A comparison of self-complexity in the United States and South Korea

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ABSTRACT
Self-complexity, a measure of self-concept structure consisting of number of self-aspects and relatedness of self-aspects, was compared in the United States and South Korea. University students in each country completed measures of self-complexity and self-construal. In two studies, participants from South Korea had more self-aspects and overall self-complexity (as measured by $H$) than participants from the United States. Self-construal was not responsible for these differences. In addition, a comparison of previous self-complexity research carried out in different countries supports the conclusion that people from East Asian countries have more self-aspects than people from the United States. The results are discussed in terms of broader cultural differences in psychological phenomena.

The self-concept is the mental representation of oneself, and it can be described in terms of its content and structure (McConnell & Strain, 2007). Self-concept content refers to the specific perceptions the individual has about him or herself, such as personality traits, physical characteristics, social identities, and valuations (e.g., self-esteem). How those various attributes are related in memory is self-concept structure.

One of the most common frameworks for studying self-concept structure is self-complexity. When introducing the phenomenon, Linville (1985) defined self-complexity as “a function of two things: the number of aspects that one uses to cognitively organize knowledge about the self, and the degree of relatedness of these aspects” (p. 97). People who see themselves as possessing only a few related self-aspects have less self-complexity, while people who see themselves as possessing many unrelated self-aspects have greater self-complexity.

Self-complexity was created to explain individual differences in the emotional extremity with which people respond to life events (Linville, 1985), and to that extent, it has primarily been examined in the context of emotion and well-being (e.g., McConnell, Strain, Brown, & Rydell, 2009a). The development of self-complexity is largely unknown, but like other individual differences, it may arise from a number of factors. Self-complexity is related to working memory and processing speed (Conway & White-Dysart, 1999), but not to cognitive...
complexity (Brown, Young, & McConnell, 2009). Older adolescents have less overlap between self-aspects than younger adolescents, suggesting that the social and cognitive changes that come with age and identity development may produce greater differentiation within the self-concept (Cohen, Spiegler, Young, Hankin, & Abela, 2014).

The current work considered culture as a potential cause of differences in self-complexity. We compared self-complexity in citizens of the U.S. and South Korea. People in the U.S. have more independent self-construals than people in South Korea (e.g., Gudykunst, Matsumoto, Ting-Toomey, & Nishida, 1996; Kim, Kasser, & Lee, 2003) and their perceptions of themselves and others are less likely to include contextual information and situational constraints (e.g., Kashima, Kashima, Kim, & Gelfand, 2006; Menon, Morris, Chiu, & Hong, 1999). As we will explain, this creates reason to believe their self-concept structure will vary as well.

Self-complexity

Self-complexity is a joint function of the numerousness and relatedness of a person’s self-aspects, and it is measured by having participants organize attributes (usually personality traits) into groups that represent meaningful parts of themselves (Linville, 1985). Each group is a self-aspect, and participants are asked to provide a descriptive name for each group. In a sample of over 100 U.S. participants, McConnell (2011) categorized self-aspects based on these names. Approximately 16% of self-aspects were derived from social roles, such as “me as a husband” or “me as a teacher.” Another 18% were situations, such as “me at work” or “me around strangers.” Other common dimensions were affective self-aspects (e.g., “sad me”), temporal self-aspects (e.g., “how I used to be”), and goal self-aspects (e.g., “how I want to be”). Although types of self-aspects vary widely from person to person, what people with greater self-complexity have in common is that they contextualize their self-knowledge (i.e., have many unrelated self-aspects).

People’s evaluations of themselves can change when they receive positive or negative feedback about themselves, and self-complexity determines how far-reaching this effect will be. For example, McConnell, Rydell, and Brown (2009b) gave participants positive or negative feedback about a specific self-aspect (e.g., “you’re a superior college student”) and found that participants changed their evaluations of both the targeted self-aspect and self-aspects connected to it via shared attributes. Self-aspects unrelated to the targeted self-aspect were unaffected by the feedback. Importantly, this change in how positively participants evaluated their self-aspects directly predicted change in participants’ emotions, a process known as affective spillover (Linville, 1985). When self-aspects share attributes, affective changes related to one self-aspect can spill over to associated self-aspects via spreading activation in memory. Because people with less self-complexity have more connections between self-aspects, they have more intense affective reactions – both positive and negative – to self-relevant feedback (e.g., Linville, 1985; McConnell et al., 2009b; Renaud & McConnell, 2002).

The greater emotional reactivity of people with less self-complexity has downstream consequences. It amplifies the effect of both good and bad events, which means people with less self-complexity have better well-being than people with greater self-complexity in good times but worse well-being in times of stress (McConnell et al., 2009a). It also motivates people with lower self-complexity to escape self-awareness when feeling upset (Dixon & Baumeister, 1991), increases attention to their own emotions (Brown & McConnell, 2009), and reduces their ability to suppress thoughts about self-relevant feedback (Renaud & McConnell, 2002).
Culture and the self

A number of psychological processes vary by culture (e.g., Nisbett, Peng, Choi, & Norenzayan, 2001), and these may produce differences in self-complexity. One of the most influential theories of psychological differences across cultures is Hofstede’s (1980) cultural dimensions. Based on a factor analysis of IBM employees’ self-reported values, Hofstede identified four dimensions on which cultures vary (Hofstede, 1980). The dimension of individualism in particular became the foundation upon which many cultural differences in social psychological phenomena were studied (e.g., Triandis, 1996). Individualism refers to the importance of the individual vs. the broader social group. Cultures that score high on this dimension (i.e., individualistic cultures) value individual goals and self-interest, and cultures that score low on this dimension (i.e., collectivistic cultures) value group harmony and integration of the self into social groups. The term social orientation has also been used to distinguish between individualistic, independent cultures and collectivistic, interdependent cultures (e.g., Varnum, Grossmann, Kitayama, & Nisbett, 2010).

A very broad categorization of regions based on individualism is “East” vs. “West.” One theory is that the difference can be traced to the regions’ philosophical heritages, namely, Confucian philosophy in East Asia and ancient Greek culture in Western Europe (Nisbett et al., 2001). Confucian philosophy values social harmony, respect for higher status individuals, and meeting one’s social duties and obligations. It also states that elements in the physical world are connected and continuous. In contrast, the ancient Greeks emphasized individual agency, encouraged challenging others and promoting oneself through debate, and perceived the world as containing discrete objects with essentialist properties that distinguish them from other objects. A distal explanation for the origin of these philosophies is that the regions’ available means of subsistence constrained behavior. Rice farming (common in the East) required cooperation and interdependence, while wheat farming (common in the West) could be carried out individually (Talhelm et al., 2014). Once developed, these two contrasting philosophies would have been transmitted from their respective countries of origin to other regions through territorial conquest and immigration (e.g., China influenced Japan and South Korea; ancient Greece influenced other European countries, and through them the United States and Australia).

These philosophical differences in individual agency vs. social harmony and perceiving the world as discrete objects vs. a connected whole are believed to be the origin of cultural differences in self-representation, social behavior, perception, and cognition (Nisbett et al., 2001). Markus and Kitayama (1991) introduced the term “self-construal” to describe cultural differences in self-representation. Specifically, they proposed that people from individualistic cultures have an independent self-construal while people from collectivistic cultures have an interdependent self-construal. An independent self-construal involves defining the self based on one’s idiosyncratic attributes (e.g., personality traits, physical characteristics), seeing other people as outside the self, and believing the self is stable across time and situations. In contrast, an interdependent self-construal involves defining the self based on one’s social relationships and roles (e.g., son, teacher), seeing other people as part of the self, and believing the self is fluid and flexible because the self must respond to the needs of other people and the current situation.

Consistent with this theory, past research has observed more independent self-construals in Western cultures and more interdependent self-construals in East Asian cultures (e.g.,
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Gudykunst et al., 1996; Kashima et al., 1995; Kim et al., 2003). Neuroimaging data converge with the behavioral and self-report data showing that East Asians tend to think of others in relation to the self, whereas Westerners think of others (even close others) as separate agents. For example, East Asians are more likely to use self-referential regions of the brain (the medial prefrontal cortex and rostral anterior cingulate cortex) when thinking about both themselves and their mother, while Westerners only exhibit this pattern when thinking about themselves (Zhu, Zhang, Fan, & Han, 2007).

Although Markus and Kitayama (1991) primarily conceived interdependence as emphasizing group harmony and group needs, interdependence also exists at the level of dyadic relationships. Kashima et al. (1995) introduced the terms collective interdependence and relational interdependence to distinguish between valuing social groups and valuing personal relationships. They found large East–West cultural differences in independence and small but significant differences in collective interdependence. However, relational interdependence varied more by gender, with women scoring higher than men, than it did by culture.

Cultural differences in social orientation also covary with different thought styles. Interdependent people use more holistic cognition while independent people exhibit more analytic cognition (e.g., Varnum et al., 2010). Holistic thought involves attending to the entire field or context of a perceptual scene, attributing more causality to the context, and organizing the world based on function and part–whole relationships (Nisbett et al., 2001). In contrast, analytic thought involves attending to foreground objects and isolating them from the context, attributing causality to individual agents, and categorizing stimuli based on their individual properties (Nisbett et al., 2001). However, these different cognitive styles are not exclusively cross-cultural. Even within a single culture, variation in social orientation correlates with variation in cognition, and priming interdependence vs. independence evokes more holistic vs. analytic thought, respectively (e.g., Varnum et al., 2010).

These various cultural differences can be distilled to contextualization. Interdependent self-construals and holistic thought emphasize the importance of context in defining the self and the world, whereas independent self-construals and analytic thought decontextualize the self and objects. For example, although Westerners are more likely to commit the fundamental attribution error in general (e.g., Nisbett et al., 2001), Japanese people use more personality traits to describe a person if that person is already presented in a particular context (Cousins, 1989). Similarly, a comparison of Koreans and Australians found that Koreans contextualized other people when describing them, whereas Australians objectified and decontextualized them (Kashima et al., 2006).

**Self-complexity and culture**

The above review provides reason to believe that self-complexity will vary by culture. Self-complexity is largely determined by number of self-aspects, and possessing many self-aspects means the person is contextualizing his or her self-knowledge. Because an interdependent self-construal involves defining the self based on social contexts, people from collectivistic cultures may report having more self-aspects. Of course, not all self-aspects represent social roles and situations (e.g., McConnell, 2011). However, the holistic cognition typical of collectivistic cultures emphasizes the importance of context and fluidity, and perceiving the self in terms of many self-aspects is consistent with this tendency. Likewise,
possessing comparatively few self-aspects is consistent with individualistic cultures’ tendency to decontextualize both objects and other people, and to perceive the self as stable and independent.

Self-complexity is also determined by relatedness of self-aspects, and there is reason to believe this may vary between cultures as well. One possibility is that people from collectivistic cultures will have fewer connections between self-aspects because they see the self as fluid and responsive to contextual needs, resulting in numerous dissimilar self-aspects (i.e., more self-aspects with fewer connections between them). However, recognizing the contextual nature of the self does not necessitate seeing the self as dramatically different in different contexts, and there is even reason to believe the opposite could occur. Holistic thought is characterized by seeing more relationships among elements while analytic thought differentiates objects from each other (Nisbett et al., 2001). If this extends to the self, a competing prediction is that people from collectivistic cultures will perceive more connections across their self-aspects while people from individualistic cultures will perceive their self-aspects as distinct and separate.

Possible mechanisms of cultural differences
If self-complexity varies by culture, can these differences be traced to differences in self-construal? One perspective is that cultural differences in social orientation and the self (i.e., individualism/independence and collectivism/interdependence) cause cultural differences in other psychological phenomena, like perception and cognition (e.g., Markus & Kitayama, 1991; Varnum et al., 2010). However, self-construal does not always vary by culture or correlate with other phenomena in the predicted direction (e.g., Levine et al., 2003; Matsumoto, 1999). There is also debate in cross-cultural psychology about whether individual differences should and do reflect cultural differences.

Within cultures, correlations between self-construal and other psychological processes often mirror theorized cross-cultural differences. For example, temporarily priming interdependence in Westerners produces more Eastern-typical perceptions (Kühnen & Oyserman, 2002). However, using the same measures of self-construal and social orientation in a large and diverse U.S. sample, Na et al. (2010) found no evidence of within-culture coherence in constructs that differ between cultures: An interdependent self-construal did not reliably cohere with holistic cognition, even though these constructs cohere when making between-culture comparisons. They point out that cultural differences arise from social factors that generally affect all members of the group equally, whereas individual differences within a culture arise from diverging genes and experiences. In other words, “there is no reason to assume that groups differ for the same reasons that individuals differ” (Na et al., 2010, p. 6196).

We planned to test for mediation by self-construal if participants from the U.S. and South Korea differed in both self-complexity and self-construal. However, as work by others suggests (e.g., Matsumoto, 1999; Na et al., 2010), group differences in self-construal may not be responsible for, or even relate to, group differences in a specific construct like self-complexity.

The current work
To examine cultural differences in self-complexity, we collected data in the U.S. and South Korea. Because this is the first comparison of self-complexity in these two countries, in Study
we began by recruiting two samples from each country to reduce the possibility of a Type 1 error (i.e., one extreme sample driving results). Study 2 replicated Study 1 with some modifications to the methodology.

All participants completed a paper questionnaire measure of self-complexity. The original measure developed by Linville (1985) involved sorting cards, each displaying a single personality trait, into groups that represent meaningful aspects of oneself. Participants were told they could reuse cards in multiple groups and they did not have to use all the cards. Each group is a self-aspect, and the trait cards represent the attributes characteristic of that self-aspect. Other researchers have modified the task, turning it into a computer program (e.g., McConnell et al., 2005; Luo, Watkins, & Lam, 2009) and a paper questionnaire (e.g., Pilarska & Suchańska, 2014). We used a paper questionnaire to keep the procedure as similar as possible across our six samples.

Linville used Scott’s (1969) $H$ statistic to create a self-complexity score intended to capture variation in both number of self-aspects and self-aspect relatedness. The formula is:

$$H = \log_2 n - \left( \sum_i n_i \log_2 n_i \right) / n,$$

where $n$ is the total number of traits available to the participant and $n_i$ is the number of traits present within each particular group combination ($i$) across the participant’s reported self-aspects. Higher scores indicate greater self-complexity. However, extensive conceptual and statistical evaluations of $H$ have led many researchers to conclude that $H$ is a limited measure of self-complexity (e.g., Koch & Shepperd, 2004; Luo & Watkins, 2008; Pilarska & Suchańska, 2014; Rafaeli-Mor, Gotlib, & Revelle, 1999). Linville’s (1985) original proposal introduced number of self-aspects and self-aspect relatedness as equally important components of self-complexity, yet $H$ is largely driven by number of self-aspects. Some self-complexity researchers operationalize the second component, self-aspect relatedness, as degree of overlap between the attributes participants assign to each self-aspect. Rafaeli-Mor et al. (1999) introduced a statistic, $OL$, to quantify self-aspect overlap,

$$OL = \left( \sum_i \left( \sum_j C_{ij} \right) / T_i \right) / n^*(n - 1),$$

where $C$ is the number of shared traits in any pair of two 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 between two self-aspects, across all possible self-aspect pairs. $OL$ scores range from 0 (no overlap) to 1.00 (complete overlap).

When comparing number of self-aspects (a frequency count) and $OL$, $H$ shares considerable variance with number of self-aspects ($rs > .70$) but not $OL$ ($rs < |.40|$; Luo et al., 2009; Rafaeli-Mor et al., 1999). Its correlation with $OL$ is often positive when, conceptually, greater self-complexity should be characterized by less overlap (e.g., Luo et al., 2009; Rafaeli-Mor et al., 1999). Many researchers have created alternative measures to $H$ (e.g., Kashima et al., 1995; Luo et al., 2009; Sakaki, 2004), although what they have in common is separating number of self-aspects and self-aspect relatedness instead of using a single statistic to represent overall self-complexity (e.g., Pilarska & Suchańska, 2014; Rafaeli-Mor et al., 1999; Stopa, Brown, Luke, & Hirsch, 2010).
Although the $H$ statistic may have limitations, it is commonly used in the self-complexity literature and it predicts theoretically consistent outcomes (e.g., Brown & McConnell, 2009; Dixon & Baumeister, 1991; Linville, 1985; McConnell et al., 2009a; Renaud & McConnell, 2002). With its well-established predictive validity, many researchers are likely to continue using it, especially when there is not yet consensus on which alternate measures are best. Therefore, to be thorough and to allow for comparisons with other published work, in the current work we measured and reported multiple operational definitions of self-complexity: $H$, number of self-aspects, and self-aspect overlap ($OL$).

**Study 1**

**Method**

**Participants**

There were four samples. The first U.S. sample ($n = 49$; hereafter referred to as U.S. sample 1) was Arcadia University students, U.S. sample 2 ($n = 40$) was College of Idaho students, and Korean sample 1 ($n = 73$) and Korean sample 2 ($n = 71$) were Korea University students. All data were collected between August and December 2014.

The following participants were excluded due to missing data: Two from U.S. sample 1 (one skipped the self-complexity measure and one skipped all self-construal questions) and six from Korean sample 1 (all six ran out of time to finish the study). Participants were excluded from the U.S. samples if they were raised outside the U.S. ($n = 1$ in U.S. sample 1; $n = 5$ in U.S. sample 2). Due to the large number of Korean citizens who study abroad, we also excluded participants from the Korean samples if they reported having spent more than a year outside South Korea ($n = 14$ in Korean sample 1; $n = 2$ in Korean sample 2). Lastly, Korean sample 1 had an attention check item embedded in the study materials instructing participants to write a specific number (the other samples did not have this item). Three additional participants were excluded from this sample for failing to write the correct number. Descriptive statistics and the final sample sizes are reported in Table 1. (Retaining all participants in analyses does not change the results.)

**Measures**

**Self-complexity.** Self-complexity was measured with a paper questionnaire. The first page contained instructions for the task, followed by ten identical sheets for recording self-aspects (one per sheet). All participants were instructed to use the sheets to describe the different aspects of their life. Each sheet contained a list of traits, and participants circled the traits that described themselves in a particular self-aspect. Participants were told they did not have to use all ten sheets; they should only record aspects that were important or meaningful to them, and they should stop if they were straining to think of more aspects. They were told they could circle as many or as few traits as they wanted for each self-aspect.

For the two U.S. samples, we intentionally used two different trait lists used in other U.S. self-complexity research. Past research has found that the particular trait list provided does not affect results (e.g., McConnell et al., 2005). However, if we obtained similar self-complexity scores in the two samples despite using different trait lists, it would bolster our conclusion that these samples are typical of other U.S. samples and the scores are not driven by the specific trait list provided to participants. We used Donahue, Robins, Roberts, and John's
(1993) 60 attributes for U.S. sample 1 and Showers’s (1992) 40 traits for U.S. sample 2. Because there was no prior self-complexity research with South Korean samples, a pilot study was conducted to develop a list of personality traits commonly used by people from the same population (Korea University). Other self-complexity researchers outside the U.S. also derive their trait list from a pilot sample drawn from the population of interest (e.g., Luo et al., 2009; Pilarska & Suchańska, 2014). Participants (n = 45) were told, “Please list adjectives you would use to describe yourself (e.g., friendly, intelligent). Please include both positive and negative adjectives.” The most frequently mentioned traits were selected to create a list of 45 traits that was used for both Korean samples.

Because paper measures of self-complexity are used less frequently than card-sort and computer measures, as a validity check we compared U.S. sample 1 to a separate sample of participants (n = 83; Study 2 of Brown, Bailey, Stoll, & McConnell, 2016) who completed a computer measure of self-complexity (McConnell et al., 2005). They were recruited during the same semester and from the same university as U.S. sample 1. To further increase their similarity, both the paper sample and computer sample received Donahue et al.’s (1993) list of 60 attributes to sort into self-aspects. None of the three measures of self-complexity significantly differed between these two samples (Scott’s H, t(127) = 0.15, p = .878, d = 0.03; number of self-aspects, t(127) = 1.24, p = .219, d = 0.23; overlap, t(127) = 1.10, p = .274, d = .23). The number of attributes participants used out of the 60 provided did not differ between the paper (M = 26.96, SD = 9.41) or computer (M = 28.63, SD = 11.05) samples, F(1, 127) = 0.77, p = .383, d = 0.16. Table 2 displays descriptive statistics for our samples and other published work.

**Table 1.** Means and standard deviations for all samples in Studies 1 and 2.

<table>
<thead>
<tr>
<th></th>
<th>Study 1 (all)</th>
<th>Study 1 Sample 1</th>
<th>Study 1 Sample 2</th>
<th>Study 2 (all)</th>
<th>Study 2 Sample 1</th>
<th>Study 2 Sample 2</th>
<th>Korea Sample 1</th>
<th>Korea Sample 2</th>
<th>U.S.</th>
<th>Korea</th>
</tr>
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<tbody>
<tr>
<td>n</td>
<td>81</td>
<td>46</td>
<td>35</td>
<td>50</td>
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<td>64</td>
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<tr>
<td>Age</td>
<td>20.15a</td>
<td>19.89a</td>
<td>22.46b</td>
<td>22.49b</td>
<td>19.13</td>
<td>22.08</td>
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<td></td>
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<tr>
<td>Scott’s H</td>
<td>2.47a</td>
<td>2.77b</td>
<td>3.67c</td>
<td>3.69c</td>
<td>3.26a</td>
<td>3.81b</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Number of self-aspects</td>
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<td>4.74a</td>
<td>6.70b</td>
<td>6.21b</td>
<td>6.09a</td>
<td>7.44a</td>
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<tr>
<td>Overlap</td>
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<td>0.37</td>
<td>0.36</td>
<td>0.37</td>
<td>0.35</td>
<td>0.29</td>
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<tr>
<td>General independence</td>
<td>4.86</td>
<td>4.95a</td>
<td>4.38c</td>
<td>4.25b</td>
<td>4.82a</td>
<td>4.60a</td>
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<tr>
<td>General interdependence</td>
<td>4.41</td>
<td>4.56a</td>
<td>4.62a</td>
<td>4.39a</td>
<td>4.32</td>
<td>4.55a</td>
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<tr>
<td>Relational interdependence</td>
<td>4.88</td>
<td>4.82b</td>
<td>4.69</td>
<td>4.37b,c</td>
<td>4.93a</td>
<td>4.51b</td>
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<td>4.34a</td>
<td>4.63a</td>
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Note: Standard deviations are in parentheses. Within each study, means with different subscripts differ p < .05. In Study 1, Scheffe post hoc analyses were used for pairwise comparisons.

**Self-construal.** Participants completed three measures of self-construal. For all measures, participants indicated their agreement with each item on a 1 (strongly disagree) to 7 (strongly agree) response scale.
The 24-item Self-Construal Scale (SCS; Singelis, 1994) captures general independence and interdependence. Sample items are, “I act the same way no matter who I am with” (independence) and “I will sacrifice my self-interest for the benefit of the group I am in” (interdependence). We used a modified version of the scale (see Shilling & Brown, 2015) in which items that refer to college situations are changed to be applicable to all situations (e.g., the item, “I would offer my seat in a bus to my professor,” is replaced with, “I would offer my seat in a bus to an acquaintance with high social standing”) and in which the phrase “the group” is replaced with social groups more specifically (e.g., the item, “It is important to me to respect decisions made by the group,” is replaced with, “It is important to me to respect decisions made by a social group I belong to”). General interdependence was reliable in all samples (U.S. sample 1, $\alpha = .83$; U.S. sample 2, $\alpha = .71$; Korean sample 1, $\alpha = .86$; Korean sample 2, $\alpha = .78$). The reliability for general independence was low in U.S. sample 2 ($\alpha = .54$) but acceptable in all other samples (U.S. sample 1, $\alpha = .78$; Korean sample 1, $\alpha = .67$; Korean sample 2, $\alpha = .76$).

The creation of the SCS preceded Kashima et al.’s (1995) distinction between relational and collective interdependence, so its general interdependence subscale primarily captures collective interdependence. For specificity, we also measured relational and collective interdependence. Participants completed the 11-item Relational Interdependence Self-Construal Scale (RISCS; Cross, Bacon, & Morris, 2000). A sample item is, “When I think of myself, I often think of my close friends or family also.” The scale was reliable (U.S. sample 1, $\alpha = .73$; U.S. sample 2, $\alpha = .80$; Korean sample 1, $\alpha = .88$; Korean sample 2, $\alpha = .70$).

Lastly, collective interdependence was measured with the 10-item Collective Interdependence Self-Construal Scale (CISCs; Gabriel & Gardner, 1999). A sample item is, “In general, groups I belong to are an important part of my self-image.” The collective interdependence scale was reliable (U.S. sample 1, $\alpha = .92$; U.S. sample 2, $\alpha = .92$; Korean sample 1, $\alpha = .94$; Korean sample 2, $\alpha = .90$).

### Table 2. Mean self-complexity scores in the current study and in other work (with method of data collection specified).

<table>
<thead>
<tr>
<th>Country</th>
<th>Scott’s $H$</th>
<th>$n$ of self-aspects</th>
<th>Overlap (OL)</th>
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<tbody>
<tr>
<td><strong>Current work</strong></td>
<td></td>
<td></td>
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<tr>
<td>Study 1: United States (all samples), paper</td>
<td>2.47 (0.84)</td>
<td>4.59 (1.90)</td>
<td>0.30 (0.21)</td>
</tr>
<tr>
<td>Study 2: United States, paper</td>
<td>3.26 (0.91)</td>
<td>6.09 (2.10)</td>
<td>0.35 (0.15)</td>
</tr>
<tr>
<td>Study 1: South Korea (all samples), paper</td>
<td>3.68 (0.77)</td>
<td>6.42 (1.79)</td>
<td>0.37 (0.13)</td>
</tr>
<tr>
<td>Study 2: South Korea, paper</td>
<td>3.81 (0.86)</td>
<td>7.44 (1.91)</td>
<td>0.29 (0.13)</td>
</tr>
<tr>
<td><strong>Other work</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U.S. (Rafaeli-Mor et al., 1999), cards</td>
<td>2.80 (0.58)</td>
<td>5.74 (2.10)</td>
<td>0.13 (0.12)</td>
</tr>
<tr>
<td>U.S. (Constantino, Wilson, Horowitz, &amp; Pinel, 2006), cards</td>
<td>2.96 (0.70)</td>
<td>6.50 (2.57)</td>
<td>0.17 (0.18)</td>
</tr>
<tr>
<td>U.S. (Brown et al., 2009; Study 1), computer</td>
<td>2.50 (0.63)</td>
<td>4.41 (1.36)</td>
<td>0.25 (0.18)</td>
</tr>
<tr>
<td>U.S. (Brown et al., 2016; Study 1), computer</td>
<td>2.07 (0.86)</td>
<td>4.02 (1.86)</td>
<td>0.21 (0.19)</td>
</tr>
<tr>
<td>U.S. (Brown et al., 2016; Study 2), computer</td>
<td>2.26 (1.04)</td>
<td>3.96 (2.33)</td>
<td>0.22 (0.15)</td>
</tr>
<tr>
<td>China (Luo et al., 2009), computer</td>
<td>2.83 (0.90)</td>
<td>6.54 (2.29)</td>
<td>0.16 (0.12)</td>
</tr>
<tr>
<td>China (Luo &amp; Watkins, 2009), computer</td>
<td>2.90 (0.79)</td>
<td>6.18 (1.99)</td>
<td>0.18 (0.13)</td>
</tr>
<tr>
<td>Japan (Sakaki, 2004), paper</td>
<td>4.09 (0.76)</td>
<td>9.56 (3.21)</td>
<td>0.30 (0.13)</td>
</tr>
<tr>
<td>Japan (Sakaki, 2006; Study 1), paper</td>
<td>3.14 (1.04)</td>
<td>7.14 (3.52)</td>
<td>0.30 (0.16)</td>
</tr>
<tr>
<td>Japan (Sakaki, 2006; Study 2), paper</td>
<td>–</td>
<td>7.47 (2.69)</td>
<td>0.27 (0.16)</td>
</tr>
<tr>
<td>England (Stopa et al., 2010), cards</td>
<td>–</td>
<td>5.39 (1.43)</td>
<td>0.27 (0.20)</td>
</tr>
<tr>
<td>Germany (Rothermund &amp; Meiniger, 2004), cards</td>
<td>3.06 (0.97)</td>
<td>6.48 (2.36)</td>
<td>0.22 (0.16)</td>
</tr>
<tr>
<td>Poland (Pilarńska &amp; Suchańska, 2014), paper</td>
<td>1.51 (0.61)</td>
<td>4.90 (1.93)</td>
<td>0.17 (0.15)</td>
</tr>
</tbody>
</table>

Note: Standard deviations are in parentheses.
Procedure
The self-complexity measure preceded the self-construal measures in all samples. U.S. sample 1 participants (Arcadia University students) received the questionnaires in an unmarked envelope. Research assistants approached students sitting quietly in public places on campus and invited them to participate in a psychology study. U.S. sample 2 participants (The College of Idaho students) and Korean sample 1 (Korea University psychology students) both completed the questionnaires in a classroom. For U.S. sample 2, participants were recruited from two General Psychology classes and one Social Psychology class at the College of Idaho. (At the time of the study, self-complexity had not been discussed in these courses.) For Korean sample 1, the data were collected on the second day of a Developmental Psychology class during class time, and participants learned about self-complexity later in the semester. For Korean sample 2 (Korea University non-psychology students), participants completed the study at a lab in groups of five to nine and received 5000 South Korean won (roughly 5 USD) for their participation.

Results
Self-complexity
The two samples within each country produced similar results, so we combined them to make between-country comparisons. (See Table 1 for descriptive statistics. For completeness, descriptive statistics for all four samples are also reported.) Korean participants had significantly larger Scott’s $H$ scores than U.S. participants, $F(1, 197) = 112.25, p < .00001$, Cohen’s $d = 1.50$. Number of self-aspects was also greater in the Korean sample, $F(1, 197) = 47.47, p < .00001, d = 0.99$, as was self-aspect overlap, $F(1, 197) = 9.59, p = .002, d = .40$.

Testing self-construal as a mechanism for cultural differences
Descriptive statistics for all self-construal measures are displayed in Table 1. Participants in the U.S. scored higher in general independence, $F(1, 197) = 24.56, p < .00001, d = -0.71$, and relational interdependence, $F(1, 197) = 9.76, p = .002, d = -0.44$, than participants in Korea. General interdependence, $F(1, 197) = 0.40, p = .529, d = 0.09$, and collective independence, $F(1, 197) = 1.33, p = .29, d = -0.17$, did not vary by country.

Correlations between the three self-complexity measures ($H$, number of self-aspects, and self-aspect overlap) were similar when split by country and when collapsed across all samples, as were correlations between the four self-construal measures (see Table 3). The correlations between self-complexity and self-construal, on the other hand, were quite inconsistent when split by country. The only self-construal variable that significantly correlated with $H$ (but not number of self-aspects or overlap) across all samples was general independence, with higher independence predicting larger $H$ scores, but this correlation was not significant when tested within U.S. and Korean samples separately. However, to give a self-construal mediation account a fair evaluation, we used Hayes’s (2013) PROCESS macro (setting the number of bootstrap samples at 5000) to test if the cultural difference in independence mediated the cultural difference in $H$. The path from country to independent self-construal was significant, $b = -.55, SE = .11, t = -4.96, p < .0001, 95\% CI [-.77, -.33]$, but $H$ was only predicted by country, $b = 1.24, SE = .12, t = 10.18, p < .0001, 95\% CI [1.00, 1.48]$, and not by
independent self-construal, $b = .05$, SE = .07, $t = .62$, $p = .536$, 95% CI [-.10, .19]. The indirect effect was not significant, $b = -.03$, SE = .05, 95% CI [-.12, .06]. In other words, although Korean and U.S. participants differed in independent self-construal and independent self-construal was related to $H$, cultural differences in independence could not explain Koreans' greater self-complexity.

Demographic factors
None of the self-complexity measures varied by gender when analyzed across all samples or within sample ($ps > .160$). When collapsed across all samples, participant age positively correlated with $H$ ($r = .32$, $p < .0001$) and number of self-aspects ($r = .23$, $p = .001$). Our Korean samples were both older and greater in self-complexity than our American samples, so we conducted ANCOVAs of country (U.S. vs. South Korea) on self-complexity with age as a covariate. Korean participants still scored significantly higher than U.S. participants on $H$, $F(1, 196) = 81.69$, $p < .00001$, number of self-aspects, $F(1, 196) = 35.10$, $p < .00001$, and overlap, $F(1, 196) = 8.72$, $p = .004$, when controlling for age. In fact, age was not a significant covariate in any analysis ($ps > .321$). When we assessed correlations between age and the three self-complexity measures separately for each sample, the only significant correlation with age was a positive one with $H$ in U.S. sample 1 ($r = .40$, $p = .006$). Therefore, the correlation between age and $H$ across all samples appears to be an artifact of the cultural difference in $H$ (i.e., culture, not age, is directly related to differences in self-complexity, and age only correlated with self-complexity because age varied by culture).

Discussion
Both South Korean samples reported more self-aspects than both U.S. samples, and these differences had large effect sizes. South Koreans also had greater overall self-complexity as measured by $H$, although they tended to have more overlap between self-aspects as well. East Asians’ tendency to use holistic cognition and to contextualize information (Nisbett et al., 2001) may be a better candidate for explaining Koreans’ greater number of self-aspects

Table 3. Zero-order correlations in Study 1, collapsed across samples. Parentheses contain correlations split by country (U.S. first, Korea second).

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scott’s $H$</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$N$ self-aspects</td>
<td>.78**</td>
<td>–</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overlap (OL)</td>
<td>(.68**, .75**)</td>
<td>–</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gen Indep</td>
<td>–</td>
<td>.50**</td>
<td>(.54**, .41**)</td>
<td>–</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gen Interdep</td>
<td>–.17*</td>
<td>.31**</td>
<td>(.33**, .16)</td>
<td>.04</td>
<td>.07</td>
<td>.24**</td>
<td>(−.01, .28**)</td>
</tr>
<tr>
<td>Relation Interdep</td>
<td>(−.00, .08)</td>
<td>(−.01, .30**)</td>
<td>(−.04, .19*)</td>
<td>(−.09, .01)</td>
<td>−.06</td>
<td>−</td>
<td></td>
</tr>
<tr>
<td>Collec Interdep</td>
<td>(.07, .28**)</td>
<td>(.19, .32**)</td>
<td>(.06, .01)</td>
<td>(.18, .19*)</td>
<td>(.46**, .55**)</td>
<td>.49**</td>
<td>−</td>
</tr>
<tr>
<td>(.−.12, .27**)</td>
<td>(.−.01, .28**)</td>
<td>(.00, .13)</td>
<td>(.22*, .07)</td>
<td>(.62**, .58**)</td>
<td>(.68**, .64**)</td>
<td>−</td>
<td></td>
</tr>
</tbody>
</table>

*p < .05; **p < .01; †p < .09.
than self-construal, which did not consistently correlate with the self-complexity measures nor mediate cultural differences. Although cognitive styles and self-construal covary culturally, they are distinct psychological phenomena.

An important limitation to Study 1 is that the method for obtaining information about participants’ self-concepts differed across the four samples. Within each country, the two samples were tested in different environments. This increases generalizability when the two samples produce similar outcomes, but it also creates confounds when making direct comparisons across samples. In addition, the instructions and the trait lists for the self-complexity task differed slightly between the U.S. and Korean samples. Each format was appropriate for measuring self-complexity in that country, but the different formats create challenges when making cross-country comparisons.

We conducted Study 2 to correct these problems. American and Korean participants were given similar instructions for the self-complexity task in Study 1, but the instructions were not backtranslated so there were some discrepancies in the exact phrases used. Study 2 used multiple rounds of backtranslating for both the self-complexity instructions as well as the trait list, which was identical for all samples (unlike Study 1). In addition, the data collection setting was consistent in both countries. If the new U.S. and South Korean samples produce the same results in Study 2 as in Study 1, it would show that these cultural differences in self-complexity are not an artifact of a particular trait list, instructions, or research setting.

**Study 2**

**Method**

**Participants**

University students were recruited from both countries (Arcadia University in the U.S., Korea University in South Korea). The U.S. sample began with 59 participants, four of whom were excluded for having lived outside the U.S. for a year or more (final \( n = 55 \)). The Korean sample began with 65 participants, one of whom was excluded for living abroad (final \( n = 64 \)). All data were collected in September and October 2015.

**Measures**

**Self-complexity.** Starting in English, we wrote new instructions for the self-complexity task by blending the original Study 1 English and Korean (translated) instructions. This was translated into Korean by an independent translator (unaffiliated with the research), and then backtranslated into English by a second independent translator. The first and third author consulted on the minor discrepancies between the backtranslation and the original English instructions, and the third author edited the Korean translation to correct these discrepancies. This was then backtranslated into English by a new independent translator. The first author judged the final backtranslation to correspond well to the original English instructions, and the third author confirmed that the side-by-side English and Korean instructions were parallel.\(^1\)

All participants saw the same list of 45 traits. Seventeen were traits used in both U.S. and Korean samples in Study 1. Another 14 were traits that only appeared in U.S. sample 1’s list, and the final 14 were traits from the Korean samples’ lists that did not appear in either U.S. samples’ lists. All traits were translated into the other language, backtranslated, and revised as necessary until the final backtranslated list was satisfactory.
Self-construal. The self-construal questionnaires from Study 1, originally translated by the third author, were backtranslated by an independent translator. The translation was judged satisfactorily close to the original. However, one item in the Singelis (1994) scale was changed for Study 2. Specifically, the item, “I feel comfortable using someone’s first name soon after I meet them, even when they are much older than I am,” is not appropriate for Korean participants because using first names with new acquaintances violates a cultural norm. Therefore, this item was replaced with a statement that captures the spirit of the original one: “Once I have met someone, I feel comfortable speaking casually, as if I know the person well.” This item was then translated into Korean and backtranslated in English, and judged to be satisfactory.

All self-construal measures were reliable: general independence (U.S. $\alpha = .71$; South Korea $\alpha = .80$), general interdependence (U.S. $\alpha = .84$; South Korea $\alpha = .80$), relational interdependence (U.S. $\alpha = .71$; South Korea $\alpha = .78$), and collective interdependence (U.S. $\alpha = .88$; South Korea $\alpha = .94$).

Demographics. Participants reported their sex, age, and whether they lived in a foreign country for any length of time (if so, they indicated the country and duration of residence).

Procedure
Participants completed all study materials in the following order: demographics, self-complexity, independent and interdependent self-construal (Singelis, 1994), relational self-construal (Cross et al., 2000), and collective self-construal (Gabriel & Gardner, 1999). All tasks were presented as paper surveys. In both samples, the study was held in a campus laboratory and multiple participants could sign up for a single session. The maximum number of participants present at any session was four, and participants completed the surveys in the same room. Participants were not given a time limit to complete the task.

Results
Self-complexity
Descriptive statistics for all self-complexity measures are displayed in Table 2. The Korean sample had greater self-complexity, as measured by $H$, than the U.S. sample, $F(1, 117) = 11.48, p < .001, d = 0.62$. The Korean sample also had more self-aspects, $F(1, 117) = 13.40, p < .001, d = 0.67$, but less self-aspect overlap, $F(1, 117) = 4.27, p = .041, d = -0.43$.

Self-construal
Descriptive statistics for all self-construal measures are displayed in Table 1. The two countries did not differ in general independence, $F(1, 117) = 1.61, p = .207, d = -0.24$, general interdependence, $F(1, 117) = 2.50, p = .117, d = 0.29$, or collective interdependence, $F(1, 117) = 2.33, p = .130, d = 0.28$, although the means were in the predicted direction (i.e., the U.S. sample was higher in independence, lower in general interdependence, and lower in collective interdependence). Relational interdependence was significantly higher in the U.S. sample, $F(1, 117) = 8.93, p = .003, d = -0.56$, a pattern also observed in Study 1.
Correlations between self-complexity and self-construal

None of the correlations observed in Study 1 between the self-complexity measures and the self-construal measures replicated in Study 2. The only significant correlation was between general independence and number of self-aspects in the Korean sample, $r = .28$, $p = .027$, which was not present in Study 1. Due to the lack of correlations, we did not test self-construal as a mediator of cultural differences in self-complexity. The inconsistent correlations between the self-complexity and self-construal measures support the conclusion that self-construal does not contribute to cultural differences in self-complexity.

Demographic factors

None of the self-complexity measures varied by gender when analyzed across all samples or within sample ($p > .226$). Like Study 1, the Korean sample was older than the U.S. sample. We retested the effect of country on the three self-complexity measures with age included as a covariate. Age was not a significant covariate in any analysis ($p > .224$), and the cultural differences remained significant for $H$ and number of self-aspects. However, self-aspect overlap no longer significantly differed by country ($p = .233$).

Discussion

As in Study 1, Korean participants had larger $H$ scores and more self-aspects than U.S. participants. Interestingly, when making within-country comparisons of the means for number of self-aspects and $H$ scores, all means were higher in Study 2 than Study 1 (see Table 1). In other words, Study 2 U.S. participants had more self-aspects and higher $H$ scores than Study 1 U.S. participants. Korean participants showed the same difference between studies. However, the relative difference between U.S. and Korean participants was present in both studies. A likely interpretation is that the revised methodology of Study 2 – namely, the new instructions and collecting the data in a group setting – led all participants to report more self-aspects (and this increased $H$, which is largely driven by number of self-aspects). Importantly, Korean participants still had considerably higher $H$ scores and more self-aspects than U.S. participants. We feel confident concluding that the relative cultural difference in $H$ and number of self-aspects is not an artifact of the setting, instructions, or trait list used to measure self-complexity.

The pattern for self-aspect overlap, on the other hand, differed in Study 2. In Study 1, U.S. sample 2 had the same level of overlap as both Korean samples, and all three of those samples had greater overlap than U.S. sample 1. This led us to conclude that Koreans had somewhat greater self-aspect overlap. However, in Study 2 the U.S. sample – which was drawn from the same population as U.S. sample 1 in Study 1 – had greater overlap than the Korean sample. This effect disappeared when age was included as covariate, which casts doubt on its reliability. One explanation for the inconsistency between Studies 1 and 2 is that the denominator for calculating overlap is based on number of self-aspects, and Koreans’ greater self-aspects could have driven down overlap scores. Indeed, the overlap numerator (a sum of shared traits in all possible self-aspect pairs) was higher for Korean participants than U.S. participants in both studies. Given the inconsistent findings with self-aspect overlap both within countries (e.g., Study 1) and across studies, it would be premature to conclude that self-aspect overlap reliably differs between U.S. and Korean individuals.
General discussion

Self-complexity refers to the number and relatedness of self-aspects in an individual’s self-concept. In two studies, South Korean participants had more distinctive self-aspects than U.S. participants, as measured by the $H$ statistic. They also reported more self-aspects overall, with a large effect size. This is consistent with past research showing that people from Korea, relative to Westerners, are more likely to contextualize people when describing them (Kashima et al., 2006). Our research shows that this greater contextualization extends to the self-concept.

Descriptively, our U.S. participants had more independent and relationally interdependent self-construals than our South Korean participants, but these differences were not always significant. The means for collective interdependence were inconsistent. These findings match those of Kashima et al. (1995), who compared self-construal in two Western countries (U.S. and Australia) and two Eastern countries (Japan and South Korea). They observed strong differences in independence between Westerners and East Asians, but collective interdependence produced only a small difference and relational interdependence differed by gender more than culture. Likewise, a meta-analysis by Oyserman, Coon, and Kemmelmeier (2002) found that European Americans in the U.S. are higher in individualism than South Koreans, with a medium effect size, but differences in collectivism were small to non-significant. Cultural differences in self-construal are either decreasing with time or are less robust than imagined.

One theory is that self-construal causes cultural differences in other psychological phenomena (e.g., Markus & Kitayama, 1991; Varnum et al., 2010), but that does not seem to be the case for self-complexity. Self-construal did not consistently correlate with self-complexity across countries or even across studies. Self-complexity is a measure of self-concept structure, and at first glance, self-construal also appears to be structural because it refers to whether representations of other people are part of one’s self-representation. However, the actual measurement of self-construal captures self-concept content. Researchers assess whether participants’ self-concepts contain more independent, relational, or collective content by having them complete the statement “I am ...” twenty times (known as the Twenty Statement Test) or by asking them to rate their agreement with independent and interdependent values (Grace & Cramer, 2003). Self-concept content and structure are distinct (McConnell & Strain, 2007), and even if self-construal and self-complexity were consistently related, it seems equally plausible that the direction of causality could be “structure constrains content.”

The lack of mediation by self-construal converges with other evidence against self-construal as the sole or primary mechanism for cultural differences in psychological phenomena. Self-construal does not always vary by culture or correlate with other phenomena in the predicted direction (e.g., Levine et al., 2003; Matsumoto, 1999). Other societal factors, such as economics, government, geography, and philosophy, may be directly responsible for cultural differences in psychological processes (Matsumoto, 1999; Nisbett et al., 2001). Priming studies in the U.S. show that self-construal can contribute to differences in holistic and analytic cognition, but self-construal is unlikely to be the only mechanism at work (e.g., Varnum et al., 2010). Our findings are also consistent with Na et al.’s (2010) broader observation that within-culture patterns do not necessarily mirror between-culture differences: Correlations between self-complexity and self-construal within countries were inconsistent with cross-country patterns.
Therefore, although past research on cultural differences in self-construal was one reason to believe self-complexity would vary by culture, it is not surprising that variation in self-construal did not explain variation in self-complexity. The theory that interindividual variation in self-construal does not capture between-culture differences (Na et al., 2010) is also consistent with Matsumoto’s (1999) review, which found little evidence for differences in self-reported self-construal or individualism–collectivism in the U.S. and Japan. Even social orientation in general may be cohering less within cultures than it did previously: A societal-level analysis by Hamamura (2012) revealed an increase in collectivism in Japan in recent decades, but individualism, measured separately, simultaneously increased in both Japan and the U.S.

If self-construal does not mediate cultural differences in self-complexity, then what alternative mechanisms are at work? As explained earlier, another probable mechanism is cultural differences in cognitive styles. It may be that South Koreans have more self-aspects than U.S. participants because they use more holistic thought, which emphasizes context and surroundings (Nisbett et al., 2001). Alternatively, various societal factors (e.g., economic opportunities, frequency of interactions with family and coworkers, emphasis on roles and duties) may also be responsible for cultural differences in self-complexity.

**Implications for the self-complexity literature**

There is disagreement in the literature regarding the best operationalization of self-complexity, so we obtained three of the most common statistics used in self-complexity research: Scott’s $H$ (a measure of dispersion, and Linville’s original measure of self-complexity), number of self-aspects, and $OL$ (self-aspect overlap, as operationalized by Rafaeli-Mor et al., 1999). Conceptually, greater self-complexity refers to having many distinct self-aspects. The $H$ statistic captures both the “many” and the “distinct,” but numerous researchers have argued that these components should be measured separately (e.g., Luo & Watkins, 2008; Pilarska & Suchańska, 2014; Rafaeli-Mor et al., 1999), and this is indeed becoming a more common practice (e.g., Cohen et al., 2014; Rothermund & Meiniger, 2004; Sakaki, 2004, 2006). Instead of taking a position on this issue, we reported all three measures to enable comparisons with past and future work. However, our results have interesting implications for self-complexity research.

Specifically, while South Koreans consistently had more self-aspects and greater self-complexity as measured by $H$, their self-aspects were not always less related to each other than were Americans’ self-aspects. Like other researchers (Luo et al., 2009; Rafaeli-Mor et al., 1999), we found that $H$ was positively correlated with both number of self-aspects and self-aspect overlap (see Table 3), whereas it should be negatively correlated with self-aspect overlap. Self-complexity is meant to be a continuum of few similar self-aspects to many unrelated self-aspects (Linville, 1985), and this continuum is appropriate when studying affect because having few self-aspects and highly connected self-aspects should each increase the intensity of emotional reactions (e.g., Linville, 1985; McConnell et al., 2009). Self-complexity is primarily studied for its role in affect and well-being (e.g., Koch & Shepperd, 2004; Linville, 1987; Luo & Watkins, 2009; McConnell & Strain, 2007; Rafaeli-Mor & Steinberg, 2002), so it is sensible to compare people based on whether their self-concept structure promotes spillover (i.e., few related self-aspects vs. many unrelated self-aspects). That being said, the divergence in number of self-aspects and overlap observed in the current work suggests that it might be
valuable to distinguish between them when studying the role of self-concept structure in non-affective phenomena.

**Comparisons with other published work**

Researchers have studied self-complexity independently in various countries. Table 2 presents a select review of descriptive statistics from published self-complexity studies in which participants completed a self-complexity measure in their country’s language. The current work represents the first direct cross-cultural comparison of self-complexity in which all participants used their native language while completing the task. A cross-cultural study by Shilling and Brown (2015) compared self-complexity in participants from the U.S. and India, with all study materials administered in English. American and Indian participants did not differ in self-complexity, but they were also recruited from the same Internet population (Amazon Mechanical Turk) so the Indian participants may have been more Westernized than their average compatriot.

One major challenge in the self-complexity literature is procedural variability. Self-complexity data have been collected using card-sort, paper, and computer tasks. The specific instructions provided by researchers also vary. Some participants are told to create groups of traits that represent meaningful aspects of themselves or their lives (e.g., McConnell et al., 2009; Sakaki, 2004; Stopa et al., 2010), while others are specifically directed to think of self-aspects as roles (e.g., Cohen et al., 2014; Pilarska & Suchańska, 2014). Although our U.S. sample 1 did not significantly differ from a comparison sample that completed a computerized self-complexity task, Table 2 suggests that U.S. participants tend to report more self-aspects when self-complexity is assessed with a card-sort compared to a computer program. In addition, when we modified the instructions and setting in Study 2, all samples produced more self-aspects than their compatriots from Study 1. The U.S. samples in the current work also have higher overlap scores than other U.S. samples, but they are also the only ones that used a paper survey. For example, the Brown et al. (2016) sample was drawn from the same population as two of our U.S. samples but used a computer sorting task. That sample had lower overlap scores than those in the current work, although the difference was not significant (see p. 8).

While the procedure may influence self-complexity scores, we were careful to maintain a consistent procedure and to use thoroughly backtranslated materials in Study 2, making it appropriate to directly compare our U.S. and South Korean participants. Both Studies 1 and 2 found larger $H$ scores and more self-aspects among Korean participants, and we are confident that this is a genuine and reliable difference with a moderate to large effect size.

Our cross-cultural conclusions are bolstered by past self-complexity data collected in Japan and China. Sakaki (2004, 2006) measured self-complexity in Japan using a procedure similar to our own in terms of instructions and format. Like our Korean samples, Sakaki’s (2004, 2006) three Japanese samples all had many more self-aspects than our three U.S. samples ($d_s > 0.87$). Similarly, Luo and colleagues (Luo et al., 2009; Luo & Watkins, 2009) measured self-complexity with a computer task in China, and this can be compared against Brown and colleagues’ (2009, 2016) U.S. samples that also used a computer task. Like South Korea and Japan, China is less individualistic than the U.S. (Oyserman et al., 2002). Number of self-aspects was consistently higher in the Chinese samples than the U.S. samples ($d_s > 1.01$). It seems reasonable to conclude that people in the highly individualistic U.S.
have fewer self-aspects than people in less individualistic East Asian countries, but at this time we cannot determine what cultural factors, such as analytical thought or decontextualized perception, are responsible for this difference.

Another unanswered question is whether self-complexity produces the same outcomes in different cultures. Self-complexity predicts well-being in the U.S., but the relationship is highly moderated by external factors (e.g., stress, experience of negative events) and by the particular statistic used to measure self-complexity (e.g., Koch & Shepperd, 2004; McConnell et al., 2009b; Rafaeli-Mor & Steinberg, 2002). Self-complexity is related to well-being in China (Luo & Watkins, 2009) and to depression in Germany (Rothermund & Meiniger, 2004), and it predicts greater positive mood-congruent recall in Japan (Sakaki, 2004). These results are conceptually similar to self-complexity research in the U.S. (e.g., McConnell et al., 2009; Renaud & McConnell, 2002), suggesting that self-complexity does operate similarly in people from different countries. It would be valuable to directly compare relations between self-complexity and affect-related outcomes across cultures while using the same methodology.

Conclusion

People from individualistic, independent cultures (e.g., Western Europe, North America, Australia) perceive the self as separate and stable, and they isolate objects in the world and define them through their internal properties (Markus & Kitayama, 1991; Nisbett et al., 2001). In contrast, people from collectivistic, interdependent cultures (e.g., South Korea, Japan) see the self as fluid and context-dependent, and they perceive relationships between objects in the world as essential to understanding them (Markus & Kitayama, 1991; Nisbett et al., 2001). These differences extend to how people structure their self-concepts. We found that people from South Korea had greater overall self-complexity and more self-aspects than people from the U.S. This research reveals a new way in which external culture can manifest in psychological experience.

Note

1. Study materials (e.g., the complete Korean and English self-complexity task, the self-construal scales) are available from the authors upon request.

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Disclosure statement

No potential conflict of interest was reported by the authors.

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