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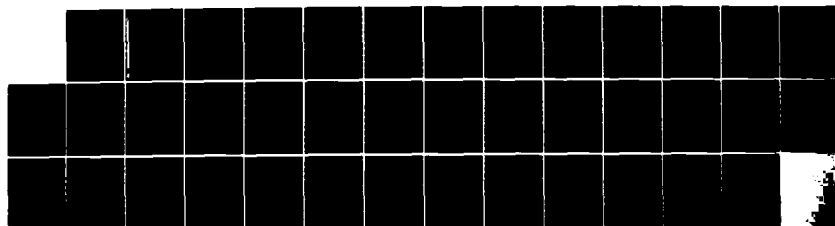
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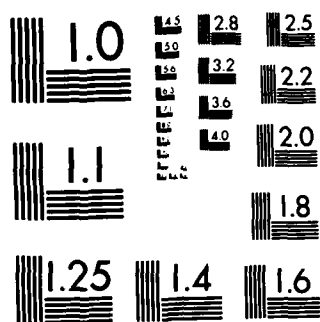
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PERSONNEL TECHNOLOGY

**AN EXAMINATION OF HISPANIC AND GENERAL POPULATION
PERCEPTIONS OF ORGANIZATIONAL ENVIRONMENTS**
(Harry C. Triandis, Principal Investigator)

AD-A143 803

CONVERGENT AND DISCRIMINANT VALIDATION
OF MEASURES OF COLLECTIVISM

Harry C. Triandis
Kwok Leung
Marcelo Villareal

Technical Report No. ONR-30

July, 1984

DEPARTMENT OF PSYCHOLOGY
UNIVERSITY OF ILLINOIS
URBANA-CHAMPAIGN, ILLINOIS 61820

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Abstract

Collectivism was studied with a multimethod questionnaire and Illinois undergraduates. Nine different scales measured aspects of collectivism with good reliability. These scales were intercorrelated, thus showing convergent validity. Through factor analysis it was determined that collectivism has three aspects: Subordination of Personal to Collective Goals, the Collective as Extension of the Self, and the Collective as a Source of Identity. Correlations with several attitude scales showed satisfactory discriminant validity. In addition, it was found that even in this individualistic sample, those who were collectivists preferred equality over equity in the distribution of rewards. ↑

Convergent and Discriminant Validation of Measures of Collectivism¹

Harry C. Triandis, Kwok Leung and Marcelo Villareal

University of Illinois, Urbana-Champaign

A major dimension of cultural variation that appears to contrast Europe north of the Alps and America north of the Rio Grande with the rest of the world (with the exception of numerous, but small, preliterate societies) is the relative emphasis on individual versus collective goals (Hofstede, 1980). In individualist societies most persons set for themselves goals that are often independent of (or even negatively correlated with) the goals of collectives, such as family, friends, tribe, corporation, or religious group. By contrast, in collectivist societies the goals of individuals and at least one collective are positively correlated.

Of course, it is possible that some of an individual's goals will be unrelated and some will be related to the goals of some collective. In such a case the individual would be both an individualist and a collectivist. At this early stage of research on this topic it is premature to decide whether individualism-collectivism must be construed as a single dimension or as two independent dimensions.

A substantial literature suggests that variations in the individualism-collectivism dimension have implications for both individuals and collectives. For example, individualism has been found to be associated with high levels of Gross National Product (Adelman & Morris, 1967; Cobb, 1976; Hofstede, 1980) but also to several forms of social pathology, such as high crime, suicide, divorce, child abuse, emotional stress, physical and mental illness rates (Cobb, 1976; Naroll, 1983). Collectivists tend to have happy marriages (Antill 1983), and are more likely to receive social support, which acts as a buffer of life-change stresses (Cohen & Hoberman, 1983). Low levels of social support make a person more vulnerable to mental illness (Sarason, Sarason & Lindner, 1983) while high levels of social support are likely to protect a person's

health (Gottlieb, 1983), make it more likely that a person will stop smoking, lose weight (Janis, 1983), and persist at a task under unfavorable conditions (Sarason, Irvine, Basham & Sarason, 1983).

Similarly, variations in this dimension have been considered in studies of morality (Shweder, 1982), religion (Bakan, 1966), work related values (Hofstede, 1980), the concept of limited good (Foster, 1965), broad value orientations (Kluckhohn & Strodtbeck, 1961), ecology and child-rearing patterns (Barry et al., 1959; Berry, 1979), cognitive differentiation (Witkin & Berry, 1975), economic development (Adelman & Morris, 1967), modernity (Inkeles & Smith, 1974; Berger, Berger & Kellner, 1973), the structure of constitutions of various states (Massimini & Calegari, 1979); analyses of cultural patterns (Hsu, 1981) have used variations of this dimension.

Studies of the subjective culture (Triandis, 1972) of various cultural groups show differences in collectivism. Thus Southern Italians (Banfield, 1958), Greeks (Triandis & Vassiliou, 1972), and Chinese (Hsu, 1971, 1981, 1983) tend to be collectivists, while Northern and Western European and North American populations tend to be individualistic (Inkeles, 1983; Stewart, 1966). While some aspects of collectivism may inhibit economic development (Adelman & Morris, 1967), the syndrome appears related to low levels of social pathology.

Individualism is a relatively stable attribute of Americans (Inkeles, 1983). It has been defended (Riesman, 1954, 1966; Waterman, 1981) and criticized (Hogan, 1975; Lasch, 1978; Rakoff, 1978; Sampson, 1977; Smith, 1978). Various attempts have been made to define patterns that are both individualist and collectivist (Kanfer, 1979; Rotenberg, 1977). This literature has been reviewed by Triandis (1985).

However, complexities do develop because collectivism appears to be both setting- and group-specific. Depending on the setting (family, work,

religion, politics, aesthetics, scientific work, the courts, schools, shops) and the specific group (family, friends, colleagues, co-workers, neighbors) individual and collective goals may or may not be intercorrelated.

Persons from a given culture appear to emphasize individual or collective goals in different settings and with different groups. This suggests that a fruitful approach to the study of this dimension may be the development of "profiles" which indicate whether the predominant tendency is individualistic or collectivist. In the case of a culture with a modal profile that is individualist we would then be justified to use the label individualist culture. Similarly, when the profile is predominantly collectivist we could label the culture that way.

Within this context, the present paper is an attempt to investigate the measurement of individualism-collectivism in some of its complexity. It is an exploratory effort designed to develop fine-grained methods of measurement, with the long-range view that they will help in a better understanding of how this dimension affects and is affected by diverse patterns of social behavior. We aim at convergent validity of the measurement, i.e. correlation among the various measures of collectivism, as well as discriminant validity, i.e. small correlations with variables that are conceptually similar, but not part of the collectivism domain. This strategy will allow us to circumscribe the meaning of the collectivism construct.

In addition, work by Leung and Bond (in press) suggested that collectivists may allocate to ingroup members more on the basis of the principle of equality than the principle of equity. To check on this possibility, with the present measures of collectivism, we employed a scenario which allowed the subjects to allocate money to different

targets, some of which were very competent and others not so competent, thus allowing us to see whether the subjects allocate more unequally to the competent than the non-competent target if they are individualists, and more equally if they are collectivists.

Method

Subjects

Ninety-one (47 males and 44 females) American undergraduates responded to a questionnaire as part of a regular course requirement.

Questionnaire

A 132-item questionnaire, measuring aspects of individualism/collectivism, was used. It included several types of items and scales. Selection of the items and scales was based on a theoretical understanding of the meaning of individualism/collectivism, and on the similarity of the scales to the construct of collectivism. This approach allows tests of the convergent and discriminant validity of the measures of the construct. The core items measured the following aspects:

Perceived similarity. 48 items measured the subject's perceived similarity to six collectives (the assumption being that collectivists will see themselves as more similar to their collectives across several settings than would individualists). Examples of items of this scale (abbreviated to SIM) are:

How similar are your views about what kind of work (job, career) you should do to those of your neighbors or those who live in your dorm?

How similar are your opinions about the kind of education that you should have to those of your neighbors or those who live in your dorm?

How similar are your views about what kind of work (job, career) you should do to those of your co-workers?

How similar are your views about what kind of work (job, career) you should do to those of an average person of your own nationality?

How similar are your opinions about the kind of education that you should have to those of your co-workers?

How similar are your views about where you should live (what neighborhood, city, country) to those of your neighbors or those who live in your dorm?

A 5-point scale ranging from "extremely similar" to "extremely different" was used. Thirty-seven of the 48 items had satisfactory item-total correlations; the Cronbach alpha for the scale was .89.

Paying attention (ATT). Forty-two items were concerned with paying attention to others. The assumption was that collectivists would pay more attention to others in more situations than will individualists. Examples of items are:

When you chose an intimate friend (including a spouse) how much attention would you (or did you) pay to the views of your acquaintances?

When deciding what work to do, how much attention would you (or did you) pay to the views of your co-workers?

When deciding what kind of education to have, how much attention do you pay to the views of your neighbors?

When deciding what kind of education to have, how much attention do you pay to the views of your co-workers?

Thirty-eight of the 42 items had satisfactory item-total correlations. The Cronbach alpha was .94.

Taking a trip (TRIP). Four items concerned a trip scenario as shown below:

Suppose you are very eager to take a long trip (for example, to study in another country for 2 years) and your absence will inconvenience the people listed below. How much weight would you give to your desires as opposed to the desires of your mother, your father, your spouse or close friend, and your relatives?

The Cronbach alpha for the four-item scale was .75.

Investing Money (INV). Eight items utilized a scenario in which the subject could invest money, such as:

Suppose you are planning to make an investment that is guaranteed to benefit your grandchildren, your great-grandchildren, and your children, and may or may not benefit you. You would miss the money and could use it to have fun now. Would you do it?

Six of these eight items showed satisfactory convergence and had a Cronbach alpha of .73.

Lottery (LOT). Four items utilized a scenario in which a person won a sum of money at a lottery. The wording was:

Suppose you won a large sum of money at a lottery. Would you give nothing, a little of it, much, a lot of it, or all of it to your grandchildren, your children, your parents, or your spouse or close friend?

The Cronbach alpha of this 4-item scale was .68.

Work Request (WORK). Eight items were concerned with a work request. The wording was:

Suppose that one of the persons listed below asked you to help with a job that takes about a week, during a time when you are very busy with your own work. How much help would you give? (e.g., your parents, your closest friend, your children)

Six of these items had satisfactory convergence and a Cronbach alpha of .85.

Loans (LOAN). Five items were concerned with giving loans. The wording was:

Suppose one of the persons listed below needs the money you have been saving to buy a new car. Your present car is still running, but it is unsure how long it will continue to run. Would you lend the money? (e.g. a relative, a friend, your parents.)

The LOAN scale had a Cronbach alpha of .82.

Honor about Nobel Prize (HNP). Six items were concerned with how much honor would the subject feel if another received the Nobel Prize.

The wording was:

Suppose one of these people--your spouse (or one of your parents, or your friend)--won the Nobel Prize. Would you feel somewhat honored that this has happened?

The six-item HNP scale had an alpha of .81.

Contribution to Others Winning Nobel Prize (CNP). Seven items concerned the subject's perceived contributions to winning the Nobel Prize. The wording was:

Suppose that one of the persons listed below won the Nobel Prize. Would you feel that you have contributed, even though in a small way, to the success of a friend? (or your spouse or close friend, or one of your parents)

The 7-item CNP scale had an alpha of .80.

Financial Scale (FIN). A scale was constructed by combining the six investment and five loan items. Nine of these 11 items converged with a Cronbach alpha of .81.

In addition to these specially constructed items which were designed to measure collectivism, we employed items which we believed might have some relevance to the construct. A Chinese Value Survey constructed by Bond (1983) which measured a person's emphasis on industry, hard work, humbleness, patriotism, loyalty to superiors, and harmony with others, where the subjects were required to indicate on a 9-point scale the relative importance of each of these attributes to them personally, showed a satisfactory convergence for 26 items and a Cronbach alpha of .9.

All of the above mentioned items were administered to all the subjects; however, since we wished to explore a broad range of items and there was limited time per subject, we also administered half of the following scales to a random half of the subjects and the remaining half of the scales to the remaining subjects.

Attitudes towards freedom of children (AFC)

Conservatism (CONS)

Familism (FAM)

Humanitarianism (HUM)

Interpersonal Orientation Scale (IOS)

Political-Economic Scale (PES)

Subscales: Political (P)

Economic (E)

These scales were obtained from the literatures as follows:

A scale by Koch, Dentler, Dysart, and Streit (1934) consisting of 13 items, measuring attitude towards the freedom of children, had a Cronbach alpha of .35. Examples of these items were:

It is necessary to teach a child that he cannot always have his own way.

The child should be taught to respect the wishes of his elders.

The Rundquist and Sletlo (1936) economic conservatism scale had items such as:

If our economic system were just, there would be much less crime. (reversed)

Money should be taken from the rich and given to the poor during hard times. (reversed).

The Cronbach alpha for the 10-item scale was .85.

The Bardis (1959) familism scale contained the following two examples:

A person should always support his uncles and aunts if they are in need.

Children below 18 should almost always obey their older brothers and sisters.

The Cronbach alpha for the 14-item scale was .81.

Kirkpatrick's (1949) humanitarianism scale contained:

The children in enemy countries should suffer as other children have been made to suffer for the sins of their parents. (reversed)

There are many criminals in United States prisons who could be best controlled by physical punishment. (reversed)

The Cronbach alpha for the eight-item humanitarianism scale was .77

A 29-item scale by Swap and Rubin (1983) measured interpersonal-orientation. Two examples of these items were:

When people tell me personal things about themselves, I find myself feeling close to them.

I generally view myself as a person who is not terribly interested in what other people are really like. (reversed)

The Cronbach alpha for these items was .43

The 15 items of the political and economic subscales were taken from Kerr's (1946) liberalism-conservatism scale. Examples of items from the political subscale are:

Should all able adults be permitted to vote?

Would you feel honored at being elected to a public office?

Examples of Kerr's economical subscales are:

Should farmers be guaranteed a minimum annual income?

Should every family be guaranteed a minimum standard of living?

The Cronbach alpha for the political subscale was .73; for the economical subscale .82. Putting the two together we got a political-economical 15-item scale with Cronbach alpha of .79.

Allocation Scenario

After the subjects had responded to these items, they were required to read a scenario in which the job performance and family situations of four sales representatives working for the same company were described.

The scenarios were actually constructed from a 2x2 factorial design, with two levels of performance (superb vs. mediocre) and two levels of financial need (high vs. low). Each employee represented one of the four conditions resulting from crossing the two factors. The first employee was described as employing superb sales promotion techniques and as a consequence contributing to the increase in sales volume of the company. Furthermore, he had a large family with five children and often had financial problems. The second employee was described as using only mediocre promotion techniques, and as a consequence contributing little to the increase in the sales volume of the company. He had a small family with one child, and therefore enjoyed quite a comfortable living. With similar descriptions, the third employee was described as performing well and having a small family, while the fourth employee's performance was described as mediocre and his family was large.

Subjects were asked to assume the role of the manager of a company and decide how to allocate a bonus of \$10,000 among these four employees. This allocation was zero-sum because the sum of the bonuses each employee received had to sum exactly to \$10,000. Subjects were also asked to do a non-zero-sum allocation, in which each employee could receive a maximum of \$5,000 and the amount of money each employee received was independent of how much the other employees received. Subjects were provided with a detailed explanation of the study at the end of the experiment.

Results

There were minor sex differences,² and hence the data from the two sex groups were merged. A factor analysis of the collectivism scales, with multiple correlations squared as the communalities, and a varimax rotation, resulted in the three factors shown in Table 1, which accounted for 57 percent of the common variance.

Factor 1: appears to reflect Subordination of Personal to Collective Goals. It accounted for 30 percent of the common variance. The three highest loading scales are the TRIP, WORK, and LOAN scales. In each case the person takes very seriously the needs of others, and subordinates own needs to those of others.

Factor 2: appears to reflect the Collective as Extension of Self. It accounted for 15 percent of the common variance. The highest loading scale is HNP, feeling honored by Other's Nobel Prize. The other two high loading scales INV and LOAN show that the person feels obligated to invest or loan money to members of the collective. Thus in all three cases the collective and the self are extensions of each other.

Factor 3: appears to reflect the Collective as Source of Identity. It accounted for 13 percent of the common variance. This factor with its emphasis on attention to others, reflects concern for others, as was the case in Hui's (1984) work.

When the values scale is added to the factor analysis, the three factors emerge again, but now the Extension factor is first, and the Value scale loads .61 on that factor. Apparently, those with values emphasizing humbleness, industry, patriotism, loyalty to superiors, and harmony with

others are particularly likely to see the Collective and the Self as extensions of each other.

We performed factor analyses in which we included in addition to the collectivism items the other scales. In the first data set, which included half these scales the Extension factor emerged first, and the second factor merged the Identity and the Subordination of Own Goals factors, the third factor reflected Conservatism and a Controlling Attitude toward children. The second data set had a first factor which included the Extension factor, on which the Values scale had a loading of .71 and the Humanitarianism scale a loading of .56. Thus, those who were high on Extension tended to agree that industry, humbleness, etc. are very important and to disagree with statements such as "children in enemy countries should suffer..." In other words, their extension leads them to extend to or feel empathic about children in enemy countries. The second factor emphasized Similarity to Others and Subordination of Goals. The third was of little interest: it consisted of the two Nobel Prize items.

Table 2 shows the correlations among the various measures of collectivism. The first set of variables are the core and the second set the peripheral measures of collectivism. It can be seen that the core measures intercorrelate at high levels. In fact, 44 percent of the cells have significant correlations, and of the 16 correlations four are at $p < .001$ and six at $p < .01$. In the case of the correlations between the core and the peripheral measures only 28% of the correlations are significant, and of those 20 correlations eight are at $p < .001$ and only one at $p < .01$.

The highly significant correlations are with the Chinese Values Scale, and the Political and Economical Scales. They indicate that collectivists value industry, resistance to corruption, humbleness, patriotism and loyalty to superiors, while individualists are less enthusiastic or concerned about these values. It would seem reasonable that the last three values in particular would be linked to collectivism.

The correlations with the Political and Economic scale indicate that collectivists disagree with items that advocate social welfare. It must be recalled that most of the collectivist items reflect relations with family. So, those who are highly supportive of their family are not supportive of social welfare.

In summary, the convergent validity of the collectivism scales is good, and the discriminant validity is moderately good.

Further Analysis of Similarity to Others

The similarity of the subject to six Others (parents, relatives, friends, neighbors, co-workers, and co-nationals) with respect to different behaviors is shown in Table 3. There is a main effect for behavior [$F(7,595) = 22.54, p < .001$] with maximum similarity in the area of education (3.98) and work selection (3.41) and minimum in the area of musical tastes (3.09) and selection of religion (3.08). There is also a main effect for Other, [$F(5,425) = 63.91, p < .001$] with maximum similarity for friends (3.84) and parents (3.66) and minimal for co-workers (3.01). The behavior by type of other interaction is also significant [$F(35,2975) = 16.75, p < .001$].

Further Analysis of Attention Judgments

A similar analysis for attention judgments showed that both the type of behavior [$F(6,486) = 13.23, p < .001$] and the type of Other [$F = 163.62,$

$p < .001$] were significant, but there was also a sex effect [$F(5,405) = 3.3$, $p < .006$]. Skipping the details it can be summarized as follows: Females are paying attention to the views of parents and friends about shopping, spouse selection, and education more than do males; they are also more influenced by friends about musical tastes than are males. Males are influenced more than females by friends in the areas of religion and politics.

Organization of Collectivism Instrument According to Target Persons

Hui (1984) developed a measure of collectivism that has six scales: Collectivism toward Spouse, Parents, Kin, Friends, Co-Workers and Neighbors. He has shown that these scales predict better than general measures of collectivism social events involving the particular targets. Thus, it would seem desirable to assemble our current items according to the targets that we have in hand. We were able to develop a Parents Collectivism scale (12 items, with Cronbach alpha of .80), which tapped collectivism across the SIM, ATT, TRIP, INV, LOT WORK, LOAN, HNP and CNP scales, using only those items that refer to Parents.

Similarly, we derived a Relatives scale with 15 items, and an alpha of .83; a Close Friend scale, with 11 items and an alpha of .80; a Co-worker scale with 16 items and an alpha of .85; and a Neighbor scale with 16 items and an alpha of .83. We then considered our several scales (SIM...CNP) and the five Target Persons, and did a factor analysis to see how these scales were grouped in the responses of the subjects. Factor 1 had high loadings on the pay Attention items, with the highest loadings on paying attention to Co-workers (.84), and Neighbors (.77); factor 2 on the Trip items, with highest loadings on Mother (.85) and Father (.70); factor 3 on the Honor when the Other Receives a Nobel Prize items (HNP), with highest loadings

on Parent (.73) and Friend (.66); factor 4 on Work, with highest loadings on Parents (.79) and Close Friends (.62); and the last factor was on Loans, with high loadings on relatives (.87) and Friend (.49).

Thus, it is possible to use the present items to construct scales like the scales developed by Hui, but it appears that the organization of these scales is according to the activity rather than target person. However, this last point may be due to the way the items were presented: It must be recalled that the loan items were presented together, the work items together, and so on. In any case, the present method of data collection lends itself to obtaining collectivism data either according to the various scales such as SIM...CNP or according to the target persons, such as Parents and Neighbors.

Allocation of Resources

The mean allocations of the subjects to the salesmen who were high or low in competence and high or low in need are shown in Table 4. The need effect was much stronger than the competence effect. The $F(1,89)=200.5$, $p<.0000$ for need and $F(1,89)=13.0$, $p<.0005$ for competence show both effects to be most reliable, and the interaction is almost significant [$F(1,89)=3.954$, $p<.0527$]. With such an overwhelming need effect it is difficult to obtain useful information about the tendency of subjects to use equity vs. equality. (We clearly overdesigned the scenario to give results other than equity, which are the typical results obtained with American Ss).

In the zero sum situation six Ss followed equality,³ 83 need, and 18 equity. Allocation according to the equity norm was significantly correlated with the INV + LOAN scale ($r=.27$, $p<.006$, $df=89$). Those who

would not loan or invest in others used equity. A correlation of $-.30$ ($p < .002$, $df=89$), between the INV + LOAN scale and the amount of money allocated to the high need--low competence salesman indicates that those who would loan and invest in others would give more to this salesman. Thus, collectivists seem more "soft-hearted", giving more to a person who is in need, though this person is not very competent. By contrast these collectivists would give less to the low need--high competence salesman ($r = .32$, $p < .001$, $df=89$).

When the scenario allowed for a non-zero sum distribution of bonuses to the salesmen, six persons used equality, 84 need, and 22 equity. The equity norm again correlated with allocation to the low need--high competence salesman $r = .34$ ($p < .001$, $df=89$). The more collectivist Ss deviated less from equality than the less collectivist ($t = 3.62$; $p < .001$).

Discussion

There is good convergent validity among the measures of collectivism employed in this study. However, collectivism is not a unitary construct. In this data we could detect three separate themes: Extension of the Self to the Collective, Subordination of the Self Goals to the Collective's Goals, and the Collective as a Source of Identity.

It is important to keep in mind that these factors were obtained from the responses of American subjects who, according to Hofstede's (1980) study, are highly individualistic. It remains to be seen how collectivism is structured in collectivist cultures.

Hui's (1984) intensive analysis of the concern-for-others domain identified concern for different others, as separate scales. Thus, he obtained evidence of separate concerns for parents, relatives, friends,

neighbors, co-workers, etc. Intensive examination of the items used in the present study indicates that they tend to be more linked to close relatives than to other targets. For instance, the scales that have high loadings, such as the WORK scale, involve parents, closest friend and children; the Honor for Nobel Prize scale involve spouse, parents, and friend. Only the Attention (ATT) and Similarity (SIM) scales covered the full range of collectives covered by Hui. Thus, one may assume that the total domain of collectivism is unequally differentiated. In the area of close relatives there may be three aspects; in the case of the more remote collectives concern may be the only important aspect, since extension of the self-to-others becomes a less significant factor when the collectives are remote, and subordination of the goals of the self to the goals of the collectives is less likely when the collective is remote. However, the degree of differentiation among the three aspects of collectivism, at different levels of remoteness of the collective from the self, undoubtedly varies with culture and personality and requires further investigation.

The attitude scales that were included in this study did not correlate especially well with collectivism, thus suggesting adequate discriminant validity of the collectivism construct.

Finally, the scenario included to study allocation behavior, proved of limited utility, because it over-emphasized need, thus not giving us a chance to examine the equity vs. equality distribution of rewards in its full range. However, even with this limited range, the data are consistent with the hypothesis that collectivists will be more influenced by equality than individualists, who are more likely to prefer equity.

This study provides evidence that collectivism can be measured

both reliably and with considerable convergent and discriminant validity. While the particular measures are not necessarily the best measures of the construct, since additional research is needed to determine how they converge with Hui's (1984) measure and other measures, they are highly promising.

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Footnotes

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2. Men agreed to a greater extent than women with the proposition, "A person should always be expected to defend his family against outsiders even at the expense of his own personal safety." The means were men 1.7, women 2.7, $t = -3.17$, $p < .001$, the df of 89 (on a 1=strongly agree, 5=strongly disagree scale).

Women disagreed more than the men with "The family should have the right to control the behavior of each of its members completely" (the means for the women 4.5, the men 3.8, $t = -3.17$, $p < .003$, df same).

Men agreed more with "Most elected politicians are honest" (women 3.3 vs. men 2.5, $t = -3.07$, $p < .004$, df=89).

Women thought they were extremely similar in the case of "How similar are your opinions about the kind of education that you should have to those of your close friends?" (4.5 vs. 4.0, $t = -2.70$, $p < .008$, df=89).

Men paid less attention than women in the case of "When deciding where to shop, and what to buy, how much attention do you pay to the views of your parents?" (women 3.9 vs. men 3.0, $t = -4.21$, $p < .001$, df=89) and "...of your close friends?" (women 4.2 vs. men 3.5, $t = -3.33$, $p < .001$, df=89)

3. The equality index was the sum of the absolute values of the allocations to each of the four employees subtracted from \$2500. An index close to zero indicates equality, since the optimal equality case is the one where each employee receives \$2500.

Table 1Factor Analysis of Collectivism Scales (decimals omitted)

Scale	Factor 1	Factor 2	Factor 3
Similarity to Others	24	31	<u>34</u>
Attention to Others	13	01	<u>77</u>
Weighing Other's Desires-Trip	<u>59</u>	06	10
Investing to favor Others	28	<u>38</u>	-06
Sharing Lottery gains with O	<u>38</u>	08	01
Helping Others when they require help with Work	<u>68</u>	07	11
Making Loan to Others	<u>51</u>	<u>35</u>	04
Feeling honored when O gets Nobel Prize	22	<u>94</u>	11
Feeling one has contributed to O's getting Nobel Prize	-15	28	24

Note: The underlined loadings are unlikely to have occurred by chance. This is computed from Cliff and Hamburger's (1967) Monte Carlo study, setting p at less than .00193, since with 27 loadings none should be significant by chance at that alpha level. In other words, the probability that any one of the underlined loadings is not significant is $27 \times .00193 = .052$.

Table 2

Intercorrelations among the Measures

	Core Collectivism Measures								Peripheral Collectivism Measures								
	SIMa	ATTa	TRIPa	INVa	LOTa	WORKa	LOANa	HNPa	CNPa	VAIa	AFCb	CONSh	FAMb	HUMc	IOSc	Pc	Ec
SIM																	
ATT	.32 ^{***}																
TRIP																	
INV	.25 ^{**}																
LOT		.23 [*]	.18 [*]														
WORK		.30 ^{***}			.27 ^{***}												
LOAN	.24 [*]	.28 ^{***}	.34 ^{***}			.38 ^{***}											
HNPa	.39 ^{***}	.20 [*]	.40 ^{***}	.19 [*]	.43 ^{***}												
CNP								.31 ^{***}									
VAL	.46 ^{***}		.38 ^{***}	.23 [*]	.44 ^{***}	.42 ^{***}											
AFC										-.41 ^{**}							
CONS	.26 [*]								-.29 [*]								
FAM		-.26 [*]															
HUM			.25 [*]							.30 ^{**}							
IOS		.29 [*]															
P	.54 ^{***}		.35 ^{***}					.64 ^{***}	.62 ^{***}	.58 ^{***}				.48 ^{***}			
E			.29 [*]					.51 ^{***}									.29 [*]

Note: a has N=88; b has N=44; c has N=47 (in a few cases missing values reduce these to as low as 81, 43 and 38 respectively)

* $P < .05$

** $P < .01$

*** $P < .001$

Table 3

Source by Behavior Means for Similarity to Different Persons

	Religious Views	Spouse Selection	Musical Taste	Education	Where To Live	Political Views	Where to Shop	Work Selection
Parents	3.82	3.72	2.29	4.55	3.76	3.63	3.56	3.95
Relatives	2.99	3.26	2.29	4.16	3.37	3.06	3.06	3.35
Friends	3.39	3.85	4.15	4.25	3.72	3.40	4.02	3.91
Neighbors	2.79	3.17	3.46	4.01	3.09	3.14	3.26	3.28
Co-Workers	2.60	2.93	3.11	3.46	3.07	2.91	2.90	3.08
Co-Nationals	2.91	2.93	3.24	3.44	3.13	2.85	2.85	2.91

Table 4

Mean Allocations in Dollars to Salesmen who were Competent or not
with high or low levels of need for money

	Not Too Competent	Extremely Competent
Has large family and financial problems	\$3,832.42	\$4,170.33
Has small family and no financial problems	\$ 901.10	\$1,118.13

LIST 1
MANDATORY

Defense Technical Information Center (12)
ATTN: DTIC DDA-2
Selection and Preliminary Cataloging Section
Cameron Station
Alexandria, VA 22314

Library of Congress
Science and Technology Division
Washington, D.C. 20540

Office of Naval Research (3)
Code 4420E
800 N. Quincy Street
Arlington, VA 22217

Naval Research Laboratory (6)
Code 2627
Washington, D.C. 20375

Office of Naval Research
Director, Technology Programs
Code 200
800 N. Quincy Street
Arlington, VA 22217

LIST 2
ONR FIELD

Psychologist
Office of Naval Research
Detachment, Pasadena
1030 East Green Street
Pasadena, CA 91106

LIST 3
OPNAV

Deputy Chief of Naval Operations
(Manpower, Personnel, and Training)
Head, Research, Development, and
Studies Branch (Op-115)
1812 Arlington Annex
Washington, DC 20350

Director
Civilian Personnel Division (OP-14)
Department of the Navy
1803 Arlington Annex
Washington, DC 20350

Deputy Chief of Naval Operations
(Manpower, Personnel, and Training)
Director, Human Resource Management
Plans and Policy Branch (Op-150)
Department of the Navy
Washington, DC 20350

Chief of Naval Operations
Head, Manpower, Personnel, Training
and Reserves Team (Op-964D)
The Pentagon, 4A478
Washington, DC 20350

Chief of Naval Operations
Assistant, Personnel Logistics
Planning (Op-987H)
The Pentagon, 5D772
Washington, DC 20350

LIST 4
NAVMAT & NPRDC

Program Administrator for Manpower,
Personnel, and Training
MAT-0722
800 N. Quincy Street
Arlington, VA 22217

Naval Material Command
Management Training Center
NAVMAT 09M32
Jefferson Plaza, Bldg #2, Rm 150
1421 Jefferson Davis Highway
Arlington, VA 20360

Naval Material Command
Director, Productivity Management Office
MAT-00K
Crystal Plaza #5
Room 632
Washington, DC 20360

Naval Material Command
Deputy Chief of Naval Material, MAT-03
Crystal Plaza #5
Room 236
Washington, DC 20360

Naval Personnel R&D Center (4)
Technical Director
Director, Manpower & Personnel
Laboratory, Code 06
Director, System Laboratory, Code 07
Director, Future Technology, Code 41
San Diego, CA 92152

Navy Personnel R&D Center
Washington Liaison Office
Ballston Tower #3, Room 93
Arlington, VA 22217

LIST 5
BUMED

Commanding Officer
Naval Health Research Center
San Diego, CA 92152

Psychology Department
Naval Regional Medical Center
San Diego, CA 92134

Commanding Officer
Naval Submarine Medical
Research Laboratory
Naval Submarine Base
New London, Box 900
Groton, CT 06349

Director, Medical Service Corps
Bureau of Medicine and Surgery
Code 23
Department of the Navy
Washington, DC 20372

Commanding Officer
Naval Aerospace Medical
Research Lab
Naval Air Station
Pensacola, FL 32508

Program Manager for Human
Performance (Code 44)
Naval Medical R&D Command
National Naval Medical Center
Bethesda, MD 20014

Navy Health Research Center
Technical Director
P.O. Box 85122
San Diego, CA 92138

List 6

NAVAL ACADEMY
AND NAVAL POSTGRADUATE SCHOOL

Naval Postgraduate School (3)
ATTN: Chairman, Dept. of
Administrative Science
Department of Administrative Sciences
Monterey, CA 93940

Superintendent
Naval Postgraduate School
Code 1424
Monterey, CA 93940

U.S. Naval Academy
ATTN: Chairman, Department
of Leadership and Law
Stop 7-B
Annapolis, MD 21402

Superintendent
ATTN: Director of Research
Naval Academy, U.S.
Annapolis, MD 21402

LIST 7
HRM

Officer in Charge
Human Resource Management Detachment
Naval Air Station
Alameda, CA 94591

Officer in Charge
Human Resource Management Detachment
Naval Submarine Base New London
P.O. Box 81
Groton, CT 06340

Officer in Charge
Human Resource Management Division
Naval Air Station
Mayport, FL 32228

Commanding Officer
Human Resource Management Center
Pearl Harbor, HI 96860

Commander in Chief
Human Resource Management Division
U.S. Pacific Fleet
Pearl Harbor, HI 96860

List 7 (Continued)

Officer in Charge
Human Resource Management Detachment
Naval Base
Charleston, SC 29408

Commanding Officer
Human Resource Management School
Naval Air Station Memphis
Millington, TN 38054

Human Resource Management School
Naval Air Station Memphis (96)
Millington, TN 38054

Commanding Officer
Human Resource Management Center
1300 Wilson Boulevard
Arlington, VA 22209

Commanding Officer
Human Resource Management Center
5621-23 Tidewater Drive
Norfolk, VA 23511

Commander in Chief
Human Resource Management Division
U.S. Atlantic Fleet
Norfolk, VA 23511

Officer in Charge
Human Resource Management Detachment
Naval Air Station Whidbey Island
Oak Harbor, WA 98278

Commanding Officer
Human Resource Management Center
Box 23
FPO New York 09510

Commander in Chief
Human Resource Management Division
U.S. Naval Force Europe
FPO New York 09510

Officer in Charge
Human Resource Management Detachment
Box 60
FPO San Francisco 96651

Officer in Charge
Human Resource Management Detachment
COMNAVFORJAPAN
FPO Seattle 98762

LIST 8
NAVY MISCELLANEOUS

Naval Military Personnel Command (2)
HRM Department (NMPC-6)
Washington, DC 20350

Naval Training Analysis
and Evaluation Group
Orlando, FL 32813

Commanding Officer
ATTN: TIC, Bldg. 2068
Naval Training Equipment Center
Orlando, FL 32813

Chief of Naval Education
and Training (N-5)
Director, Research Development,
Test and Evaluation
Naval Air Station
Pensacola, FL 32508

Chief of Naval Technical Training
ATTN: Code D17
NAS Memphis (75)
Millington, TN 38154

Navy Recruiting Command
Head, Research and Analysis Branch
Code 434, Room 8001
801 North Randolph Street
Arlington, VA 22203

Navy Recruiting Command
Director, Recruiting Advertising Dept.
Code 40
801 North Randolph Street
Arlington, VA 22203

Naval Weapons Center
Code 094
China Lake, CA 93555

Jesse Orlansky
Institute for Defense Analyses
1801 North Beauregard Street
Alexandria, VA 22311

LIST 9
USMC

Headquarters, U.S. Marine Corps
Code MPI-20
Washington, DC 20380

Headquarters, U.S. Marine Corps
ATTN: Scientific Adviser,
Code RD-1
Washington, DC 20380

Education Advisor
Education Center (EO31)
MCDEC
Quantico, VA 22134

Commanding Officer
Education Center (EO31)
MCDEC
Quantico, VA 22134

Commanding Officer
U.S. Marine Corps
Command and Staff College
Quantico, VA 22134

LIST 14
CURRENT CONTRACTORS

Dr. Clayton P. Alderfer
Yale University
School of Organization and Management
New Haven, Connecticut 06520

Dr. Janet L. Barnes-Farrell
Department of Psychology
University of Hawaii
2430 Campus Road
Honolulu, HI 96822

Dr. Jomills Braddock
John Hopkins University
Center for the Social Organization
of Schools
3505 N. Charles Street
Baltimore, MD 21218

Dr. Jeanne M. Brett
Northwestern University
Graduate School of Management
2001 Sheridan Road
Evanston, IL 60201

Dr. Terry Connolly
University of Arizona
Department of Psychology, Rm. 312
Tucson, AZ 85721

Dr. Richard Daft
Texas A&M University
Department of Management
College Station, TX 77843

Dr. Randy Dunham
University of Wisconsin
Graduate School of Business
Madison, WI 53706

Dr. Henry Emurian
The Johns Hopkins University
School of Medicine
Department of Psychiatry and
Behavioral Science
Baltimore, MD 21205

Dr. Arthur Gerstenfeld
University Faculty Associates
710 Commonwealth Avenue
Newton, MA 02159

Dr. J. Richard Hackman
School of Organization
and Management
Box 1A, Yale University
New Haven, CT 06520

Dr. Wayne Holder
American Humane Association
P.O. Box 1266
Denver, CO 80201

Dr. Daniel Ilgen
Department of Psychology
Michigan State University
East Lansing, MI 48824

Dr. Lawrence R. James
School of Psychology
Georgia Institute of
Technology
Atlanta, GA 30332

Dr. David Johnson
Professor, Educational Psychology
178 Pillsbury Drive, S.E.
University of Minnesota
Minneapolis, MN 55455

Dr. Dan Landis
The University of Mississippi
College of Liberal Arts
University, MS 38677

Dr. Frank J. Landy
The Pennsylvania State University
Department of Psychology
417 Bruce V. Moore Building
University Park, PA 16802

Dr. Bibb Latané
The University of North Carolina
at Chapel Hill
Manning Hall 026A
Chapel Hill, NC 27514

Dr. Cynthia D. Fisher
College of Business Administration
Texas A&M University
College Station, TX 77843

Dr. Lynn Oppenheim
Wharton Applied Research Center
University of Pennsylvania
Philadelphia, PA 19104

Dr. Thomas M. Ostrom
The Ohio State University
Department of Psychology
116E Stadium
404C West 17th Avenue
Columbus, OH 43210

Dr. William G. Ouchi
University of California,
Los Angeles
Graduate School of Management
Los Angeles, CA 90024

List 14 (continued)

Dr. Robert Rice
State University of New York at Buffalo
Department of Psychology
Buffalo, NY 14226

Dr. Irwin G. Sarason
University of Washington
Department of Psychology, NI-25
Seattle, WA 98195

Dr. Benjamin Schneider
Department of Psychology
University of Maryland
College Park, MD 20742

Dr. Edgar H. Schein
Massachusetts Institute of
Technology
Sloan School of Management
Cambridge, MA 02139

Dr. H. Wallace Sinaiko
Program Director, Manpower Research
and Advisory Services
Smithsonian Institution
801 N. Pitt Street, Suite 120
Alexandria, VA 22314

Dr. Richard M. Steers
Graduate School of Management
University of Oregon
Eugene, OR 97403

Dr. Siegfried Streufert
The Pennsylvania State University
Department of Behavioral Science
Milton S. Hershey Medical Center
Hershey, PA 17033

Dr. Barbara Saboda
Public Applied Systems Division
Westinghouse Electric Corporation
P.O. Box 866
Columbia, MD 21044

Dr. Anne S. Tsui
Duke University
The Fuqua School of Business
Durham, NC 27706

Andrew H. Van de Ven
University of Minnesota
Office of Research Administration
1919 University Avenue
St. Paul, MN 55104

Dr. Philip Wexler
University of Rochester
Graduate School of Education &
Human Development
Rochester, NY 14627

Sabra Woolley
SRA Corporation
901 South Highland Street
Arlington, VA 22204

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