

1999

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Recommended Citation

Johnson, Craig E., "Self-Construal Orientation: Validation of an Instrument and a Study of the Relationship to Leadership Communication Style" (1999). *Faculty Publications School of Business*. Paper 48.
<http://digitalcommons.georgefox.edu/gfsb/48>

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Self-Construal Orientation: Validation of an Instrument and a Study of the Relationship to Leadership Communication Style

**Michael Z. Hackman, Kathleen Ellis, Craig E. Johnson, and
Constance Staley**

The purpose of this study was twofold: (a) to test rigorously the measurement equivalence of the Independent and Interdependent Self-Construal Scales (Gudykunst et al., 1994) across three cultural groups and for males and females, and (b) to determine the comparative amount of variance in self-perceived leadership communication style that can be predicted by self-construal orientation, culture, and biological sex. College students from the United States (n = 224), New Zealand (n = 218), and the former Soviet republic of Kyrgyzstan (n = 228) responded to the self-construal scales and the Leader Behavior Description Questionnaire (Hemphill & Coons, 1957). Results of confirmatory factor analysis indicated that the Independent and Interdependent Self-Construal Scales should be considered as two distinct one-factor solutions rather than two factors of the same construct as previously assumed. Multiple groups comparisons indicated that, with one minor exception, measurement on each of the self-construal scales was invariant across cultures and sexes, thus providing evidence of the validity of the two scales when used for cross-cultural research.

KEY CONCEPTS: Self-construal orientation, individualistic, collectivistic, independent self-construal, interdependent self-construal, leadership communication style, structural equation modeling, confirmatory factor analysis

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As the “global village” becomes a reality in today’s world, self-construal orientation, a relatively new construct, is beginning to appear more frequently in the communication literature. Self-construal orientation refers to variations in individualistic and collectivistic tendencies measured at the individual level (Triandis, 1989). These variations can be linked directly to the ways in which members of cultures conceive of themselves. Traditionally, individualism and collectivism have been analyzed at the cultural level. Individualistic cultures are thought to emphasize the goals of the individual over the goals of group members, while collectivistic cultures stress group goals and outcomes (Triandis, 1988). Recently it has been argued that these tendencies may vary among *individuals* within cultures (Gudykunst, Matsumoto, Ting-Toomey, Nishida, Kim, & Heyman, 1996; Triandis, 1995). Indeed, these conceptions have been found to be a major determinant of individual behavior (Markus & Kitayama, 1991; Triandis, 1989).

Communicators employing an independent self-construal orientation tend to focus more on internal states—organizing thoughts, feelings, and actions from within rather than referencing others (Markus & Kitayama, 1991). These behaviors are most closely associated with those in individualistic cultures. Communicators emphasizing the interdependent self-construal orientation see themselves as part of an encompassing social relationship. These communicators recognize that their behavior is integrated with others in the social environment (Hsu, 1985). Such behavior is most often associated with those in collectivistic cultures. Although previous research has indicated that self-construal orientation is related to culture or ethnic background, such research has also indicated that self-construal orientation cuts across cultures in its impact on communicative behavior (Hackman, Staley, & Johnson, 1997; Oetzel, 1998b).

Two instruments, The Independent and Interdependent Self-Construal Scales, have been developed by Gudykunst et al. (1994) to measure self-construal orientation and have been used in most of the previous studies regarding the construct. Although the items on these scales were drawn from instruments used in past research in various cultures (Hamaguchi, 1980; Hui, 1988; Markus & Kitayama, 1991; Singelis, 1994; Verma, 1992; Yamaguchi, 1994), the new scales have not been rigorously tested to assess psychometric qualities and to determine whether the instruments work in the same way for respondents in various cultures and for males and females. Such validation is necessary so that research using these measures of self-construal orientation can proceed. Accordingly, the primary purpose of this study was to test rigorously the psychometric qualities and measurement equivalence of the Independent and Interdependent Self-Construal Scales (Gudykunst et al., 1994) across three cultural groups and for males and females.

Previous studies of self-construal orientation using the Independent and Interdependent Self-Construal Scales have concentrated on populations from the United States, Japan, Korea, and Australia. The present study includes samples from the United States and two cultures not previously studied: New Zealand and Kyrgyzstan, a former Soviet republic. These cultures were targeted for two primary reasons. First, inhabitants of the cultural regions included in this study have been previously identified as exhibiting varying degrees of individualistic and collectivistic behaviors: United States (high individualism), New Zealand (moderate individualism/moderate collectivism), and Kyrgyzstan (high collectivism) (Hackman & Barthel-Hackman, 1993; Hofstede, 1991; Triandis, 1995). Second, New Zealand and

Kyrgyzstan are located in regions of the world that Shuter (1998) argues have been “neglected” by previous communication research.

The first two research questions focused on validation of the Gudykunst, et al. (1994) scales.

RQ1: Does measurement equivalence exist across samples from the United States, New Zealand, and Kyrgyzstan on the Independent and Interdependent Self-Construal Scales developed by Gudykunst et al. (1994)?

RQ2: Does measurement equivalence exist for males and females on the Independent and Interdependent Self-Construal Scales developed by Gudykunst et al. (1994)?

A secondary purpose of the current study was to extend previous correlational research and examine the role of self-construal orientation as related to yet another facet of everyday behavior: perceived leadership communication style. In the past, self-construal orientation has been studied in relationship to conflict styles (Oetzel, 1998a; Ting-Toomey, Oetzel, & Yee-Jung, 1998), communication styles (Gudykunst et al., 1996; Hackman, Staley, & Johnson, 1997), embarrassability (Singelis & Sharkey, 1995), and emotional expression (Markus & Kitayama, 1994). The summative results of this research suggest that self-construal orientation has the potential to explain a variety of communicative behaviors. Because a great deal of previous research in communication has focused on culture and biological sex, these variables were included for comparison in the present study. The inclusion of three variables previously demonstrated to explain communicative behavior (self-construal orientation, culture, and biological sex) allowed for the evaluation of the comparative contribution of each variable.

Leadership communication style, defined as a relatively enduring set of communicative behaviors that a leader engages in when interacting with followers, was chosen for inclusion in the present study due to the inconsistency in previous findings concerning the relative importance of culture and biological sex on leader behavior (Hackman & Johnson, 1996). Some researchers suggest that female leaders are more likely to use an interactive style of leadership that encourages participation, shares power and information, and enhances the self-worth of others (see, for example, Rosener, 1990).

Other researchers argue that differences in male/female leadership style are not evident (see, for example, Donnell & Hall, 1980). These investigators note that most of the data supporting differing leadership patterns among males and females come from controlled laboratory environments that are more likely to yield results supporting stereotypical views of male/female behavior (Karsten, 1994). Similar conflicting results have been found in regard to the relationship between cultural background and leader behavior (Hofstede, 1998).

Perhaps the inconclusive results obtained in previous research are the result of investigating variables (culture and biological sex) with limited predictive power. Accordingly, the present study attempted to determine the extent to which the previously studied variables of culture and biological sex predicted leadership communication behavior, and whether a variable that has not been previously investigated, self-construal orientation, could be of greater value in predicting

variations in leadership communication style.

RQ3: How much variance in self-perceived leadership communication style can be predicted by self-construal orientation, culture, and biological sex?

METHOD

Respondents

The total sample consisted of 670 undergraduate students (40.6% male, 58.2% female, 1.2% unreported) enrolled in introductory communication and management courses in universities in three countries: the United States, New Zealand, and Kyrgyzstan, a former Soviet republic. Age ranged from 17 to 56 years, with an average age of 20.4 years.

The United States sample was comprised of 224 students (34.4% male, 64.7% female, 9% unreported). The average age of this sample was 20.7 years and the following ethnic backgrounds were represented: European American (83%), Hispanic Americans (5.8%), African American (3.6%), Asian American (2.7%), and others (2.6%). The New Zealand sample consisted of 218 students (52.3% male, 47.4% female, .5% unreported) with an average age of 20.1 years. Ethnic backgrounds included European New Zealanders (75%), Maori (11.7%), Pacific Islanders (3.3%), and others (10.3%). The Kyrgyzstan sample consisted of 228 students (36% male, 62.7% female, 1.3% unreported) with an average age of 20.2 years. Ethnicities included Kyrgyz (54%), Russians (21%), Uzbeks (13%), Ukrainians (1.4%), and others (10.6%).

Measurement

The instruments administered in the United States and New Zealand were in English. The instruments administered in Kyrgyzstan were translated into Russian. Back translation was completed through discussion by bilingual speakers at the Kyrgyz-American School, Kyrgyz State National University in Bishkek, Kyrgyzstan.

For the purposes of this study, culture was operationalized as the home country of the respondent. Ethnic background and biological sex were self-reported.

Self-Construal. The Independent and Interdependent Self-Construal Scales developed by Gudykunst et al. (1994) were used to measure the extent to which individuals viewed themselves as unique and independent and the extent to which they considered themselves connected to others. The items on these scales were drawn from past research in various cultures (Hamaguchi, 1980; Hui, 1988; Markus & Kitayama, 1991; Singelis, 1994; Verma, 1992; Yamaguchi, 1994). The Independent Self-Construal Scale consisted of 14 items; the Interdependent Self-Construal Scale consisted of 15 items. Both measures were 7-point Likert scales (1 = Strongly Disagree; 7 = Strongly Agree).

Confirmatory factor analysis (CFA) was selected as the most appropriate procedure to examine the factor structure of the self-construal scales. The advantages of CFA over exploratory factor analysis have been well documented (Bollen, 1989; Byrne, 1989; Coover, Penner & MacCallum, 1990; Hoyle, 1995; Marsh, 1987; Rindskopf, 1984). Perhaps the most compelling advantage is that CFA is driven by theory rather than by data. As such, CFA allows the researcher to formulate, define specifically, and test one or more *a priori* models of the construct that have been suggested by the theoretical underpinnings of the construct. The analysis then

determines the extent to which a hypothesized model fits the data. A good model fit provides support for the theory and evidence of validity of the instrument.

In the present study, the theoretical model proposed by Gudykunst et al. (1994; 1996) was tested. This model posited that the self-construal construct consists of two factors: Independence and Interdependence. Accordingly, the two-factor solution that included responses for both the Independent and Interdependent scales was tested using maximum likelihood CFA methods within LISREL 8 (Jöreskog & Sörbom, 1996). A covariance matrix was used as input for the analysis. Error variances of individual items were not allowed to correlate.

LISREL provides a large number of indices of overall model fit from which the researcher can choose. These goodness-of-fit indices measure the difference between the covariance matrix predicted by the model and the one resulting from the sample data. Specifically, the ratio of chi-square to degrees of freedom is an important consideration. In general, the smaller the ratio, the better the fit. A ratio of 2-3 chi-square to 1 degree of freedom is considered a very good fit (Carmines & McIver, 1981), with ratios up to 5 chi-square to 1 degree of freedom considered an acceptable fit (Wheaton, Muthén, Alwin, & Summers, 1977). Additionally, given the large sample obtained for this study, the Non-Normed Fit Index (NNFI), also known as the Tucker-Lewis Index, and the Comparative Fit Index (CFI) were selected as appropriate indices because neither index is sensitive to sample size (Bollen, 1989). Further, the Goodness of Fit Index (GFI) proposed by Jöreskog and Sörbom (1989) was also selected because it provides an estimate of the amount of variance and covariance accounted for by the model. NNFI, CFI, and GFI levels beyond .90 signal good fit.

Initial results of the analysis of the Gudykunst et al. (1994) two-factor model indicated that the model did not fit the data adequately. All indices were well below the recommended levels. Following Bollen (1989) and Steiger (1990), an attempt was made to refine the model by (a) deleting items one by one based on low factor loadings, changes in model fit, and low squared multiple correlations (a measure of item reliability) and (b) by freeing error variances of conceptually similar items one by one as suggested by the modification indices provided by LISREL. Each time a change was made, the model was retested and fit indices assessed. Seven items were eliminated and several error variances freed. However, adequate fit simply could not be achieved when items measuring both independent and interdependent self-construal were included in the same model. Final fit statistics for the best refined model were below recommended levels, $\chi^2(186, N = 613) = 813.13, p < .01$; NNFI = .82; CFI = .84; GFI = .88. Therefore, the two-factor conceptualization was abandoned.

Next an alternate conceptualization was tested. Independent and interdependent self-construal were posited and tested individually as two distinct dimensions of self-construal, each conceptualized as a one-factor solution. Initial results for the 14-item Independent Self-Construal Scale suggested a somewhat reasonable fit. The results were then examined for possible refinements that would result in a better fit to the data. Using the process described above, three items were deleted from the scale: "If there is a conflict between my values and the values of groups of which I am a member, I follow my values." "I am comfortable being singled out for praise and rewards." "I don't support a group decision when it is wrong." Additionally, as suggested by the modification indices, the error variances of six pairs of conceptually similar items were freed to correlate.

The refinements resulted in an excellent model fit to the data, $\chi^2(38, N = 633) = 133.53$,

$p < .01$; NNFI = .94; CFI = .96. Additionally, the Goodness of Fit Index was .96, indicating that the one-factor solution accounted for 96% of the variance in the sample covariance matrix. Table 1 presents the standardized factor loadings for the refined 11-item Independent Self-Construal Scale. This 11-item scale was used for all further analyses in the present study. Reliability for the 11 items, as indicated by Cronbach's alpha, was .85 for the overall sample, with an alpha coefficient of .89 for the U.S. sample, .88 for the New Zealand sample, and .77 for the Kyrgyzstan sample.

TABLE 1
Standardized Factor Loadings for the Refined Independent Self-Construal Scale

Questionnaire Item	Factor Loading
<i>(N = 633)</i>	
I should be judged on my own merit.	.47
Being able to take care of myself is a primary concern for me.	.57
My personal identity is very important to me.	.66
I prefer to be self-reliant rather than dependent on others.	.82
I am a unique person separate from others.	.66
I try not to depend on others.	.78
I take responsibility for my own actions	.58
It is important for me to act as an independent person.	.89
I should decide my future on my own.	.85
What happens to me is my own doing.	.64
I enjoy being unique and different from others.	.76

Cronbach's Alpha = .85

Initial results for the Interdependent Self-Construal Scale also indicated a somewhat reasonable fit. Like the Independent Scale, refinements were made by eliminating problematic items and freeing error variances of conceptually similar items. Three items were deleted: "It is better to consult with others and get their opinions before doing anything," "It is important to consult close friends for their ideas before making a decision," "My relationships with others are more important than my accomplishments." Error variances were freed on five pairs of conceptually similar items.

The result was an excellent model fit, $\chi^2(49, N = 617) = 151.53, p < .01$; NNFI = .93; CFI = .95. The Goodness of Fit Index (GFI) for this model was .96, suggesting that 96% of the variance in the sample covariance matrix could be explained by the model. Table 2 presents the standardized factor loadings for the refined 12-item Interdependent Self-Construal Scale which, like the Independent Scale, was treated as a distinct scale and used for all remaining analyses. Reliability for the 12 items, as indicated by Cronbach's alpha, was .84 for the overall sample, with an alpha of .85 for the U.S. sample, .86 for the New Zealand sample, and .78 for the Kyrgyzstan sample.

Self-Perceived Leadership Style. The Leader Behavior Description Questionnaire (LBDQ) originally developed by Hemphill (1950) and later revised by Hemphill and Coons (1957) was used to measure self-perceived leadership style. This instrument has consistently demonstrated excellent psychometric qualities (Bass, 1990) and has been widely used in research on leadership styles for many years. Successive factor studies have indicated that the instrument measures two factors: (a) Consideration, and (b) Initiation of Structure (e.g., Fleishman, 1953, 1957, 1973; Halpin & Winer, 1957).

Consideration describes the extent to which a leader exhibits concern for the

TABLE 2
Standardized Factor Loadings for the Refined Interdependent Self-Construal Scale

Questionnaire Item	Factor Loading
<i>(N = 617)</i>	
I consult with others before making important decisions.	.43
I consult with co-workers on work-related matters.	.50
I will sacrifice my self-interest for the benefit of my group.	.82
I stick with my group even through difficulties.	.94
I respect decisions made by my group.	.83
I will stay in a group if they need me, even when I am not happy with the group.	.78
I maintain harmony in the groups of which I am a member.	.68
I respect the majority's wishes in groups of which I am a member	.72
I remain in groups of which I am a member if they need me, even though I am dissatisfied with them.	.58
I try to abide by customs and conventions at work.	.45
I give special consideration to others' personal situations so that I can be efficient at work.	.50
I help acquaintances, even if it is inconvenient.	.56

Cronbach's alpha = .84

welfare of other members of the group and is oriented toward the maintenance function of a group. Sample items include "I find time to listen to followers" and "I look out for the personal welfare of individuals in my group." Initiation of Structure describes the extent to which leaders initiate activity in the group, organize work, and define the way work is to be done. Initiation of Structure is oriented toward the task function of a group. Sample items include "I assign followers to particular tasks" and "I let followers know what is expected of them." The instrument has been used in cross-cultural research and the factor structure and other psychometric qualities have remained stable in studies conducted in the United States, Great Britain, Japan, and Hong Kong (Smith, Tayeb, Peterson, Bond, & Misumi, 1986).

The LBDQ is a 5-point Likert-type scale that asks respondents to consider situations in which they have been a leader of others, either in a formal work environment or in a more informal social environment. Respondents are asked to indicate how frequently they typically engage in 30 behaviors (0 = Very Rarely, 4 = Very Often). Fifteen of the items address Consideration and 15 items address Initiation of Structure. Cronbach's alpha for Consideration in the present study was .88 for the overall sample, .89 for the United States sample, .90 for the New Zealand sample, and .78 for the Kyrgyzstan sample. For Initiation of Structure, alpha reliability was .79 for the overall sample, .80 for the United States sample, .83 for the New Zealand sample, and .70 for the Kyrgyzstan sample.

Procedures

Because the sample was large and power to detect differences was high, significance was set at alpha = .01 to avoid Type I error.

RQ1: Measurement equivalence across cultures. The first research question asked whether measurement on the Independent and Interdependent Self-Construal Scales (Gudykunst et al., 1994) was equivalent for the three cultural groups included in this study. The question was addressed using the CFA multiple groups comparison procedure described by Byrne, Shavelson and Muthén (1989). In the present study, two

separate multiple groups comparisons were conducted – one for the Independent Self-Construal Scale and one for the Interdependent Self-Construal Scale. For each scale, separate covariance matrices were generated for the United States, New Zealand, and Kyrgyzstan samples. Next, the model fit for the United States was forced onto the covariance matrices obtained for New Zealand and Kyrgyzstan to determine the extent to which the U.S. scores generalized to the other samples. This was accomplished through two increasingly restrictive tests: (a) plausibility of the one-factor solution for all three cultures, and (b) plausibility of invariance of the factor loadings for all three cultures. After each test, goodness of fit statistics were assessed. A chi-square difference test was then conducted to see if change in the chi-square value from test 1 to test 2 was significant or nonsignificant. When nonsignificance was obtained, measurement was considered invariant across the cultures. When significance was obtained, modification indices were consulted to identify points of difference.

RQ2: Measurement equivalence across sexes. The second research question asked if measurement was equivalent for males and females on each of the self-construal scales. This question was addressed in the same manner as RQ1 using multiple groups comparisons within CFA procedures. For each scale, separate covariance matrices were generated for males and females. Next, using the two increasingly restrictive tests described above, the fit of the model for males was forced upon the covariance matrix for females to see the extent to which males' scores generalized to females' scores.

RQ3: Self-construal orientation, culture, and sex as predictors of self-perceived leadership communication style. Two separate multiple regressions were conducted to determine the amount of variance in leadership style that could be predicted by self-construal orientation, culture, and sex. The LBDQ Consideration Scale was the dependent variable for the first regression; the LBDQ Initiating Structure Scale was the dependent variable for the second regression. Independent self-construal orientation, interdependent self-construal orientation, culture, and biological sex were independent variables in both analyses.

The SPSS "test" command was used. This procedure, sometimes called "setwise regression," allows us to test subsets of any number of independent variables. First, each demographic variable is dummy coded and considered as a subset. The method removes, in turn, each subset from the equation and enters the subset "as if at the last step" of a hierarchical regression. The procedure calculates one Multiple *R* for the entire equation as well as *R*-square change and its test of significance for each subset of independent variables.

RESULTS

RQ1: Measurement Equivalence Across Cultures

Independent Self-Construal. The first research question asked whether measurement equivalence existed across samples from the United States, New Zealand, and Kyrgyzstan on the Independent and Interdependent Self-Construal Scales developed by Gudykunst et al. (1994). For the Independent Self-Construal Scale, results of the first increasingly restrictive test for invariance of the one-factor solution for the three cultures indicated that the one-factor model was an excellent fit for all samples, $\chi^2(114) = 224.97$; NNFI = .93; CFI = .95; GFI = .95. Additionally, when the factor loadings for the U.S. sample were forced upon the New Zealand and Kyrgyzstan

covariance matrices, results indicated that loadings were invariant across the three cultures, $\chi^2(134) = 255$; NNFI = .94; CFI = .95; GFI = .93; χ^2 difference (20 df) = 30.03, nonsignificant. Thus measurement equivalence was obtained across the three samples included in this study.

Interdependent Self-Construal. For the Interdependent Self-Construal Scale, the one-factor solution was an excellent fit for all three cultures, $\chi^2(147) = 296.43$; NNFI = .91; CFI = .93; GFI = .93. However, the factor loadings were *not* completely invariant across the three cultures, $\chi^2(169) = 387.81$; NNFI = .89; CFI = .90; GFI = .88; χ^2 difference (22) = 91.38, significant. The modification indices suggested that loadings on two items in the Kyrgyzstan sample differed from loadings on the same items in the U.S. and New Zealand samples. The problematic items were "I consult with co-workers on work-related matters" and "I will sacrifice my self-interest for the benefit of my group." Therefore, although only two items were involved, some caution should be exercised when generalizing findings regarding interdependent self-construal to the Kyrgyzstan sample.

RQ2: Measurement Equivalence for Males and Females

The second research question asked whether measurement equivalence existed for males and females on the Independent and Interdependent Self-Construal Scales. Results of the multiple groups comparison for the Independent Self-Construal Scale indicated that the one-factor solution was an excellent fit for both sexes, $\chi^2(76) = 199.43$; NNFI = .92; CFI = .94; GFI = .95. Further, the test for equivalence of factor loadings indicated that loadings were invariant for males and females, $\chi^2(86) = 214.17$; NNFI = .93; CFI = .94; GFI = .94; χ^2 difference (86 df) = 14.75, nonsignificant. Thus measurement equivalence was obtained for males and females on the Independent Self-Construal Scale.

Similar results were obtained for the Interdependent Self-Construal Scale. The one-factor solution was an excellent fit for both sexes, $\chi^2(97) = 215.88$; NNFI = .92; CFI = .94; GFI = .96, and the factor loadings were invariant for males and females, $\chi^2(107) = 228.38$; NNFI = .93; CFI = .94; GFI = .95; χ^2 difference (10 df) = 12.50, nonsignificant. Thus measurement equivalence was achieved for males and females on the Interdependent Self-Construal Scale.

In sum, it appears that with one minor exception, the Independent and Interdependent Self-Construal Scales are working in the same way for the three cultural groups included in this study and for males and females.

RQ3: Predictors of Leadership Communication Style

Consideration. The first multiple regression equation, with scores on the LBDQ Consideration Scale as the dependent variable and interdependent self-construal, independent self-construal, culture, and biological sex as independent variables, yielded a Multiple R of .46, $F(5, 613) = 32.74$, $p < .0001$. Adjusted R-square was .20, indicating that 20% of the variance in the Consideration dimension of leadership communication style could be attributed to the combination of independent variables. Three of the four independent variables included in the equation were significant predictors: (a) interdependent self-construal, (b) culture, and (c) biological sex. Independent self-construal was not a significant predictor of Consideration, $p = .33$.

Of the significant predictors, interdependent self-construal was the most important. The partial correlation for Independent Self-Construal was .37, $t(613) =$

9.75, $p < .0001$, indicating that after controlling for all the other independent variables in the equation, 13.7% of the variance in Consideration was uniquely explained by Interdependent Self-Construal orientation.

Biological sex was the second most important predictor. The partial correlation for biological sex was .16, $t(613) = 4.10$, $p < .0001$, suggesting that after controlling for all other independent variables in the equation, 2.6% of the variance in Consideration was uniquely explained by biological sex. The partial correlation for culture was .12, $t(613) = 3.09$, $p < .01$, indicating that after controlling for all other independent variables in the equation, 1.4% of the variance in Consideration was explained by culture. Although statistically significant, the practical import of biological sex and culture as predictors of Consideration in leadership style is questionable.

Initiation of Structure. The second multiple regression equation, with Initiation of Structure as the dependent variable, yielded a Multiple R of .35, $F(5, 620) = 17.36$, $p < .0001$. Adjusted R -square was .12, indicating that the combination of independent variables in the equation predicted 12% of the variance in Initiation of Structure. The most important predictor of Initiation of Structure was independent self-construal. The partial correlation for this was .22, $t(620) = 5.67$, $p < .0001$, suggesting that after controlling for the other independent variables, independent self-construal uniquely explained 4.8% of the variance in Initiation of Structure. Culture was the second most important predictor of Initiation of Structure. The partial correlation for culture was .20, $t(620) = 4.99$, $p < .0001$, indicating that culture uniquely explained 4% of the variance in Initiation of Structure. Interdependent self-construal was the third most important predictor, yielding a partial correlation of .17, $t(620) = 4.24$, $p < .0001$, suggesting that this variable uniquely explained 2.9% of the variance in Initiation of Structure. Biological sex was not a significant predictor of Initiation of Structure, $p = .34$.

DISCUSSION

RQ1 and RQ2: Measurement Equivalence Across Cultures and Sexes

The single most important contribution of this study was that it provided evidence of validity of the Independent and Interdependent Self-Construal Scales developed by Gudykunst et al. (1994) when used for cross cultural research. With one minor exception, measurement was invariant across the three cultures included in this study and for males and females. Coupled with the evidence of concurrent validity provided by Gudykunst et al. (1994) and the reasonably high alpha reliabilities reported in the current study as well as in previous research (Gudykunst et al., 1994, 1996; Ting-Toomey et al., 1998), the Independent and Interdependent Self-Construal Scales appear to be psychometrically sound when used across cultures and sexes. However, further testing in cultures different from those included in previous studies is needed to provide additional evidence of measurement equivalence across cultures.

Another major contribution of this study was the finding that independent and interdependent self-construals are two separate factors, not two dimensions of the same factor as previously assumed. This is important because it affects the design and interpretation of future studies. Researchers can investigate independent and interdependent self-construal orientation as separate factors focusing on the explanatory and predictive qualities of each variable. In this way future research efforts can choose to include both independent and interdependent self-construals, each considered as a one-factor solution in the same study, or select to focus on only *one*

of the self-construal orientations. Previous research efforts have exclusively focused on independent and interdependent self-construals in combination, which may have served to mask certain significant findings.

RQ3: Predictors of Leadership Communication Style

The results of the present study suggest that self-construal orientation is the most important predictor of leadership communication style among the variables included in this study – more important than either culture or biological sex. Nonetheless, self-construal orientation, culture, and biological sex are all significant predictors of Consideration. Interdependent self-construal orientation is the most important predictor of Consideration. Independent self-construal orientation is the most important predictor of Initiation of Structure. Biological sex is not a significant predictor of Initiation of Structure. Given the varying and often contradictory findings obtained by researchers in regard to the explanatory and predictive qualities of culture and biological sex on leadership communication style, the present study suggests that a more fruitful avenue of research might involve the exploration of self-construal orientation.

Although the results in the present study provide additional support for the validity of the Self-Construal Scales and the use of the self-construal construct, a limitation should be noted: future researchers should consider measuring leadership communication style as an observed variable rather than a self-report measure. Despite this limitation, the results of the present study suggest that increased attention should be given to the contribution of individual self-construal orientations on behavioral outcomes. While much has appeared in the literature concerning the influence of culture and biological sex on behavior, very little attention has been devoted to the seemingly important influence of self-construals.

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