

Context-Specific Measurement of Individualism-Collectivism on the Individual Level:

The Individualism-Collectivism Interpersonal Assessment Inventory

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Cross-cultural research would be greatly aided by the availability of psychometrically sound measures of meaningful cultural dimensions of variability on the individual level. We report six studies that establish the validity and reliability of an individual-based assessment inventory of individualistic versus collectivistic tendencies in four social relationships (the Individualism-Collectivism Interpersonal Assessment Inventory—ICIAI). The results of the first five studies provide strong evidence for the reliability and validity of the ICIAI. The sixth study, including data from four different countries and four different ethnic groups within the United States, demonstrate the utility of the ICIAI to map cultural differences in multiple contexts and rating domains.

**CONTEXT-SPECIFIC MEASUREMENT
OF INDIVIDUALISM-COLLECTIVISM
ON THE INDIVIDUAL LEVEL
The Individualism-Collectivism
Interpersonal Assessment Inventory**

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The study of culture plays an increasing role in psychology around the world today (see Berry, Poortinga, Segall, & Dasen, 1992; Brislin, 1993; Matsumoto, 1996). Increasing numbers of cross-cultural psychologists are recognizing

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the importance of conceptualizing culture along meaningful dimensions of sociopsychological variability and developing ways to measure these dimensions on the individual level. Of the many dimensions discussed until now, arguably the most important has been individualism-collectivism (IC). This dimension has been used theoretically and empirically to explain and predict similarities and differences across cultures (see Triandis, 1994, 1995, for excellent reviews). Moreover, there have been numerous attempts to develop an individual-level measure of it. In this article, we report six studies that demonstrate the validity, reliability, and utility of a new instrument that assesses individual differences in IC values specific to interpersonal interactions that complements already available measures.

DEFINITIONS

Anthropologists, sociologists, and psychologists alike have used the IC dimension to explain differences among cultures (Hofstede, 1980; Kluckhohn & Strodtbeck, 1961; Mead, 1967; Triandis, 1972). IC refers to the degree to which a culture encourages, fosters, and facilitates the needs, wishes, desires and values of an autonomous and unique self over those of a group. Members of individualistic cultures see themselves as separate and autonomous individuals; members of collectivistic cultures, however, see themselves as fundamentally connected with others (Markus & Kitayama, 1991). In individualistic cultures, personal needs and goals take precedence; in collectivistic cultures, they are sacrificed to satisfy the group.

IC has received the most attention of all dimensions in both cross-cultural theory and research. It has been used to explain and predict similarities and differences in all areas of psychology studied by cross-cultural psychologists and across a broad range of topics. Excellent discussions of the theoretical and empirical utility of IC already exist elsewhere (e.g., Triandis, 1994, 1995). In this article, we focus on a discussion of methods of measuring IC on the individual level.

MEASUREMENT OF IC

Being able to measure IC on the individual level is advantageous for a variety of reasons. First, it allows us to characterize the IC nature of different groups and to examine the relative importance of individualism or collectivism in those groups. Triandis and his colleagues (cited below), for example, have administered their measures of IC to samples in different cultures and countries around the world, and on the basis of these data, have been able not only to characterize the cultures as relatively individualistic or collectivistic,

but have also been able to determine the estimated proportion of the population in each of these samples to carry primarily individualistic or collectivistic tendencies on the individual level. Second, measurement of IC allows for an important methodological check in our research. Using such measures, researchers would no longer have to assume that the groups in their studies are individualistic or collectivistic; they can demonstrate it empirically. Third, given that there will be individual differences in IC within samples, IC scores can be used as covariates in appropriate analyses. Differences between groups could, therefore, be tested after the effects of IC were statistically controlled.

Triandis (1995, appendix) reviewed 20 studies that designed and tested different scales to measure IC on the individual level. (We briefly highlight some of these works here; interested readers are directed to Triandis, 1995, appendix, for a comprehensive review and discussion of method.) By far, the most concerted effort has been that of Triandis and his colleagues. These attempts have resulted in the use of a number of different scales across a number of studies. Hui (1984, 1988) developed the INDCOL scale to measure an individual's IC tendencies in relation to six collectivities (spouse, parents and children, kin, neighbors, friends, and coworkers and classmates). Respondents indicate their agreement with statements describing key IC concepts in relation to each target collective, such as sharing, decision making, and cooperation. Scores are then summed across items within each collective and then across collectives to generate a general collectivism index (GCI). Later, Triandis, Leung, Villareal, and Clack (1985) used items from the INDCOL and further broadened them by adding scenarios and other ratings. Triandis et al. (1986) used items from Hui (1984), Triandis et al. (1985), and items suggested by colleagues in other cultures to measure IC. Triandis, Bontempo, Villareal, Asai, and Lucca (1988) used items from the INDCOL and U.S.-originated emic items to measure IC.

Triandis, McCusker, and Hui (1990) employed a multimethod approach to measuring IC, which represented an evolution not only in thinking about IC but also in method. These researchers viewed IC as a cultural syndrome that includes values, beliefs, attitudes, and behaviors. Consequently, their multimethod approach included five methods involving ratings of the social content of the self, perceptions of homogeneity of ingroups and outgroups, attitude and value ratings, and perceptions of social behavior as a function of social distance. Subjects are classified as either individualist or collectivist on the basis of their scores on each method. On the individual level, Triandis refers to individualism and collectivism as idiocentric or allocentric tendencies, respectively (Triandis et al., 1986). Most recently, Triandis and his colleagues (Singelis, Triandis, Bhawuk, & Gelfand, 1995) have developed measures that include items assessing horizontal and vertical individualism

and collectivism, representing yet further advances in the conceptual understanding of IC.

The work of other writers (reviewed in Triandis, 1995) cover a broad range of psychological constructs in their assessment of IC, including attitudinal, value, and norm ratings; self-perceptions; and independent and interdependent self-construals. Although these works offer researchers a number of alternatives for IC assessment, Triandis's multimethod system and his latest efforts in assessing horizontal and vertical IC are by far the most advanced and sophisticated assessment tools available. These measure IC tendencies in different psychological domains, combining IC tendencies across a wide range of phenomena into a single measurement technique.

GOING BEYOND CURRENT APPROACHES

One conceptual area that psychometric work on IC can extend into is the mapping of IC tendencies in relation to specific persons or groups with whom people interact. Cultural assessment across multiple psychological domains provides a broad perspective of a person's IC tendencies, congruent with the view of IC as a syndrome. This approach, however, does not assess IC tendencies specific to interactions with certain types of social relationships. Although attitudes and values can transcend specific situations, there are substantial individual and group differences across situations, and these may not be captured well in broad assessments of IC across multiple psychological domains.

Triandis et al. (1988) have indicated that IC differences should be different in different social contexts, pointing to the conceptual necessity of incorporating this approach. People act differently depending on with whom they are interacting and the situation in which the interaction is occurring. A person could have collectivistic tendencies at home and with close friends and individualistic tendencies with strangers or at work, or vice versa. If a culture fosters collectivistic tendencies within self-ingroup relationships, it is unlikely that it would foster those same tendencies to the same degree in self-outgroup relationships. If it did, the meaning of collectivism, as defined by the ingroup-outgroup distinction, would be contrary to the fundamental definition of collectivism. That is, because collectivism is in large part defined by context-, group-, or relationship-specific attitudes, beliefs, and behaviors, variability across groups is a necessary ingredient to the conceptual and empirical understanding of IC. For example, it makes much sense for people of collectivistic cultures to endorse harmony or cooperation as a value. However, this endorsement is generally limited to self-ingroup rela-

tionships or other relationships that have a future potential. These same people will not necessarily harbor the same values in relation to self-outgroup relationships, and this discrepancy is in fact instrumental to the definition of collectivism.

This view of IC suggests the generation of relationship-specific scores on IC, rather than the production of single scores collapsed across contexts. To be sure, Hui's (1984, 1988) INDCOL addresses these concerns, but because items are specific to the collective rated, scores across collectives are not comparable because items confound collectives. One way to address this concern would be to derive items that could be used across social relationships. We developed a measure to address this concern and called this new measure the IC Interpersonal Assessment Inventory (ICIAI).

THE DEVELOPMENT OF THE ICIAI

We first gleaned from the existing literature values that defined IC that met the following criteria: (a) they applied to interpersonal interactions, and (b) they described general values related to specific relationships (e.g., obedience to authority, social responsibility, sacrifice, and loyalty). At first, we included all items that met the above criteria that were already included in the measurement techniques of Triandis (1995), Hui (1984, 1988), and Schwartz (1990); this led to a rather large pool of items. Then, we eliminated items that were specific statements tied to single actions, so that they could be applied to all relationships assessed and so-called universal values such as love and security, based on Schwartz's (1990) assertion that these serve both individualists and collectivists. These criteria for inclusion and exclusion resulted in the selection of 25 items (appendix). Next, we selected four social groups of interactants based on their collective differences: (a) family, (b) close friends, (c) colleagues, and (d) strangers.¹ Finally, we decided that ratings of values were not sufficient in understanding interpersonal tendencies and included ratings of behaviors as well.

In the first section of the ICIAI, participants rate the importance of the 25 value items in relation to the four social groups on a 0 to 6 scale anchored *not at all important* (0) to *very important* (6). In the second section, subjects rate how often they actually engage in those types of behaviors in relation to the four social groups, again using a 6-point scale anchored *never do it* (0) to *do it all the time* (6). Thus, the ICIAI assesses individual differences on IC across multiple IC tendencies (items), social groups, and domains (values and behaviors).

We report six studies involving the ICIAI. The first five assess its psychometric properties. Study 1 investigated scoring procedures and assessed

the internal reliability of the items. Study 2 assessed test-retest reliability. Studies 3 and 4 tested the validity of the ICIAI against other established measures. Study 5 compared the ICIAI to the brief version of Triandis's multimethod assessment and Hui's INDCOL scale. Study 6 examined whether the ICIAI could indeed reflect cultural differences across those countries and among ethnic groups within the United States.

STUDY 1

METHOD

Participants. The participants were 205 undergraduate and graduate students enrolled at San Francisco State University. The sample included 150 females and 53 males (2 were missing gender data). Different ethnicities were represented: 10 African Americans, 74 Asian Americans, 76 European Americans, 21 Hispanic/Latino Americans, and 24 others. Mean age was 24. All participants participated either voluntarily or in partial fulfillment of class requirements.

Instrument and procedure. The ICIAI was the sole instrument used in this study. Participants were given a copy that included instructions and a separate page of definitions for the four social groups. All participants completed the questionnaire either in class or at their leisure. They were instructed not to be too concerned with specific individuals within each of the four social groups, but rather to respond to the groups as general categories. Demographic information was obtained on a separate sheet. The questionnaire, along with the demographics, generally took 30 minutes to complete.

RESULTS AND DISCUSSION

Determination of scoring procedures. We conducted a number of analyses to determine the most appropriate scoring method. Although the 25 items exemplified core elements of IC, it was possible that subfactors existed. To test this, we first conducted principal components factor analyses on the 25 items, using both varimax and equamax rotations, and free and fixed (3, 4, 5, and 6) factors. These analyses were computed for each of the four social groups and two rating domains separately. We examined the findings for consistency within social relationships across rating domain and across social relationships within domain. No consistent factors were found at either level

of analysis. These results made it clear that we could not find a factor structure that would allow for meaningful comparisons across social relationships (which is one of the goals of the development of this measure) unless we interpreted a different factor structure for each social relationship and rating domain. Instead, we opted to interpret differences in findings as indicative of the unreliability of a multiple-factor model to summarize the data.

We then attempted a multidimensional scaling procedure to uncover possible dimensions underlying the items. A separate group of 51 university undergraduates made 7-point similarity ratings on all possible pairs of the 25 items. We subjected these ratings to both Kruskal's and Lingoes/Guttman scaling procedures in two and three dimensions. In all analyses, the items clustered around the center and no clear dimensions emerged. These findings reinforced our interpretation of the unreliability of an underlying factor solution to summarize the data.

We thus concluded that the most appropriate scoring procedure would be to average across the 25 items. Doing this, we then calculated means and standard deviations separately for each of the four social groups and two rating domains² (higher scores represent more collectivism; see Table 1).

Item analyses. Product moment and part-whole correlations were computed between individual items and total scores, resulting in a total of 400 coefficients (25 items \times 4 social groups \times 2 rating domains \times 2 correlations); 399 were significant, generally ranging from .4 to .6. Considering the large sample size, the magnitude of these correlations was substantial and provided us with further insight as to why no separate factors or dimensions emerged from the previous analyses.

Internal reliability. Split-half reliability of the ICIAI was tested using both Cronbach's and standardized alphas (see Table 1) separately for each of the four social groups and two rating domains. All alphas were high.

Ethnic differences. Because our sample consisted of people from different ethnic backgrounds, it was important to ensure that the reliability characteristics were comparable across ethnic groups. Thus, we recomputed the item analyses separately for Asian, European, and Hispanic/Latino Americans.³ The correlations were very comparable to those for the entire sample.⁴ We also recomputed the split-half reliabilities (alpha and standardized alpha) separately for the three ethnic groups. Across the groups, the alphas ranged from a .54 to .95, with a mean of .85, indicating that internal reliability was consistent across the different ethnic groups.

TABLE 1
**Individualism-Collectivism Interpersonal Assessment Inventory
 (ICIAI) Descriptive Statistics and Internal Reliabilities for Overall
 Sample (Study 1) and Test-Retest Correlations (Study 2)**

	<i>Social Group</i>			
	<i>Family</i>	<i>Friends</i>	<i>Colleagues</i>	<i>Strangers</i>
Values				
Mean	4.17	3.44	4.01	2.07
SD	(.84)	(.74)	(.73)	(.90)
Alpha	.90	.87	.86	.87
Standardized item alpha	.91	.88	.86	.88
Test-retest <i>r</i>	.88**	.78**	.77**	.80**
Behaviors				
Mean	3.98	3.37	3.87	1.98
SD	(.83)	(.84)	(.72)	(.93)
Alpha	.90	.87	.90	.90
Standardized item alpha	.91	.88	.90	.90
Test-retest <i>r</i>	.86**	.62**	.68**	.86**

** $p < .01$.

STUDY 2

Study 2 examined the test-retest reliability of the ICIAI. Thirty participants from the original sample of 205 in Study 1 completed the ICIAI 2 months after initial administration. The procedures were exactly the same as described in Study 1.

Product moment correlations were computed between the scores at first and second administration separately for each of the four social groups and two rating domains (see Table 1). Test-retest correlations computed separately for each item were slightly lower on the whole, but still highly comparable to those reported in Table 1.⁵

STUDY 3

METHOD

Participants. The sample for Study 3 was composed of 74 undergraduate and graduate students enrolled at San Francisco State University. All students participated either in partial fulfillment of class requirements or voluntarily.

Instruments. The Rokeach Value Survey (RVS) was used as the criterion test. The RVS has been used in cross-cultural research on cultural differences in values and value systems (e.g., Schwartz & Bilsky, 1987). Also, it included items and scales that should be related to individualistic and collectivistic values. The psychometric validity and reliability of the RVS is well established for U.S. samples (Rokeach, 1973).

The RVS contains 36 values—18 terminal and 18 instrumental. Participants rank order the values in importance as guiding principles in their lives. The terminal and instrumental values are rank ordered separately. Both item and scale analyses are available, with scales scored according to established guidelines (see Rokeach, 1973).

In this report, we computed total Values and Behaviors scores on the ICIAI, averaging across four total subgroup scores for the Values and Behaviors ratings, respectively.⁶ Although this scoring procedure was antithetical to the conceptual framework underlying the ICIAI, we felt that these total scores were the closest equivalents to overall ratings obtained in the RVS. That is, given that ratings on the RVS are not specific to different social groups, correlations between ICIAI subgroup scores and RVS totals would be confounded by differences in conceptual referents underlying the ratings.

Procedures. The ICIAI and RVS were administered to participants in two sessions separated by 2 weeks. For all participants, the ICIAI was administered first. We have no reason to suspect that order effects would influence the correlations between the ICIAI and RVS.

RESULTS AND DISCUSSION

Product moment correlations were computed between each of the 36 RVS items and the ICIAI Values and Behaviors total scores. Significant correlations are shown in Table 2. Both ICIAI Values and Behaviors were positively correlated with family security, cleanliness, and politeness and negatively with freedom. In addition, ICIAI Values were Negatively correlated with broad-mindedness and imagination.

Product moment correlations were also computed between the ICIAI Values and Behaviors scores and the seven RVS scale scores (see Table 2). Both ICIAI Values and Behaviors were positively correlated with other-versus inner-directed. Also, ICIAI Values were positively correlated with self-constriction versus self-expansion.

All of these correlations support the convergent validity of the ICIAI. Collectivism should be positively correlated with family security, as this

TABLE 2
Significant Validity Coefficients Between Individualism-Collectivism Interpersonal Assessment Inventory (ICIAI) and Rokeach Values Survey Items and Scales (Study 3)

	<i>ICIAI</i>	
	<i>Values</i>	<i>Behaviors</i>
Terminal values		
Family security	.25*	.25*
Freedom	-.26*	-.27*
Instrumental values		
Broad-mindedness	-.25*	
Imagination	-.27*	
Politeness	.38**	.35**
Cleanliness	.29*	.35**
Scales		
Self-constriction versus self-expansion	.30*	
Other- versus inner-directed	.33**	.26*

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

variable refers to harmony and safety within a primary collective. Collectivism should be positively related with politeness, as collectivistic cultures generally have stricter norms concerning social appropriateness. Collectivism should also be positively correlated with cleanliness, as both are related to rule-governed behavior and adherence to norms.

The negative correlations between ICIAI and freedom, broad-mindedness, and imagination were also expected. Freedom is a value that is not only encouraged by individualism, but is a necessary component of it. In fostering uniqueness, individualism should encourage broad-mindedness, creativity, and imagination. This tendency was also supported by the positive correlation between ICIAI and self-constriction versus expansion. The importance of other people and groups in determining and influencing values and behaviors in collectivistic cultures is also supported by the positive correlations between ICIAI and other- versus inner-directed.

We expected a negative correlation between ICIAI and the RVS item independent. We inspected the frequency distribution for this item and found that there was a restriction in range; most participants rated this item as one of their most important values. The near zero correlation between ICIAI and independent was due to this extreme restriction in range.

STUDY 4

METHOD

Participants. The sample for Study 4 was composed of 83 undergraduate and graduate students enrolled at San Francisco State University. All participated either in partial fulfillment of class requirements or voluntarily.

Instruments. The Adjective Check List (ACL) was used as the criterion test. The ACL consists of a list of 300 positive, negative, and neutral adjectives that can describe a person. Participants simply check off those adjectives reflective of themselves. ACL data were scored into 24 scales, using the established procedures. The ACL includes scales that should be related to IC values (e.g., autonomy, self-control, affiliation, etc.). The psychometric validity and reliability of the ACL is well established for U.S. samples (Gough & Helbrun, 1965). As in Study 3, we computed total Values and Behaviors scores for the ICIAI.⁷

Procedures. The ICIAI and ACL were administered to the participants in two separate sessions, separated by approximately 2 weeks. For all participants, the ICIAI was administered first. As in Study 3, we have no reason to suspect that order effects would influence the correlations obtained.

RESULTS AND DISCUSSION

Product moment correlations were computed between each of the 24 ACL scales and the ICIAI Values and Behaviors total scores. Significant correlations are shown in Table 3. Both ICIAI Values and Behaviors scores were positively correlated with deference and order. In addition, ICIAI Behavior scores were positively correlated with female defensiveness, favorable adjustment, self-control, personal adjustment, nurturance, endurance, and affiliation and negatively correlated with aggression. ICIAI Values were positively correlated with abasement and negatively with autonomy and change.

These correlations supported the convergent validity of the ICIAI. The positive correlations between collectivism and deference and abasement reflect collectivistic influences on politeness and social appropriateness, as found in Study 3. The positive correlations between collectivism and adjustment, self-control, and order also speak to the influence of social influences and rules on individual behavior in collectivities. The negative correlations between collectivism and autonomy, change, and aggression speak to the

TABLE 3
 Significant Validity Coefficients Between Individualism-
 Collectivism Interpersonal Assessment Inventory (ICIAI)
 and Adjective Check List Scales (Study 4)

	ICIAI	
	Values	Behaviors
Defensiveness (female)		.27*
Favorable adjustment		.22*
Self-control		.27*
Personal adjustment		.30**
Endurance		.27*
Order	.22*	.28*
Nurturance		.30**
Affiliation		.24*
Aggression		-.28*
Autonomy	-.22*	
Change	-.22*	
Abasement	.23*	
Deference	.35**	.33**

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

close relationship between individualism and autonomy and the lesser importance of rules on social appropriateness.

STUDY 5

METHOD

Participants. The participants for Study 5 included 135 undergraduate psychology students recruited at San Francisco State University, who participated either voluntarily or for extra credit. Thirty-seven were male and 97 were female (1 did not specify). Mean age was 26 years.

Instruments. Three IC measures were used in this study: the ICIAI, a brief version of Triandis's multimethod technique (T-IC), and Hui's (1984) IND-COL. The T-IC measure included only the attitudes and values components of Triandis's entire measure. Participants rate their attitudes on 14 items related to IC tendencies (e.g., "What happens to me is my own doing") using a 10-point scale anchored *absolutely false* (1) to *absolutely true* (10). Partici-

pants also rate a total of 9 IC-related values (e.g., freedom, obedience) on a 7-point scale anchored *not at all important* (0), *slightly important* (1), *somewhat important* (2), *important* (3), and *very important* (6). A total T-IC score was computed for each participant first by reverse coding the individualistic items and then by averaging across all attitudes and values items (higher scores reflect more collectivistic tendencies).

Hui's INDCOL (1984, 1988) measures an individual's IC tendencies in relation to six collectivities (spouse, parents and children, kin, neighbors, friends, and coworkers and classmates). Respondents indicate their agreement with statements describing IC tendencies in relation to each target collective (e.g., "If one is interested in a job about which the spouse is not very enthusiastic, one should apply for it anyway" for IC rating with the spouse collective) on a 6-point scale anchored *false* (0) and *true* (5). There are 8 items for spouse, 16 for parents and children, 8 for kin, 10 for neighbors, 10 for friends, and 11 for coworkers and classmates. Scores are summed across items within each collective and then across collectives to generate a GCI score.

Procedures. Because there is a large possibility in studies such as this that correlations be found across measures merely because of the proximity of the data collection, care was taken to separate the data collection into phases across a range of time. All data were collected in groups. The ICIAI was collected first, with the INDCOL and T-IC collected 4 weeks later.

RESULTS AND DISCUSSION

Descriptive statistics for all three measures are presented in Table 4. As an initial comparison, we computed alpha reliability coefficients on the IC scores generated by each of the three methods. There were considerable differences in the internal reliabilities for each; the alphas for the ICIAI were comparable to those reported earlier and higher than those for either the T-IC or the INDCOL. One reason for this is the relatively large (25) and constant set of items used to assess each social relationship in the ICIAI, which is not characteristic of either the T-IC or the INDCOL. Both have fewer items and thus lower reliabilities would be expected on this basis alone. However, there is some evidence also to suggest more consistency in the items of the ICIAI to measure a dimension of IC within each social relationship. The reliabilities for the total Values and Behavior scores of the ICIAI, for example, were lower than those for individual social relationships, despite the greater number of items, indicating that cutting across relationships decreased reliability.

TABLE 4
**Descriptive Statistics for All Measures and Internal
 Reliabilities for Individualism-Collectivism Measures (Study 5)**

	<i>Mean</i>	<i>SD</i>	α
ICIAI values			
Family	4.25	.81	.90
Friends	4.00	.67	.84
Colleagues	3.47	.68	.84
Strangers	2.22	.75	.82
Total	3.49	.56	.69
ICIAI behaviors			
Family	4.11	.80	.88
Friends	3.98	.65	.83
Colleagues	3.55	.74	.87
Strangers	2.27	.82	.84
Total	3.48	.56	.61
T-IC			
Attitudes	6.32	.82	.48
Values	4.69	.67	.66
Total	11.02	1.21	.62
INDCOL			
Spouse	2.23	.62	.36
Parent	3.16	.53	.37
Kin	2.73	.78	.58
Neighbor	2.17	.79	.67
Friend	2.81	.72	.64
Coworker	2.60	.59	.47
GCI	2.62	.36	.50

NOTE: GCI = General Collectivism Index; ICIAI = Individualism-Collectivism Interpersonal Assessment Inventory; INDCOL = Hui's (1984, 1988) scale to measure an individual's individualist-collectivist tendencies in relation to six collectivities; T-IC = Triandis's individualism-collectivism multimethod technique.

Higher reliabilities, however, do not necessarily suggest that the ICIAI is more meaningful in research than the other measures. As explained in Triandis (1995, appendix), meaningfulness should be determined by researchers examining the actual items used in each of the scales and making a determination about the utility of those specific items in relation to the goals of the study and the assessment. Assessment of general IC-related attitudes and values may be best served by the T-IC; assessment of specific IC-related behavioral tendencies in the specific collectives measured in the INDCOL would naturally be best assessed by the INDCOL. Thus, care and caution must be exercised in extrapolating these results to the question of utility in research.

We also computed product moment correlations among the three IC measures to index their degree of association with each other. These correlations were computed for the entire group and separately for males and females (order of cell entries in Table 5). The T-IC scores were not correlated with any of the ICIAI scores. It was, however, positively correlated for the entire group with the INDCOL scores for spouse and kin, and negatively with neighbor. A number of the INDCOL scores were correlated with a number of the ICIAI scores, indicating considerably more convergence of the ICIAI with the INDCOL than with the T-IC scores.

This pattern of correlations highlights the differences in the aspects of the IC construct measured by each of the scales. The T-IC focuses on attitudes and values as abstract principles related to a broad range of concepts (e.g., freedom, security) and are not necessarily related specifically to social interaction. On the other hand, the INDCOL measures aspects of IC that are specifically related to social relationships, providing some overlap and hence the correlations with the ICIAI. Unlike the ICIAI, however, it assesses IC constructs focusing on a smaller number of key concepts, and these concepts are more congruent with abstract values and principles assessed by T-IC—hence the correlations between T-IC and INDCOL. Therefore, the ICIAI may include items most specific to IC-related constructs vis-à-vis interaction and most removed from abstract principles across a wide range of values as measured by T-IC, with the INDCOL occupying an intermediary position. As mentioned above, researchers should choose which measure best suits the research question and needs.

STUDY 6

Study 6 assesses the validity of the ICIAI by examining differences across four countries on IC. Study 6 also tests the utility of the ICIAI to assess ethnic group differences on IC in the United States. As cultural differences on IC are typically examined via single-score approaches, the data obtained in Study 6 would be a unique look at IC differences across different contexts.

METHOD

Participants. The participants were university students in major cities in four countries: the United States, Japan, South Korea, and Russia. The U.S. sample included 285 participants, which included the data reported in Study 1 and additional data collected since (207 females, 72 males; 6 gender reports missing; mean age = 25). The Japanese sample included 60 males and 60

TABLE 5
Correlations Among the Three
Individualism-Collectivism Measures (Study 5)

ICIAI	Spouse	Parent	Kin	Neighbor	Friend	Coworker	GCI	T-IC
Values								
Family								
Group	.14 ^{†a}	.30**	.04	.09	.08	.09	.20*	.06
Male	.22 ^b	.50**	.01	.42*	.12	.38*	.43*	-.01
Female	.10 ^c	.16 [†]	.11	-.08	.01	-.03	.07	.10
Friend								
Group	.07	.32**	.01	.02	.10	.06	.15 [†]	.11
Male	.18	.48**	.04	.34 [†]	.06	.20	.35*	.16
Female	.02	.22*	.05	-.10	.04	.01	.05	.05
Colleague								
Group	.02	.13	-.10	.07	.11	.13	.10	.06
Male	.29 [†]	.34*	-.04	.22	-.03	.20	.26	.05
Female	-.09	-.00	-.09	.03	.12	.11	.02	.05
Stranger								
Group	.14 [†]	.06	.11	.10	.18*	.15 [†]	.23*	.09
Male	.12	.24	.26	.30 [†]	-.02	.19	.31 [†]	.16
Female	.14	-.04	.12	.06	.18 [†]	.15	.19 [†]	.03
Values total								
Group	.12	.26**	.02	.09	.15 [†]	.14 [†]	.22*	.10
Male	.25	.50**	.07	.41*	.05	.32 [†]	.42*	.09
Female	.06	.11	.07	-.03	.12	.08	.12	.08
Behaviors								
Family								
Group	.10	.25**	.12	.02	.05	.13	.18*	-.07
Male	.19	.38*	-.03	.33 [†]	.04	.26	.30 [†]	-.26
Female	.06	.17 [†]	.23*	-.12	.03	.09	.13	.04
Friend								
Group	.03	.23*	.06	-.01	.09	.07	.13	-.00
Male	.15	.34 [†]	-.02	.25	-.06	.01	.18	-.08
Female	-.04	.15	.16	-.13	.12	.10	.10	.03
Colleague								
Group	.02	.06	-.04	.07	.03	.08	.06	.04
Male	.45*	.28 [†]	-.06	.23	-.25	.04	.18	.04
Female	-.19 [†]	-.10	.02	.01	.11	.11	-.00	.01
Stranger								
Group	.13	-.00	.17 [†]	.07	.20*	.12	.21*	.05
Male	.19	.12	.10	.17	-.25	-.00	.10	.13
Female	.10	-.08	.25*	.04	.30**	.16 [†]	.26*	-.02
Behavior total								
Group	.09	.18*	.11	.05	.13	.14 [†]	.20*	.00
Male	.30 [†]	.35*	-.01	.31 [†]	-.16	.11	.25	-.06
Female	-.01	.05	.25*	-.07	.21*	.17 [†]	.18 [†]	.02

TABLE 5: Continued

ICIAI	Spouse	Parent	Kin	Neighbor	Friend	Coworker	GCI	T-IC
ICIAI total								
Group	.11	.23*	.07	.08	.14 [†]	.15 [†]	.22*	.06
Male	.29 [†]	.44*	.03	.37*	-.06	.22	.34*	.01
Female	.03	.08	.17 [†]	-.05	.17 [†]	.13	.16 [†]	.05

NOTE: GCI = General Collectivism Index. ICIAI = Individualism-Collectivism Interpersonal Assessment Inventory. T-IC = Triandis's individualism-collectivism multimethod technique.

a. *n* range = 92 to 93.

b. *n* range = 24 to 25.

c. *n* = 68.

p* < .05. *p* < .01. ****p* < .001. †*p* < .10.

females (mean age = 19) who were students at a university in Osaka. The South Korean sample included 36 males and 35 females (mean age = 22) recruited from a university in Seoul. The Russian sample included 9 males and 41 females (mean age = 21) recruited from a university in St. Petersburg. To test ethnic group differences, the U.S. participants were classified into one of four major ethnicities: African Americans (*n* = 21), Asian Americans (*n* = 84), European Americans (*n* = 114), and Hispanic/Latino Americans (*n* = 32). All other U.S. participants were either unclassifiable or had missing ethnicity data.

Instruments and procedures. The ICIAI was administered in groups or individually, according to the procedures outlined in Study 1. Prior to use in Japan, Korea, and Russia, the ICIAI was translated into the target language by a research assistant fluent in the language. Translation accuracy was verified by back-translation. All protocols were back-translated faithfully prior to use in any country.

RESULTS

Between-country differences. Means and standard deviations were computed for each of the four social groups, separately for the two rating domains and four countries (see Table 6). A four-factor ANOVA was computed, using Country (4) and Gender (2) as between-participants factors and rating Domain (2) and Social Group (4) as within-participants factors. Country differences were tested separately for each social group and rating domain, using a one-way ANOVA followed by Student-Newman-Keuls tests. For values toward family, the Russians and South Koreans were significantly more

TABLE 6
Means, Standard Deviations, One-Way ANOVAs, and Results of
Newman-Keuls Analyses on Raw Scores Across Countries (Study 6)

	<i>Japan</i>	<i>Russia</i>	<i>South Korea</i>	<i>United States</i>	<i>F</i>	<i>Newman-Keuls</i>
Values						
Family	3.48 (.91)	4.49 (.47)	4.39 (.78)	4.11 (.87)	27.58**	SK = RU > US > JA
Friends	3.83 (.68)	4.36 (.49)	4.06 (.63)	3.93 (.73)	7.77**	RU > JA = SK = US
Colleagues	3.44 (.71)	3.90 (.68)	3.43 (.64)	3.40 (.76)	6.81**	RU > JA = SK = US
Strangers	2.56 (.80)	2.79 (.89)	2.27 (.75)	1.99 (.90)	20.34**	RU = JA > SK > US
Behaviors						
Family	3.31 (.91)	4.14 (.60)	4.11 (.89)	3.93 (.83)	21.71**	RU = SK = US > JA
Friends	3.72 (.75)	4.00 (.69)	3.95 (.65)	3.84 (.69)	2.74*	None
Colleagues	3.45 (.79)	3.72 (.78)	3.33 (.67)	3.40 (.82)	2.85*	RU > JA = SK = US
Strangers	2.55 (.86)	2.57 (.78)	2.26 (.63)	1.97 (.94)	16.24**	RU = JA > SK > US

NOTE: JA = Japanese sample; RU = Russian sample; SK = South Korean sample; US = U.S. sample. Standard deviations are in parentheses.

** $p < .01$.

collectivistic than the Americans, which we expected. The Americans, however, were more collectivistic than the Japanese. For friends and colleagues, Russians were significantly more collectivistic than the other three countries. For strangers, Russians and Japanese were more collectivistic than South Koreans, who were in turn significantly more collectivistic than Americans. For behaviors, the Japanese were less collectivistic in relation to family than the other three countries. Behavior ratings for colleagues and strangers produced the same patterns of findings as Value ratings.

Because the above findings may have been confounded by response sets (see Matsumoto, 1993), we also tested for cultural differences by recomputing the above analyses on data standardized across individuals within each country. Interestingly, the findings were different than for the raw score analyses and highly consistent across both values and behaviors. The Japanese had significantly lower IC scores in relation to family, but significantly higher IC scores in relation to strangers than did the other three countries. There were no differences in relation to either friends or colleagues.⁸

Ethnic group differences on IC with the U.S. sample. Differences across the four American ethnic groups were tested using the same procedures as above, using raw scores only (see Table 7). Newman-Keuls analyses again indicated significant and interesting differences. For both values and behaviors, the European Americans had significantly lower IC scores than did the other three ethnic groups. European Americans also had significantly lower IC scores than the other three ethnic groups on behaviors with friends. Hispanic/Latino and Asian Americans had significantly higher IC scores than African and European Americans on values with friends.

GENERAL DISCUSSION

The studies presented in this article demonstrated the internal and temporal reliability, convergent validity (with the T-IC and INDCOL), predictive validity (with the RVS and ACL), and external validity of the ICIAI to detect cultural differences in between- and within-country samples. In cross-cultural work using this and other measures, there is no need to assume the existence of IC differences underlying the groups being tested. Instead, we can measure those differences and determine the exact degree to which those participants in those groups exhibit them. Cross-cultural studies testing other psychological variables in these groups can relate differences on these variables to measured differences on IC, not presupposed assumptions about IC.

IC differences within samples are also important. Classification based on country of origin or ethnicity assumes that the individuals in each group are all homogeneous representatives of their culture. Individually measuring IC differences eliminates this assumption. Within-group variances on IC also speak to this heterogeneity. These variations can be related to other psychological variables of interest. Cross-country differences can be tested after taking into account relationships with individual differences on IC in a covariance model, further refining our ability to test and extract cultural versus individual differences on behavior.

The ICIAI addresses a gap in the current availability of individual-level measures of IC as a measure of IC focused on interpersonal interactions in different social relationships. Other valid and reliable tests of IC exist (see review by Triandis, 1995, appendix), but for the most part, these assess IC as a broad-based, multifaceted construct or as a syndrome or constellation of different psychological constructs. The ICIAI may be considered as a focused measure of one of those facets.

One of the strengths of the ICIAI is to assess IC tendencies in different social relationships. Study 6 demonstrated clearly that common notions about

TABLE 7
Means, Standard Deviations, One-Way ANOVAs, and Results
of Newman-Keuls Analyses Across Ethnic Groups (Study 6)

	<i>African American</i>	<i>Asian American</i>	<i>Euro- American</i>	<i>Hispanic American</i>	F	<i>Newman-Keuls</i>
Values						
Family	4.36 (.92)	4.54 (.60)	3.62 (.88)	4.53 (.59)	24.85**	AF = AS = HI > EU
Friends	3.86 (.95)	4.23 (.64)	3.61 (.69)	4.25 (.66)	14.26**	HI = AS > AF = EU
Colleagues	3.09 (.82)	3.53 (.83)	3.33 (.71)	3.50 (.74)	2.44	None
Strangers	1.77 (.83)	2.12 (1.05)	1.94 (.77)	2.21 (1.00)	1.65	None
Behaviors						
Family	4.30 (.71)	4.20 (.68)	3.51 (.85)	4.40 (.59)	21.35**	AS = AF = HI > EU
Friends	3.92 (.68)	4.01 (.71)	3.57 (.64)	4.20 (.57)	11.35**	AS = AF = HI > EU
Colleagues	3.33 (.77)	3.36 (.96)	3.35 (.72)	3.69 (.78)	1.55	None
Strangers	1.78 (.70)	1.96 (1.07)	2.01 (.85)	2.33 (1.18)	1.62	None

NOTE: AF = African American. AS = Asian American. EU = Euro-American. HI = Hispanic American. Standard deviations are in parentheses.

** $p < .01$.

IC between countries and ethnicities are basically carried by specific social relationships. This interpretation would not have been possible had IC not been measured across contexts.

One surprising finding of Study 6 was that the Japanese sample was not more collectivistic than the U.S. sample. Several factors contributed to this finding. First, IC tendencies within Japan are changing (see Matsumoto, Kudoh, & Takeuchi, 1996, for evidence of these changes). Past stereotypic notions of IC for the Japanese culture are quickly eroding away, probably related to the affluence of the Japanese. Also, university life in Japan is generally seen as the last period in which individualism can be expressed before these same individuals must enter society and the general workforce. It is in this older society, and especially in the Japanese companies, that older traditions and values more closely match stereotypic notions of collectivism

and are reinforced. These dynamics of IC in Japan were coupled with the fact that our U.S. sample consisted of a large number of African, Asian, and Hispanic/Latino Americans, all of whom scored more collectivistic in some contexts than the European Americans. The U.S. sample was also older than the Japanese sample. Because of the relatively small and unequal sample sizes in the Japanese, South Korean, and Russian data, the data may not be entirely reliable and should be viewed with this caveat (although the trends in the data are certainly interpretable).

These contrary findings also highlight the importance of measuring IC. Without the measurement of IC, we would never have been able to detect the differences that we did and did not obtain. Had we tested the samples on some other behavior and found that the U.S. and Japanese samples did not differ in the predicted fashion, we would not have been able to relate those findings to nondifferences on IC had we not measured them. Thus, the measurement of IC differences in cross-cultural samples is important for predicting and explaining both findings and nonfindings.

The measurement of IC differences on the individual level is also applicable for ethnic group research in the United States as well. It seems that the only studies that deal with possible cultural differences in their U.S. samples are those looking for cultural differences. Also, many studies attempt to assess culture, usually via ethnicity, but either do not use it as a variable in the analysis or do not report its use. With measures like the ICIAI, researchers can assess culture on a psychological level for all participants in any type of study, assessing the contributions of individual differences in IC to their variables of interest. Certainly this is a prime consideration in U.S. research across ethnic groups, as exemplified in Study 6. Cross-ethnicity differences on emotion highlight these issues (Matsumoto, 1993). This issue is not limited to cross-ethnicity comparisons, as culture conceptualized and measured as a psychological variable can be considered in studies involving participants of any ethnicity.

The studies reported here were not without limitation, the first of which is the reliance on theorizing and a measurement method that is rooted in our own American, individualistic culture. The very way we think theoretically and approach research is influenced by our culture. The literature we have accessed, which provided the items in our measure, were also influenced by this culture. These factors have influenced our methods in easily observable ways, such as in the reliance on certain approaches to establishment of reliability and validity. However, these factors have probably influenced the development of the ICIAI and these studies in ways that we have not and could not realize. We acknowledge that possibility.

Convergent and predictive validity of any measure is highly dependent on the criterion variables used in the testing. Although the RVS and the ACL are both widely used and contain scales appropriate to test against the ICIAI, they differ considerably in their structure, neither of them producing relationship-specific scores. We are unsure of how the lack of equivalence in test structure between the ICIAI and RVS and ACL may have affected the validity coefficients, and we acknowledge this difference here.

Another limitation is our reliance on verbal report to inform us about IC tendencies in different contexts. Although we attempted to assess the difference between verbal values and actual behaviors by including both of these types of rating domains, it is clear that both are reliant on recall and report. We expect halo effects to influence the ratings, making it easier to find relationships between the rating domains that may not exist in actual behavior. Triandis (1995) outlined several different domains of measurement, including goals, attitudes, values, content analyses, observations, and laboratory behaviors. We look forward to examining the relationship between verbal reports on the ICIAI with these other domains.

Perhaps the largest limitation of this line of research concerns the compartmentalization of culture for research purposes. Culture, in its broadest and most global sense, is a conglomeration of many aspects of life, including not only sociopsychological dimensions like IC, but food, clothing, music, housing, values, beliefs, attitudes, behaviors, opinions, language, child rearing, socialization, and aging—in short, our entire way of life. Culture, in its entirety, cannot be swallowed in a single gulp.⁹ Yet, for research purposes, we find a limited number of psychologically relevant dimensions (like IC) and reduce those dimensions into single scores (like the ICIAI). In adopting this approach, it is easy to lose perspective, thinking that these scores become culture. Instead, these scores are estimates of a dimension that researchers have constructed to help us understand differences between groups. The value of measurement techniques of culture is not in their ability to represent culture in research; rather, it can be more aptly found in determining what aspects of behavior are related to this limited estimate of a single dimension of a construct we hope is related to cultural differences and to what degree.

APPENDIX
LIST OF THE INDIVIDUALISM-COLLECTIVISM
INTERPERSONAL ASSESSMENT INVENTORY (ICIAI) ITEMS

All items listed were used for both the Values and Behaviors ratings, with the difference in the instructions. When rating as values, participants rated the items as values: "general guiding principles for their actions." When rating as behaviors, participants self-reported the frequency with which they engaged in each of the items as actual behaviors.

1. To comply with direct requests from
 2. To maintain self-control toward
 3. To maintain status differences between you and
 4. To share credit for accomplishments of
 5. To share blame for failures of
 6. To respect and honor traditions and customs among
 7. To be loyal to
 8. To sacrifice your goals for
 9. To sacrifice your possessions for
 10. To respect elder
 11. To compromise your wishes to act together with
 12. To maintain harmonious relationships among
 13. To nurture or help
 14. To maintain a stable environment (e.g., maintain the status quo) among
 15. To accept your position or role among
 16. To follow advice for major decisions from
 17. To exhibit "correct" behaviors (i.e., proper manners and etiquette), regardless of how you really feel, toward
 18. To exhibit "correct" emotions, regardless of how you really feel, toward
 19. To be like or similar to members of
 20. To accept awards or recognition based only on age or position rather than merit from
 21. To cooperate with
 22. To communicate verbally with members of
 23. To "save face" of the members of
 24. To follow norms established by
 25. To identify yourself as a member of
-

NOTES

1. We selected these four social groups so as to survey individualism-collectivism (IC) tendencies across a range of groups that most people would be able to rate. Pilot work indicated more than four groups would be too unwieldy for participants. We also piloted specific relationships within these general categories; although IC tendencies can clearly differ according

to specific relationships, we deemed this structure sufficient for a first attempt at developing a relationship-specific measure. If reliability of the items can be demonstrated with this structure, then researchers interested in specific relationships should be able to use them instead. Other pilot work also indicated that the definitions given for these social groups captured the level of generality we were looking for.

2. One item—verbal communication—was correlated negatively with the total score and was thus reverse keyed prior to averaging.

3. The sample size for African Americans was too small to yield any meaningful results and thus were not included in these analyses.

4. These analyses were reported in full by Preston, Weissman, Brown, and Matsumoto (1993) and are available from David Matsumoto.

5. These analyses were reported in full by Preston et al. (1993).

6. Correlations were also computed separately for the social groups and for values and behaviors and were reported in Weissman, Matsumoto, Preston, and Brown (1993).

7. Full analyses using ICAI subgroup scores were reported in Weissman et al. (1993).

8. A report of these standardized analyses can be obtained from David Matsumoto.

9. This analogy was made by Roy Malpass (1993).

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