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Examining the dimensionality of self-construals and individualistic–collectivistic values with random intercept item factor analysis

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The construct of self-construal and its counterpart, individualistic and collectivistic (I–C) values, have been widely studied in cross-cultural research. Although theorists often conceptualize the two self-construals (independence-interdependence) as being bipolar to each other, empirical research has found that these construals are orthogonal. The current research re-visits the dimensionality of self-construals and I–C values using random intercept item factor analysis, a statistical procedure used to control for acquiescence bias. Our results (N = 524 in Study 1; N = 22,402 in Study 2) suggest that acquiescence bias exists consistently in the self-construal measure and the I–C values measure, and that independence and interdependence, as well as I–C values, correlate slightly negative with but are not entirely opposite to each other. This result supports the bidimensionality model for both self-construals and I–C values. Our findings have substantial implications for the future conceptualization and measurement of self-construals.

1. Introduction

Independent and interdependent self-construals are probably the most widely studied individual difference variables in cross-cultural research. Understanding the nature of self-construals is thus crucial because it helps to explain the observed national differences in psychological phenomena (Markus & Kitayama, 1991) and organizational behaviors (Gelfand, Erez, & Aycan, 2007). Traditionally, researchers conceptualized independence and interdependence as opposite poles of the same construct, termed the self-construal construct (see Schimmack, Oishi, & Diener, 2005, for a discussion). This conceptualization had a direct influence on the measurement practice of self-construals and its counterpart, individualistic–collectivistic (I–C) cultural values (Schwartz, 1990). Some researchers assessed self-construals at the person-level by taking the difference between the independence and interdependence scores of their participants (e.g., Aaker, 2000; Lee, Aaker, & Gardner, 2000; Pöhlmann & Hannover, 2006; Vohs & Heatherton, 2001; see Cross, Hardin, & Gercek-Swing, 2011, for a discussion). Other researchers also calculated the difference between individualistic and collectivistic values to form a single index to represent independent-interdependent self-construals (e.g., Bretones & Gonzalez, 2011). However, these calculation methods have received limited empirical support. When researchers conducted factor analysis on self-construal items, they consistently found the relationship between independence and interdependence to be orthogonal (e.g., Singelis, 1994) or slightly positive (Kwan, Bond, & Singelis, 1997). Independence and interdependence should thus be treated as separate constructs.

tualization and the measurement of self-construals.

1.1. Self-construals and acquiescence bias

Independence is characterized by individual autonomy and distinction from others (Cross et al., 2011; Markus & Kitayama, 1991). In contrast, interdependence refers to a self-identity that emphasizes

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relations with others and with social groups (Cross et al., 2011; Markus & Kitayama, 1991; Oyserman, Coon, & Kemmelmeier, 2002). Although researchers have found an orthogonal and sometimes positive correlation between independence and interdependence, the self-construal measurements have been shown to be prone to acquiescence bias. Acquiescence bias refers to respondents' consistent tendency to agree or disagree with a survey item regardless of the actual content in the item, and this tendency is likely to bias correlation in the positive direction (i.e., inflate positive correlations and deflate negative correlations). Hofstede (1980) used within-subject standardization to control for the cross-cultural differences in acquiescence bias and other response biases, and he found that self-construal scores at the country-level correlate meaningfully with other country-level variables (e.g., well-beings). More recently, Schimmack et al. (2005) found that individualism scores (i.e., independence measured at the country-level) from a self-construal scale correlated meaningfully with other measures of individualism and with the human development index only after statistically controlling for acquiescence bias. Indeed, acquiescence response bias has always been a concern of cross-cultural psychologists,

2.2. Results and discussion

The correlations among the variables and scale reliabilities are shown in Table 1. The SSCS was first subjected to a series of confirmatory factor analyses (CFA; see Table 2). In these analyses we compared among the following four models: a one-factor model, a two-factor model, a one-factor RIIFA model, and a two-factor RIIFA model (see Fig. 1). The difference between a RIIFA model and a simple CFA model is the inclusion of a random intercept, which captures participants' idiosyncratic tendency to endorse items of both self-construals. All three other models were nested within the two-factor RIIFA model (see Maydeu-Olivares & Coffman, 2006), and thus model fit was examined through a chi-square difference test. Our results showed that the one-factor solution did not converge. In addition, the two-factor RIIFA model fit significantly better than a two-factor model, $\Delta\chi^2 = 123.53$, $\Delta df = 1$, $p < .001$, or a one-factor RIIFA model, Δ

tion dropped from .30 (C.R. = 5.41, $p < .001$) in the two-factor model to −.33 (C.R. = −3.89, $p < .001$) in the two-factor RIIFA model, suggesting that acquiescence bias has the potential to bias factor correlations.

Readers outside the field of self-construal research may be surprised by the low fit indices in the two-factor model in Table 2. However, these findings are consistent with the CFA results obtained by previous researchers (e.g., Hardin, Leong, & Bhagwat, 2004; Levine et al., 2003). For example, Levine et al. (2003) reported the fit of the SCSS for four CFA analyses, each with a distinct sample (two Korean samples, one Japanese sample and one American sample), as follows: CFIs = .44–.64, RMSEAs = .08–.27 (this study did not report TLI). The fit indices in our sample are thus generally better than those reported in previous studies. Self-construal theorists (e.g., Singelis, 1994) have argued that the low fit indices of common self-construal scales are acceptable because each self-construal measures a broader range of characteristics than other psychological constructs and because each self-construal is measured by a high number of item indicators, which adversely affects fit indices.

Table 3 shows the factor loadings of each SSCS item in the two-factor RIIFA model. The one non-significant independence item is about health, which does not have much commonality with other independence items (Hardin et al., 2004). Four of the five non-significant interdependence items were about respecting a specific other (an authority figure, parents, a modest person, one's own boss), which may have more to do with power distance than with

Table 4
Correlation between self-construals and exogenous constructs in Study 1.

	N	Raw Scores		Two-factor RIIFA scores	
		Independence	Interdependence	Independence	Interdependence
Balanced scales					
Self-esteem	524	.21***	−.02	.14***	−.26***
Modesty	524	−.28***	.26***	−.39***	.33***
Non-balanced scales					
Relationship Self-Efficacy	524	.18***	.36***	−.02	.12**
Relational Interdependence (RISC)	72	−.01	.43***	−.23	.29*

* $p < .05$.
** $p < .01$.
*** $p < .001$.

The independence items represent defining characteristics such as personal agency, self-direction, self-enhancement, and creativity. Past research has also showed that independents endorse values of excitement and exploration (Triandis et al., 1990), possibly because these values allow actualization of an individual's own potential (Welzel, 2010). The interdependence items represent distinguishing features such as communion with others, concern with family and close others, fulfilling duties, conformity and responsibilities to ingroups, and self-effacement. Each of the items was rated from −1 (opposed to my values) through 0 (not important) to 7 (of supreme importance).

3.2. Results and discussion

We conducted separate CFA factor analyses for each culture. In every country that we examined, a two-factor RIIFA model consistently fit better than a one-factor model, a one-factor RIIFA model or a two-factor model, as revealed by chi-square difference tests (ps < .001). The model fits for the two-factor models are shown in Table 5. (The fits for the one-factor models are not shown due to space limitations.) The average correlation between independence and interdependence across all seven countries was .41 in the two-factor model and −.26 in the two-factor RIIFA model. In all of the countries we looked at except South Africa, the correlations between independent and interdependent values switched from positive to negative in the RIIFA models. Although the correlations fluctuate across samples, the overall pattern of results is consistent with the conclusion we drew from Study 1.

4. General discussion

In reviewing the dimensionality of self-construals, Schimmack et al. (2005) concluded that the correlation between independent and interdependent self-construals is likely to be influenced by acquiescence bias and that further research is needed to address this issue. The current study used advances in factor analytic procedures to address the dimensionality of self-construals and its counterpart — I–C values. The data we obtained from the SSCS and the SVS revealed a consistent pattern: acquiescence bias exists in self-construal measurement and it has the potential to distort the correlation between independence and interdependence and between I–C values (as evidenced by our RIIFA results). However, independence-interdependence and I–C values were consistently revealed to be two-dimensional even under the RIIFA procedure. Interestingly, self-construals become slightly and negatively correlated in the RIIFA models in the Chinese sample, as do the I–C values in five of the seven countries studied. This result suggests the possibility that in at least some countries independence and interdependence are not orthogonal to each other. Overall, from both theoretical and measurement perspectives our study questions the validity of treating the two self-construals as being directly antithetical to each other (i.e., unidimensionality).

4.1. Acquiescence as a potential threat to construct validity

Past self-construal theorists (e.g., Markus & Kitayama, 1991) have postulated that independent individuals value higher self-esteem and lower modesty and relational identities. In contrast, they postulated that interdependent individuals value higher modesty and relational identities but lower self-esteem. However, past empirical findings have not always been consistent with these conceptualizations. Independence showed a positive correlation with self-esteem but null correlation with relational interdependence; interdependence showed a positive correlation with relational interdependence but null correlation with self-esteem (e.g., Cross et al., 2000; Kwan et al., 1997). There have been concerns that acquiescence bias may compromise the construct validity of self-construals (Schimmack et al., 2005), and the results from Study 1 in this paper suggest that RIIFA may help to enhance the validity of a construct score. Particularly, Study 1 showed that acquies-

Table 5
Model fit comparison in Study 2.

Two-factor model	Two-factor RIIFA model2ref192.983137t11rg42.5216*

cence bias may distort the correlations among scores that are measured only by regular-keyed items –– after RIIFA, independence and interdependence demonstrate stronger discriminant validity evidence with self-esteem and modesty. As such, in the future we encourage researchers to supplement their raw correlational or regression analyses with RIIFA (given that their sample size allows for SEM analyses) when their studies involve self-construals.

4.2. Implications for self-construal theories and measurement

Our results are inconsistent with the conceptualization and measurement of independence-interdependence as a unidimensional construct. Although past cross-cultural theories have acknowledged the bidimensionality of independence-interdependence, they have exclusively focused on how individuals who are high in independence differ from individuals who are high in interdependence. This conceptualization often influences the measurement practice of independent and interdependent values, as researchers treat them as opposite poles of the same construct. We believe that theory and empirical results should closely agree with each other. We thus urge researchers to invest more theoretical and empirical resources into understanding the characteristics of people who score simultaneously high or low in both self-construals. In addition, our results support the calculation of separate independence and interdependence scores, rather than deriving a summary score of self-construals or an overall score for I–C values.

4.3. Future directions and conclusion

Similar to most research the current study has certain limitations that lead to potential future directions. To begin with, although our purpose was not to compare the correlation between two self-construals across cultures, such research will further advance our current understanding of self-construals. Moreover, the current study did not examine independence and interdependence, or their corresponding cultural values, at the country level; however, this is likely to be a fruitful avenue for future research. Researchers should validate the use of RIIFA for country-level analyses and for cross-cultural comparisons before tackling these research questions. Finally, researchers need to start developing self-construal scales that contain reverse-keyed items. This suggestion has been made previously (e.g., Schimmack et al., 2005) but

(Eds.), Individuals and cultures in multi-level analysis (pp. 283–311). Mahwah, NJ: Lawrence Erlbaum Associates.

Triandis, H. C., McCusker, C., & Hui, C. H. (1990). Multimethod probes of individualism and collectivism. Journal of Personality and Social Psychology, 59, 1006–1020.

Vohs, K. S., & Heatherton, T. F. (2001). Self-esteem and threats to self: Implications for self-construals and interpersonal perceptions. Journal of Personality and Social Psychology, 81, 1103–1118.

Welzel, C. (2010). How selfish are self-expression values? A civicness test. Journal of Cross-Cultural Psychology, 41, 152–174.