adults (Study 2) for comparisons with samples from the United States

because a comprehensive meta-analysis found China and India to be more collectivist and less individualistic than the United States and Canada (Oyserman et al., 2002). Rather than assuming variations between cultural samples in interdependence and independence based on previous data, we assess these variables directly, along with self-complexity.

* STUDY 1 *

METHOD

Participants

Participants were 113 students recruited from the Saint Louis University (SLU) psychology subject pool and students affiliated with the campus International Student Federation (ISF). The majority of students were recruited from psychology courses. However, because these students were almost all born in the U.S., we also contacted the ISF, which allowed us to advertise the study by sending an email through its listserv. Nine participants were removed from the sample because they reported a country of origin other than the United States or China. Thus, the final sample included a total of 104 participants, 82 American (meaning they were born in the U.S.) students and 22 Chinese international students. The Chinese sample was 50% female, with a mean age of 22.00 (2.33) years, and the American sample was 74% female, with a mean age of 19.29 (1.22) years.

Measures

All measures and instructions used the English language.

Pilot Test of Self-Descriptive Attributes. The self-complexity task involves sorting attributes into groups that represent meaningful aspects of oneself. The list of attributes we gave participants was developed through a pilot study with both American and Chinese participants, recruited from the same university population as the main study. This ensured that self-descriptive adjectives used by Chinese students and by American students were included in our stimulus set.

In the pilot study, research assistants collected data from students raised in China or America at various public places on the Saint Louis University campus (e.g., the student center). Eight participants were excluded because they were raised in a country other than China or America. The final sample of students (n = 30 Chinese, n = 31 American) were asked to "Please list adjectives you would use to describe yourself (e.g., friendly, intelligent). Please include both positive and negative adjectives." We selected a total of 27 frequently-reported adjectives (10 from the Americans, 10 from the Chinese, and 7 from both samples) from the pilot test to use in the self-complexity task. Because participants generated relatively few adjectives overall, we supplemented this list of 27 with another 18 adjectives commonly used in previous self-complexity research (Showers, 1992). The final

list of 45 traits included 27 positive and 18 negative adjectives (see Table 1 for the trait-sort stimuli).

Self-Complexity. We used McConnell et al.'s (2005) computerized version of Linville's (1985) trait-sorting task for assessing self-complexity. In this task, participants were given the list of 45 traits described previously and were told to create groups of traits representing meaningful aspects of their lives (i.e., self-aspects). They were informed that they could use single traits more than once, and that they did not have to use all of the traits in the list. Also, they were told that they should discontinue creating groups when they felt they were having difficulty thinking of more groups. The *H* statistic ($M = 2.42$, $SD = 0.92$; Scott, 1969) was calculated for each participant based on the trait sort, according to the following formula.

$$H = \log_2 n - (\sum n_i \log_2 n_i)/n \quad (1)$$

where n is the total number of traits (45); and n_i is the number of traits that are in a group i, $n = \sum n_i$. Higher scores on this measure indicate greater self-complexity. An overlap score (Rafaeli-Mor, Gotlib, & Revelle, 1999) was also calculated for each participant.

$$\text{Overlap} = (\sum_i(\sum_j C_{ij})/T_i)/n*(n-1) \quad (2)$$

where C is the number of shared traits in 2 groups; T is the total number of traits in the reference group; n is the total number of groups reported and i and j range from 1 to n ($i \neq j$). Higher scores on this measure indicate higher average overlap for two self-aspects, over all possible self-aspect pairs.

***Table 1*. Trait-Sort Stimuli**

Valance	Trait Words
Positive	Caring, Comfortable, Confident, Creative, Cute, Determined, Easy Going, Energetic, Friendly, Fun And Entertaining, Funny, Giving, Happy, Hardworking, Helpful, Honest, Independent, Intelligent, Kind, Loving, Mature, Optimistic, Organized, Outgoing, Quiet, Sensitive, Successful
Negative	Bad Tempered, Disorganized, Easy To Get Angry, Immature, Impatient, Incompetent, Indecisive, Insecure, Irresponsible, Lazy, Passive-Aggressive, Sad And Blue, Self-Centered, Short-Tempered, Shy, Stubborn, Uncomfortable, Weary

Self-Construal scale. The 24-item Self-Construal Scale (Singelis, 1994) measures general independence and interdependence. Sample items are, "I am the same person at home that I am at school" (independence) and "My happiness depends on the happiness of those around me" (interdependence). Participants responded on a 1 (*Strongly Disagree*) to 7 (*Strongly Agree*) scale. The self-construal scale was reliable in our sample (α = .71, $\alpha_{America}$ = .73, α_{China} = .63, for general interdependence and α = .72, $\alpha_{America}$ = .74, α_{China} = .65, for general independence).

Relational interdependence self-construal scale. The 11-item Relational Interdependence Self-Construal Scale (Cross, Bacon, & Morris, 2000) contains items such as, "My close relationships are an important reflection of who I am." Participants responded on a 1 (*Strongly Disagree*) to 7 (*Strongly Agree*) scale. The relational interdependence scale was reliable in our sample, α = .89, $\alpha_{America}$ = .91, α_{China} = .81.

Collective interdependence self-construal scale. The 10-item Collective Interdependence Self-Construal Scale (Gabriel & Gardner, 1999) contains items such as, "When I am in a group, it often feels to me like that group is an important part of who I am." Participants again responded on a 1 (*Strongly Disagree*) to 7 (*Strongly Agree*) scale. The collective interdependence scale was reliable, α = .90, $\alpha_{America}$ = .91, α_{China} = .88.

Procedure

The participants completed the self-complexity task followed by the self-construal questionnaires. All tasks were administered over a computer. Participants were debriefed and thanked at the end of the study.

RESULTS

For the American sample, a series of multiple regression analyses were conducted to examine the simultaneous contributions of each self-construal variable to the various measures of self-complexity. (See Table 2 for descriptive statistics and Table 3 for regressions.) For each analysis, general independence, general interdependence, relational interdependence, and collective interdependence served as predictors, while Scott's *H*, the number of self-aspects, or overlap served as the outcome variable. The analyses showed that both relational interdependence (β = 0.39, p = .01) and collective interdependence (β = -0.34, p = .04) significantly accounted for variance in Scott's *H*. Specifically, as relational interdependence increased, Scott's *H* increased and as collective interdependence increased, Scott's *H* decreased. Similarly, increases in relational interdependence (β = 0.32, p = .046) significantly predicted increases in the number of self-aspects, and increases in

collective interdependence (β = -0.31, p = .06) marginally significantly predicted decreases in the number of self-aspects. There were no other significant relationships.

***Table 2*. Means and Standard Deviations from Studies 1 and 2**

	Study 1				Study 2			
	China		United States		India		United States	
Variable	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
General Independence	4.41	0.72	4.59	0.77	5.41	0.63	5.08	0.87
General Interdependence	5.03	0.66	4.94	0.68	5.50	0.72	4.68	0.85
Relational Interdependence	4.99	0.83	5.44	0.95	5.24	0.60	5.14	1.01
Collective Interdependence	4.91	0.89	4.99	0.96	5.20	0.68	4.56	1.26
Scott's *H*	1.91	0.90	2.56	0.88	2.52	0.91	2.54	0.90
Overlap	0.14	0.22	0.22	0.19	0.42	0.22	0.41	0.22
Number of Self-Aspects	3.45	1.60	4.60	1.94	5.97	2.97	5.78	2.48

***Table 3*. Regression of Self-Complexity on Self-Construal for United States Sample in Study 1**

	United States (n = 82)								
	Scott's *H*			Number of Self-Aspects			Overlap		
Variable	*B*	β	*p*	*B*	β	*p*	*B*	β	*p*
Intercept	1.65 (0.84)	--	.05	3.25 (1.88)	--	.09	0.33 (0.18)	--	.08
General Independence	0.13 (0.14)	0.11	.36	0.24 (0.30)	0.10	.42	0.01 (0.03)	0.06	.65
General Interdependence	-0.02 (0.17)	-0.02	.91	-0.04 (0.38)	-0.01	.92	-0.01 (0.04)	-0.04	.76
Relational Interdependence	0.36 (0.14)	0.39	.01*	0.65 (0.32)	0.32	.046*	0.02 (0.03)	0.11	.49
Collective Interdependence	-0.31 (0.15)	-0.34	.04*	-0.63 (0.33)	-0.31	.06†	-0.05 (0.03)	-0.25	.14
R^2	.12			.08			.05		
F	2.55			1.77			0.95		
p	.046*			.14			.44		

Note: Standard errors are in parentheses. *p < .05, †marginal

For the Chinese sample, the same series of multiple regression analyses showed that increases in collective interdependence marginally accounted for decreases in Scott's *H* (β = -0.73, p = .05). There were no other significant relationships. See Table 2 for descriptive statistics and Table 4 for regressions.

***Table 4*. Regression of Self-Complexity on Self-Construal for Chinese Sample in Study 1**

	China (n = 22)								
	Scott's *H*			Number of Self Aspects			Overlap		
Variable	*B*	*β*	*p*	*B*	*β*	*p*	*B*	*β*	*p*
Intercept	2.03	--	.35	0.51	--	.90	-0.94	--	.09
	(2.10)			(3.86)			(0.53)		
General	0.17	0.13	.59	0.13	0.06	.82	0.13	0.44	.10
Independence	(0.30)			(0.55)			(0.08)		
General	0.37	0.27	.27	0.95	0.39	.12	0.11	0.34	.18
Interdependence	(0.32)			(0.59)			(0.08)		
Relational	0.19	0.18	.59	0.58	0.30	.38	0.10	0.40	.25
Interdependence	(0.35)			(0.64)			(0.09)		
Collective	-0.74	-0.73	.05†	-1.07	-0.60	.12	-0.12	-0.49	.19
Interdependence	(0.35)			(0.65)			(0.09)		
R^2	.28			.23			.23		
F	1.67			1.25			1.24		
p	.20			.33			.33		

Note: Standard errors are in parentheses. †marginal

A series of independent-samples *t* tests (see Table 2 for means and standard deviations and Table 5 for comparisons) was used to examine cultural differences in self-complexity and self-construal between our Chinese and American participants. Regarding self-complexity, Chinese participants had significantly lower Scott's *H* scores, $t(102) = 3.03$, $p = .003$, and fewer self-aspects, $t(102) = 2.54$, $p = .01$, than American participants. Chinese participants also had marginally less overlap among self-aspects than American participants, $t(102) = 1.49$, $p = .14$. Regarding self-construal, Chinese participants had significantly lower relational interdependence scores than American participants, $t(102) = 2.00$, $p = .048$. The two groups did not differ in terms of collective interdependence, general interdependence, or general independence scores.[1]

***Table 5*. Comparisons Between Cultural Samples in Studies 1 and 2**

	Study 1			Study 2		
Variable	*t*(102)	*p*	*d*	*t*(152)	*p*	*d*
General Independence	0.99	.32	0.24	2.68	.008**	0.43
General Interdependence	0.53	.60	0.13	6.41	<.001**	1.04
Relational Interdependence	2.00	.048*	0.48	0.73	.47	0.12
Collective Interdependence	0.35	.73	0.08	3.84	<.001**	0.62
Scott's *H*	3.03	.003**	0.73	0.17	.86	0.03
Overlap	1.49	.14	0.34	0.42	.68	0.05
Number of Self-Aspects	2.54	.01*	0.61	0.43	.67	0.07

**$p < .01$, *$p < .05$

Because gender has been associated with differences in self-construal in the past (Gabriel & Gardner, 1999), we tested for gender effects. For the United States sample, a mixed model analysis of variance (ANOVA) revealed that gender did not interact with self-construal, $F(1,80) = 1.31$, $p = .26$. Specifically, independent-samples *t*-tests showed that women were not higher in relational interdependence than men and that men were not higher in collective interdependence than women (*t*s = 0.30-1.24, *p*s = .22-.77). Furthermore, additional independent-samples *t*-tests showed that no measures of self-complexity appeared to vary by gender (*t*s = 1.12-1.67, *p*s = .10-.27). For the Chinese sample, the ANOVA again revealed no interaction, $F(1, 20) = 0.52$, $p = .48$, with follow-up *t*-tests showing no gender differences in relational or collective self-construal (*t*s = 0.93-1.43, *p*s = .17-.36). There were also no gender differences in any of the self-complexity measures (*t*s = 0.20-0.80, *p*s = .44-.84).

DISCUSSION: STUDY 1

Two major patterns seemed to emerge from the regressions in Study 1. First, relational interdependence appears to be positively related to self-complexity, such that increases in relational interdependence correspond with increases in self-complexity, particularly in the United States sample. Second, collective interdependence seems to be negatively correlated with self-complexity, such that increases in collective interdependence correspond with decreases in self-complexity in both samples. The opposite relationships between the two types of interdependent self-construal and self-complexity may be explained by how relational and collective individuals construct their self-concepts. Although any and all conclusions are speculative at this point, being relational may in some way encourage or increase the likelihood of including representations of other people in the self-concept, which can be seen as accommodating or expanding the self—making it more complex. In contrast, people who value collectives might be somewhat unique among those with interdependent self-construals. Instead of readily using information from interpersonal relationships to expand the self, they may tend to encode social information in terms of group memberships. In other words, when they encounter social information, they think about it in terms of groups and collectives (e.g., professions, team membership), rather than individuals and relationships. This grouping of social information might result in a less complex self-concept. Indeed, one potential motivation for defining the self in terms of group-level identities is to decrease the feeling of uncertainty about the self (Hogg, 2000). Collective individuals probably dislike inconsistency in the self, and thus take steps to maintain the status quo of the group categories they have for themselves. This process would result in simple self-concepts (i.e., low self-complexity).

The cross-cultural comparisons indicated that the American college students are more relationally interdependent than Chinese international students. American students may have greater self-complexity as well. Because self-complexity and relational self-construal significantly differed between the two samples and were correlated with each other, it is possible that differences in relational interdependence underlie differences in self-complexity, or vice versa. Although we would have predicted that the Americans would have been lower in relational self-construal, in light of the fact that culture is constantly changing, we directly assessed self-construal using scales to let the data inform us about actual cultural differences (whether anticipated or not) and their relations to self-complexity.

Indeed, the cross-cultural comparisons in this study failed to support theoretical predictions (Markus & Kitayama, 1991). Chinese international students should have had higher interdependence and lower independence than American students. However, we found no significant differences between the samples in self-construal, with the exception of relational interdependence. Even then, relational interdependence was higher among American students. These findings are not so surprising, however, when one considers other evidence on self-construal between cultures. Several other studies have found null results or opposite results when using self-construal scales like those used in the present research (Cross, Hardin, & Gercek-Swing, 2011; Levine et al., 2003; Matsumoto, 1999).

Validity issues with the self-construal scales (Heine et al., 2002; Kitayama et al., 2009) or problems with self-construal theory itself (Matsumoto, 1999) may both explain such theoretically inconsistent results. Assuming the scales and theory were valid, however, one explanation for the findings of Study 1 is that Chinese culture could be becoming more independent and less interdependent. There is some support for this idea. Li, Zhang, Bhatt, and Young-Ok Yum (2006) asked their participants to rate how close they were to various others, ranging from "closest family member" to "neighbors." They found that a Chinese sample scored between a Canadian sample and an Indian sample across six (of seven) measures of relationship closeness, with Canadians being less close to others and Indians being more close. The Chinese participants demonstrated significantly less relational closeness or more independence than the Indian participants on four of these measures. Li and colleagues noted that China may be becoming a more independent "middle land" due to improving living conditions. This may be true; however, overall, the Chinese ratings were still overwhelmingly less independent than the Canadian ratings (Li et al., 2006). In fact, the Chinese demonstrated significantly less independence on six of seven measures. Thus, changes in independence and interdependence seem to fall short of explaining the results of the present research.

Perhaps the best explanation is that the present research used a specific Chinese sample—international students—that was more independent and less interdependent than the general Chinese population. The fact that the international students were willing to leave their culture for an individualistic one may indicate that these students had relatively

high levels of independence and relatively low levels of interdependence even before they arrived in America. Of course, the Chinese international students' self-construals may have been influenced by immersion in American culture. For instance, they may have become more independent as a result of living in an individualistic culture.

Thus, it should be noted that the implications of our cross-cultural findings are not conclusive, given the small sample of Chinese students that were available at Saint Louis University. Study 2 was designed to access a larger sample of participants raised in another collectivistic country: India.

* STUDY 2 *

METHOD

Participants

Participants were 200 individuals recruited through Amazon's Mechanical Turk (mTurk; see Buhrmester, Kwang, & Gosling, 2011). They were paid 30 cents for their participation. Twenty-eight participants were removed from the sample because they failed an attention check item included in the survey (i.e., they did not select the number "6" when told to "Please select 6 for quality assurance"), and seven participants were removed based on their low evaluations of how well they read and/or wrote in English (i.e., scoring a two or below on a 1 *Extremely Poorly* to 5 *Extremely Well* scale or not responding). Five participants were not raised exclusively in India or the United States.[2] After excluding all of these participants, 160 participants remained. A total of 15% (n = 24) of those remaining had missing data, a finding not uncommon for online samples. Participants who failed to complete the entire self-complexity task or all of one or more of the questionnaires (n = 6, 4%) were removed because their skipping indicated either that they did not understand the instructions or that they were not motivated to complete the study (i.e., systematic variance). After removing these people, only 0.5% of the datapoints (e.g., individual items on a scale) were missing. This small amount of data was mean imputed as necessary. Thus, the final sample included a total of 154 participants, 83 American respondents and 71 Indian respondents. The Indian sample was 41% female, with a mean age of 31.44 (9.36) years, and the American sample was 70% female, with a mean age of 34.61 (13.95) years.

Measures

All measures were presented in English and administered as an online survey. Self-complexity and overlap among self-aspects were assessed using a trait-sort task and the same formulas and traits as in Study 1. Similar to the computer task used in Study 1, in an online version, participants could drag and drop traits from the left side of the screen to a box on the right to describe their groups. Whereas in Study 1 and other self-complexity research (e.g., McConnell, Rydell, et al., 2009; McConnell, Strain, et al., 2009), people

created groups as they proceeded, in Study 2 the number of meaningful groups was chosen before sorting traits by having participants report up to 10 self-aspects. This online version of the trait-sort yielded mean *H* scores (*M* = 2.53, *SD* = 0.89) that fell within the range of *H* scores obtained in previous research, such as that of McConnell and Brown (2010; *M* = 2.24, *SD* = 0.77) and McConnell, Rydell, and Brown (2009, Study 2; *M* = 2.75, *SD* = 0.82), suggesting that the new format did not affect responses. The self-construal scales were identical to those used in Study 1, with the exception that certain items were modified slightly to increase clarity and/or to make them applicable to a broader sample including non-students (see Table 6). All scales demonstrated acceptable reliability both in the overall sample (α's = .81-.90) and within the American (α's = .80-.93) and Indian (.78-.86) subsamples.

***Table 6*. Modified Self-Construal Scale Items from Study 2 (Singelis, 1994):**

Original Item	Modified Item
It is important for me to maintain harmony within my group.	It is important for me to maintain harmony within my social groups.
I would offer my seat in a bus to my professor.	I would offer my seat in a bus to an acquaintance with high social standing.
I will sacrifice my self-interest for the benefit of the group I am in.	I will sacrifice my self-interest for the benefit of a social group I am in.
I should take into consideration my parents' advice when making education/career plans.	I should take into consideration my family's advice when making education/career plans.
It is important to me to respect decisions made by the group.	It is important to me to respect decisions made by a social group I belong to.
I will stay in a group if they need me, even when I'm not happy with the group.	I will stay in my group if they need me, even when I am not happy with the social group I belong to.
Even when I strongly disagree with group members, I avoid an argument.	Even when I strongly disagree with members of a social group I belong to, I avoid an argument.
Speaking up during class is not a problem for me.	Speaking up during social gatherings is not a problem for me.
I am the same person at home that I am at school.	I am the same person at home as I am in other social situations.

Procedure

The order of the tasks was the same as in Study 1 (see above).

RESULTS

For the American sample, a series of multiple regression analyses were conducted to examine the contributions of each self-construal variable to the various measures of self-complexity. (See Table 2 for descriptive statistics and Table 7 for regressions.) For each analysis, general independence, general interdependence, relational interdependence, and collective interdependence served as predictors, while Scott's *H*, the number of self-aspects, or overlap served as the outcome variable. The regressions revealed that increases in general interdependence significantly accounted for decreases in the number of self-aspects (β = -0.30, p = .03), and general independence significantly predicted variation in overlap (β = 0.32, p = .005). There were no other significant relationships.

***Table 7*. Regression of Self-Complexity on Self-Construal for United States Sample in Study 2**

United States (n = 83)									
	Scott's *H*			Number of Self-Aspects			Overlap		
Variable	*B*	β	*p*	*B*	β	*p*	*B*	β	*p*
Intercept	1.67 (0.81)	--	.04	6.55 (2.20)	--	.004	-0.02 (0.19)	--	.93
General Independence	0.10 (0.12)	0.09	.42	-0.02 (0.32)	-0.01	.95	0.08 (0.03)	0.32	.005*
General Interdependence	0.08 (0.14)	0.08	.56	-0.87 (0.39)	-0.30	.03*	0.02 (0.03)	0.07	.58
Relational Interdependence	-0.10 (0.16)	-0.11	.55	0.52 (0.43)	0.21	.23	-0.01 (0.04)	-0.04	.83
Collective Interdependence	0.11 (0.13)	0.15	.42	0.15 (0.35)	0.08	.66	-0.01 (0.03)	-0.04	.81
R^2	.03			.08			.10		
F	0.61			1.58			2.17		
p	.66			.19			.08†		

Note: Standard errors are in parentheses. *p < .05, †marginal

For the Indian sample, the same series of multiple regression analyses revealed no significant relationships. See Table 2 for descriptive statistics and Table 8 for regressions.

***Table 8*. Regression of Self-Complexity on Self-Construal for Indian Sample in Study 2**

	India (n = 71)								
	Scott's *H*			Number of Self-Aspects			Overlap		
Variable	*B*	*β*	*p*	*B*	*β*	*p*	*B*	*β*	*p*
Intercept	1.08	--	.36	5.26	--	.17	-0.02	--	.94
	(1.16)			(3.81)			(0.28)		
General	0.19	0.13	.39	0.16	0.04	.82	0.07	0.19	.19
Independence	(0.22)			(0.71)			(0.05)		
General	0.11	0.09	.66	-0.25	-0.06	.76	0.07	0.23	.22
Interdependence	(0.25)			(0.81)			(0.06)		
Relational	0.16	0.11	.58	0.14	0.03	.88	-0.03	-0.07	.72
Interdependence	(0.29)			(0.94)			(0.07)		
Collective	-0.19	-0.15	.57	0.09	0.02	.94	-0.04	-0.12	.63
Interdependence	(0.34)			(1.10)			(0.08)		
R^2	.03			<.01			.08		
F	0.47			0.05			1.34		
p	.76			.99			.26		

Note: Standard errors are in parentheses.

A series of independent-samples *t* tests (see Table 2 for means and standard deviations and Table 5 for comparisons) was used to examine cultural differences in self-complexity and self-construal between our Indian and American participants. Regarding self-complexity, Indian participants did not significantly differ from American participants on Scott's *H* scores, number of self-aspects, or scores on overlap among self-aspects. Regarding self-construal, Indian participants had significantly higher collective interdependence, $t(152) = 3.84$, $p < .001$, general interdependence, $t(152) = 6.41$, $p < .001$, and general independence scores, $t(152) = 2.68$, $p = .008$, relative to American participants. The two groups did not differ in terms of relational interdependence.

As in Study 1, we tested for gender effects in Study 2. For the United States sample, a mixed model analysis of variance (ANOVA) revealed that gender did not interact with self-construal, $F(1,81) = 0.20$, $p = .66$. Specifically, independent-samples *t*-tests showed that women were not higher in relational interdependence than men and that men were not higher in collective interdependence than women (*t*s = 0.26-0.49, *p*s = .63-.80). Furthermore, additional independent-samples *t*-tests showed that no measures of self-complexity appeared to vary by gender (*t*s = 0.04-1.60, *p*s = .12-.97). For the Indian sample, the ANOVA again revealed no interaction, $F(1, 69) < 0.01$, $p = .96$, with follow-up *t*-tests showing no gender differences in relational or collective self-construal (*t*s = 1.29-1.44, *p*s = .16-.20). There were also no gender differences in any of the self-complexity measures (*t*s = 0.23-0.97, *p*s = .33-.82).

DISCUSSION: STUDY 2

The regressions in Study 2 revealed that general interdependence seems to be negatively related to self-complexity, particularly in the United States sample. That is, increases in general interdependence may correspond with decreases in self-complexity, a relationship similar to that observed between collective interdependence and self-complexity in Study 1. Indeed, an examination of the items from the general interdependence subscale revealed that the majority could be reasonably classified as collective in nature (e.g., "I will sacrifice my self-interest for the benefit of the group I am in."). This observation is consistent with the hypothesis that collectively interdependent individuals may tend to group social information in self-concepts, thereby decreasing self-complexity. However, we should be the first to point out that this support is limited, considering our use of regressions to examine the contribution of each self-construal variable to self-complexity while controlling for the other self-construal predictors and the fact that collective interdependence was not significantly related to self-complexity in Study 2.

The cross-cultural comparisons showed that Indians may be higher than Americans in collective interdependence, general interdependence, and general independence. The interdependence findings are largely consistent with Markus and Kitayama's (1991) theory. Although relational interdependence did not vary across cultural samples, this finding is intriguing because self-complexity did not vary either, further suggesting a link between the two variables.

The general independence finding is surprising. Importantly, however, the constructs of independence and interdependence are thought to be distinct dimensions (Oyserman et al., 2002). Thus, either one may be selectively affected by situational variables. Assuming that our Indian sample was more Westernized and technologically inclined than others in their country, they may have had a more Westernized self-construal at baseline. In addition, completing the study on Amazon MTurk, an American system, may have further heightened a more independent self-construal. All of this would be especially likely if the participants were comparing themselves to other, less independent, Indians as a reference group. Indeed, research has shown that such "reference group" effects may be important considerations in cross-culture research (Heine et al., 2002).

GENERAL DISCUSSION

Overview of Findings

We found differences in self-complexity between Chinese international students and American students in our first study. Although we did not find such differences when comparing Indian respondents and American respondents in a second study with a larger

sample, the greater weight of the evidence that we collected suggests that cultural differences can explain variance in self-complexity. For example, when relational interdependence varied between cultural samples in Study 1, self-complexity varied as well, and when relational interdependence did not vary between samples in Study 2, self-complexity did not. Furthermore, across both studies, self-construal variables correlated with self-complexity variables within cultural samples. As mentioned earlier, our findings provide limited support for our hypothesis that relationally interdependent people tend to encode social information in terms of individual relationships with others, which is associated with greater self-complexity. Our data also lend some support for the idea that collectively interdependent individuals may be predisposed to simplify or consolidate social information in the self-concept, which is related to less self-complexity.

Alternative Explanations

The fact that self-complexity did not differ between cultural samples in Study 2, while not ruling out cultural (i.e., self-construal) accounts, suggests the possibility that other intrapersonal processes may be involved as well. Evidence of substantial variance in self-complexity within America, where self-complexity has been studied the most, also implicates such intrapersonal processes. For example, McConnell, Rydell, and Brown (2009) found mean self-complexity (as measured by Scott's *H*) scores of 2.75 (*SD* = 0.82; Study 2) and 2.19 (*SD* = 0.80; Study 3) in American samples, while McConnell and Brown (2010) found a mean of 2.24 (*SD* = 0.77). Although there have been fewer studies with Chinese samples, work by Luo and colleagues found mean self-complexity scores of 2.83 (*SD* = 0.90; Luo et al., 2009) and 2.78 (*SD* = 1.82; Luo & Watkins, 2008). While their means were closer together than those observed in McConnell and colleagues' research, the standard deviations were larger, hinting that additional studies might reveal just as much within-culture variability in self-complexity as already chronicled in American samples. Taken together, the current findings and the findings of within-culture variation in self-complexity make a case for the role of general intrapersonal variables in self-complexity. Specifically, self-complexity may be influenced by attentional resources (Conway & White-Dysart, 1999), short-term memory (Suszek, 2004), and developmental processes (Conway, Wang, Hanyu, & Haque, 2005; Evans, 1994). Future research should explore these possibilities in more depth. For example, Conway and White-Dysart (1999) employed measures of general working memory in their work, but it would be interesting for future work to explore how self-complexity relates to specific executive functions and attentional processes (i.e., the ability to put thoughts out of mind or to switch between thoughts and tasks). More work will also be needed to explore the development of self-complexity in non-Western cultures.

Limitations

One potential limitation for our research is that differences in language proficiency could explain the differences in self-complexity observed in Study 1 or the lack of differences found in Study 2. While we did not control for language proficiency in Study1, all of our participants were students studying at an American university and had met the university's language requirements. Furthermore, we analyzed the number of unique self-attributes (e.g., trait words) used by participants in the self-complexity task as an indirect measure of language proficiency, finding that Chinese individuals and American individuals did not differ in the number of traits they considered self-descriptive, $t(102) = 1.20$, $p = .23$. We did control for self-perceived language proficiency in Study 2, and we only included participants who self-reported how well they read and/or wrote in English as a three or above on a 1 *Extremely Poorly* to 5 *Extremely Well* scale. We also compared the number of unique attributes used by cultural sample for Study 2, and the findings indicated no differences in the number of attributes, $t(152) = 0.20$, $p = .84$. Furthermore, the fact that there were self-complexity differences in Study 1 and no differences in Study 2 also does not support a general language proficiency deficit influencing self-complexity measures. Although a language-based explanation for the current findings appears unlikely, it would be beneficial for future research to have participants complete the measures in their native language.

Future Research

In addition to exploring intrapersonal variables like memory and development and addressing language issues, future researchers will need to recruit more representative cultural samples. Subsequent research may be conducted in other collectivistic countries, or perhaps more practically, with immigrant populations in the United States. For example, previous research has shown that immigrants may gradually assimilate traits consistent with their new cultural environment (McCrae, Yik, Trapnell, Bond, & Paulhus, 1998; Ryder, Alden, & Paulhus, 2000). This suggests that recent immigrants from collectivist countries to the United States, who likely would have not experienced such assimilation, may be a potential population to use in future research. Alternatively, self-construal might be manipulated in future self-complexity studies, allowing for an experimental test of the effect of self-construal on self-complexity. Indeed, self-construal has been manipulated in the past using priming tasks, in which people are exposed to concepts (in this case, a particular type of self-construal) so it is at the forefront of their mind (Brewer & Gardner, 1996; Kashima, Hardie, Wakimoto, & Kashima, 2011).

Interdisciplinary Implications

Linville (1985) found that people with lower self-complexity reported more mood and self-evaluation change following feedback on an analytical ability task in which the participants were told that they performed well or poorly. Such findings suggest that these

people experience greater changes in their moods than people higher in self-complexity. Further evidence has shown that people lower in self-complexity may have trouble suppressing self-relevant thoughts (Renaud & McConnell, 2002). It is not surprising, then, that low self-complexity has been shown to shape well-being by intensifying both good and bad life experiences (McConnell, Strain, et al., 2009).

In light of the current findings, perhaps social interventions for people suffering from the mental and physical symptoms of stress and low well-being should be tailored to their culture. For instance, it may be beneficial for individuals from independent or collectively interdependent cultures to receive social support to maintain well-being, given their lower self-complexity than individuals from relationally interdependent cultures (McConnell, Strain, et al., 2009). Individuals from independent or collectively interdependent cultures may also set self-expansion goals as a means of increasing self-complexity and buffering against stress (Linville, 1987). Self-expansion involves selecting relationships that allow people to increase their abilities (Aron & Aron, 1986). Relationships can increase an individual's abilities by allowing one to take on the others' capabilities, viewpoints, and identities.

Our work also has implications for the domains of religion and politics. For example, self-complexity has been shown to correlate with perceived complexity of close others (Brown, Young, & McConnell, 2009) and even perceived "God-complexity" (Sharp, 2012), suggesting that how one mentally organizes oneself can influence how one views important others. Furthermore, because political leaders are not unlike gods as powerful entities, it is possible that self-complexity may be projected onto leaders. Ultimately, one's assumptions about the extremity or intensity of reactions of a god or political figure may be shaped by one's own self-complexity. Thus, knowing the levels of self-complexity and the mechanisms of self-complexity in different cultures may be informative as to the religious and political inclinations of the society as well.

Conclusions

To summarize, we observed less self-complexity in Chinese college students studying in the U.S. relative to American students, but similar self-complexity in American adults and Indian adults. These findings support the possibility that there may be cultural differences in how many meaningful domains of life people have and how similar these self-aspects are to one another. Person-to-person differences in self-complexity likely involve each person's own unique social experiences and development. However, cultural factors may be like an overarching "finger on the scale" that leads certain processes (e.g., social processes) to be stronger and more prevalent in some cultures than others. Understanding cultural differences in self-complexity may ultimately allow for a more diverse understanding of psychological adjustment, religion, and politics.

To our knowledge, our work is the first to directly compare self-complexity across cultural samples thought to represent countries that vary in collectivism and individualism.

Our results are preliminary, and it would be premature to make strong conclusions about the relationship between self-complexity and culture at this time. However, our research makes a substantial contribution to the literature by providing initial evidence for self-complexity differences between specific cultural samples and starting a theoretical discussion about their origins. We hope our research will encourage others to take an interest in the relation between culture and self-complexity. Indeed, our findings and their potential interpretations bring us a step closer to answering the question of how we come to represent who we are.

Acknowledgments:

The authors thank Tony Lee for his assistance with this work as a research assistant.

Footnotes:

1. Paired-samples *t* tests revealed age differences between the samples in Study 1, $t(102) = 7.45$, $p < .001$ (with Chinese participants being older), but not in Study 2, $t(152) = 1.63$, $p = .11$. Likewise, chi-square tests revealed that the gender distribution was not equal between groups in both studies, $\chi^2(1, N = 104) = 4.84$, $p = .03$ for Study 1, $\chi^2(1, N = 154) = 13.13$, $p < .001$ for Study 2. Thus, parallel hierarchical regressions and analyses of covariance (ANCOVAs) were conducted to control for age and gender in both studies. For Study 1, the difference in relational interdependence was no longer significant, $F(1, 100) = 1.33$, $p = .25$. The effects of all other primary independent variables and predictors remained the same in terms of significance, and all significant findings were in the original direction.

2. The analyses that we report (i.e., the t-tests and regressions) allowed us to make comparisons between Indian and American samples. Our samples were defined according to the countries in which participants were raised, which was similar to the country of origin categorization in Study 1. It required early experiences in a country. Subsequent analyses also showed that 98.8% ($n = 82$) of participants who were raised in the United States were currently living in the United States and that 97.2 % ($n = 69$) of participants that were raised in India were currently living in India. On average, participants raised in the United States had lived 34.25 ($SD = 14.28$) years in that country and participants raised in India had lived 30.86 ($SD = 9.24$) years in that country.

REFERENCES

Aron, A., & Aron, E. N. (1986). *Love and the expansion of self: Understanding attraction and satisfaction*. New York: Hemisphere.

Brewer, M. B., & Chen, Y. R. (2007). Where (who) are collectives in collectivism? Toward conceptual clarification of individualism and collectivism. *Psychological Review, 114*, 133-151.

Brewer, M. B., & Gardner, W. (1996). Who is this "we"? Levels of collective identity and self-representations. *Journal of Personality and Social Psychology, 71*, 83-93.

Brown, C. M., Young, S. G., & McConnell, A. R. (2009). Seeing close others as we see ourselves: One's own self-complexity is reflected in perceptions of meaningful others. *Journal of Experimental Social Psychology, 45*, 515-523.

Buhrmester, M., Kwang, T., & Gosling, S. D. (2011). Amazon's Mechanical Turk: A new source of inexpensive, yet high-quality, data? *Perspectives on Psychological Science, 6*, 3-5.

Conway, M. A. (2005). Memory and the self. *Journal of Memory and Language, 53*, 594-628.

Conway, M. A., Wang, Q., Hanyu, K., & Haque, S. (2005). A cross-cultural investigation of autobiographical memory: On the universality and cultural variation of the "Reminiscence Bump." *Journal of Cross-Cultural Psychology, 36*, 739-749.

Conway, M., & White-Dysart, L. (1999). Individual differences in attentional resources and self-complexity. *Social Cognition, 17*, 312-331.

Cross, S. E., Bacon, P. L., & Morris, M. L. (2000). The relational interdependent self-construal and relationships. *Journal of Personality & Social Psychology, 78*, 791–808.

Cross, S. E., Hardin, E. E., & Gercek-Swing, B. (2011). The what, how, why, and where of self-construal. *Personality and Social Psychology Review, 15*, 142-179.

Evans, D. W. (1994). Self-complexity and its relation to development, symptomatology and self-perception during adolescence. *Child Psychiatry and Human Development, 24*, 173-182.

Gabriel, S., & Gardner, W. L. (1999). Are there" his" and" hers" types of interdependence? The implications of gender differences in collective versus relational interdependence for affect, behavior, and cognition. *Journal of Personality and Social Psychology, 77*(3), 642-655.

Gudykunst, W. B., Matsumoto, Y., Ting-Toomey, S., Nishida, T., Kim, K., & Heyman, S. (1996). The influence of cultural individualism-collectivism, self construals, and individual values on communication styles across cultures. *Human Communication Research, 22*, 510-543.

Heine, S. J., & Lehman, D. R. (1997). Culture, dissonance, and self-affirmation. *Personality and Social Psychology Bulletin, 23*, 389-400.

Heine, S. J., Lehman, D. R., Peng, K., & Greenholtz, J. (2002). What's wrong with cross-cultural comparisons of subjective Likert scales?: The reference-group effect. *Journal of Personality and Social Psychology*, *82*, 903-918.

Hofstede, G. (1980). *Culture's consequences*. Beverly Hills, CA: Sage.

Hogg, M. A. (2000). Subjective uncertainty reduction through self-categorization: A motivational theory of social identity processes. *European Review of Social Psychology, 11*, 223-255.

Kashima, E. S., Hardie, E. A., Wakimoto, R., & Kashima, Y. (2011). Culture-and gender-specific implications of relational and collective contexts on spontaneous self-descriptions. *Journal of Cross-Cultural Psychology*, *42*(5), 740-758.

Kitayama, S., Park, H., Sevincer, A. T., Karasawa, M., & Uskul, A. K. (2009). A cultural task analysis of implicit independence: Comparing North America, Western Europe, and East Asia. *Journal of Personality and Social Psychology*, *97*, 236-255.

Kleinknecht, R. A., Dinnel, D. L., Kleinknecht, E. E., Hiruma, N., & Harada, N. (1997). Cultural factors in social anxiety: A comparison of social phobia symptoms and *taijin kyofusho*. *Journal of Anxiety Disorders*, *11*, 157-177.

Levine, T. R., Bresnahan, M. J., Park, H. S., Lapinski, M. K., Wittenbaum, G. M., Shearman, S. M.,... Ohashi, R. (2003). Self-Construal scales lack validity. *Human Communication Research, 29*, 210-252.

Li, H. Z., Zhang, Z., Bhatt, G., & Yum, Y. O. (2006). Rethinking culture and self-construal: China as a middle land. *The Journal of Social Psychology, 146*, 591-610.

Linville, P. (1985). Self-complexity and affective extremity: Don't put all of your eggs in one cognitive basket. *Social Cognition, 3*, 94-120.

Linville, P. W. (1987). Self-complexity as a cognitive buffer against stress-related illness and depression. *Journal of Personality and Social Psychology, 52*(4), 663-676.

Luo, W., & Watkins, D. (2008). Clarifying the measurement of a self-structural process variable: The case of self-complexity. *International Journal of Testing*, *8*, 143-165.

Luo, W., Watkins, D., & Lam, R. Y. H. (2009). Validating a new measure of self-complexity. *Journal of Personality Assessment, 91*, 381-386.

Markus, H. R., & Kitayama, S. (1991). Culture and the self: Implications for cognition, emotion, and motivation. *Psychological Review, 98,* 224-253.

Matsumoto, D. (1999). Culture and self: An empirical assessment of Markus and Kitayama's theory of independent and interdependent self-construals. *Asian Journal of Social Psychology*, *2*, 289-310.

McConnell, A. R. (2011). The multiple self-aspects framework: Self-concept representation and its implications. *Personality and Social Psychology Review, 15*, 3-27.

McConnell, A. R., & Brown, C. M. (2010). Dissonance averted: Self-concept organization moderates the effect of hypocrisy on attitude change. *Journal of Experimental Social Psychology, 46,* 361-366.

McConnell, A. R., Renaud, J. M., Dean, K. K., Green, S. P., Lamoreaux, M. J., Hall, C. E., & Rydell, R. J. (2005). Whose self is it anyway? Self-aspect control moderates the relation between self-complexity and well-being. *Journal of Experimental Social Psychology, 41,* 1-18.

McConnell, A. R., Rydell, R. J., & Brown, C. M. (2009). On the experience of self-relevant feedback: How self-concept organization influences affective responses and self-evaluations. *Journal of Experimental Social Psychology, 45,* 695-707.

McConnell, A. R., Strain, L. M., Brown, C. M., & Rydell, R. J. (2009). The simple life: On the benefits of low self-complexity. *Personality and Social Psychology Bulletin, 35*, 823-835.

McConnell, A., & Strain, L. (2007). Content and structure of the self-concept. *The self* (pp. 51-73). New York, NY US: Psychology Press.

McCrae, R. R., Yik, M. S., Trapnell, P. D., Bond, M. H., & Paulhus, D. L. (1998). Interpreting personality profiles across cultures: Bilingual, acculturation, and peer rating studies of Chinese undergraduates. *Journal of Personality and Social Psychology, 74*(4), 1041-1055.

Oyserman, D., Coon, H. M., & Kemmelmeier, M. (2002). Rethinking individualism and collectivism: Evaluation of theoretical assumptions and meta-analyses. *Psychological Bulletin, 128,* 3-72.

Rafaeli-Mor, E., Gotlib, I. H., & Revelle, W. (1999). The meaning and measurement of self-complexity. *Personality and Individual Differences, 27,* 341-356.

Renaud, J. M., & McConnell, A. R. (2002). Organization of the self-concept and the suppression of self-relevant thoughts. *Journal of Experimental Social Psychology, 38*(1), 79-86.

Ryder, A. G., Alden, L. E., & Paulhus, D. L. (2000). Is acculturation unidimensional or bidimensional? A head-to-head comparison in the prediction of personality, self-identity, and adjustment. *Journal of Personality and Social Psychology, 79*(1), 49-65.

Scott, W. (1969). Structure of natural cognitions. *Journal of Personality and Social Psychology, 12,* 261-278.

Sharp, C. A. (2012). *An investigation of cognitive representations of the self and supernatural others* (Doctoral dissertation). Retrieved from

http://www.academia.edu/3257409/An_Investigation_of_Cognitive_Representations_of_the_Self_and_Supernatural_Others

Showers, C. (1992). Compartmentalization of positive and negative self-knowledge: Keeping bad apples out of the bunch. *Journal of Personality and Social Psychology, 62*, 1036–1049.

Singelis, T. M. (1994). The measurement of independent and interdependent self-construals. *Personality and Social Psychology Bulletin, 20*, 580–591.

Singelis, T. M., & Sharkey, W. F. (1995). Culture, self-construal, and embarrassability. *Journal of Cross-Cultural Psychology*, *26*, 622-644.

Suszek, H. (2004). Self-pluralism, number of subselves, and short-term memory. *Psychological Reports, 94*, 888.

AUTHOR INFORMATION:

Aaron A. Shilling's work focuses on the interaction of basic social motives and cognition. He has conducted research on attentional biases in social phobia, the effects of social exclusion on facial identity recognition and problem solving, and the self-concept processes involved in stereotype threat. Aaron is currently conducting research on religiosity and thought styles, parasocial relationships, and cultural influences on the self-concept. Address: Dr. Aaron A. Shilling, Department of Psychology, 2112 Cleveland Blvd, The College of Idaho, Caldwell, ID 83605, USA. Email: ashilling@collegeofidaho.edu

Christina M. Brown researches how the self plays a critical role in social behavior. She adopts a social cognitive approach when studying the self-concept and is particularly interested in the consequences of having multiple self-aspects. She also adopts an evolutionary perspective in her work on social rejection, social acceptance, and mating. She is currently continuing her separate lines of research on the self-concept, social rejection, and self-regulation. Address: Dr. Christina M. Brown, Department of Psychology, 450 S. Easton Rd, Arcadia University, Glenside, PA 19038, USA. Email: browncm@arcadia.edu