MEASURING NORMATIVE BELIEFS AND SHARED BEHAVIORAL EXPECTATIONS IN ORGANIZATIONS: THE RELIABILITY AND VALIDITY OF THE ORGANIZATIONAL CULTURE INVENTORY[1,2]

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Cooke, R. A., & Szumal, J. L. Measuring normative beliefs and shared behavioral expectations in organizations: the reliability and validity of the Organizational Culture Inventory. *Psychological Reports*, 1993, 72, 1299-1330.

Summary—The Organizational Culture Inventory measures 12 sets of normative beliefs or shared behavioral expectations associated with three general types of cultures, Constructive, Passive-Defensive, and Aggressive-Defensive. These cultural norms are hypothesized to influence the thinking and behavior of organizational members, their motivation and performance, and their satisfaction and stress. As components of organizational culture, behavioral expectations are considered to be shared and enduring in nature. Tests of three types of reliability—internal consistency, interrater, and test-retest—and two types of validity—construct and criterion-related—on data provided by 4,890 respondents indicate that the inventory is a dependable instrument for assessing the normative aspects of culture. Obtained alpha coefficients support the internal consistency of the scales; tests for interrater agreement show that significant variance in individuals' responses is explained by their organizational membership; and tests for differences across time show the temporal consistency of scale scores. Factor analysis results provide general support for the construct validity of the scales, most of which were related to both individual and organizational criteria as predicted.

The Organizational Culture Inventory (Cooke & Lafferty, 1983) is a self-report paper-and-pencil diagnostic instrument designed to measure normative beliefs and shared behavioral expectations in organizations. *Normative beliefs* are cognitions held by an individual regarding others' expectations for his behavior as a member of a particular group or organization (Fishbein & Ajzen, 1975). *Shared behavioral expectations* are those normative beliefs that are held in common by the members of a group or organization (Homans, 1950; Mills, 1967). Such expectations, standards, or "norms" specify the ways in which all members of the organization—or at least those in similar positions or organizational locations—are expected to approach their work and interact with others. These behavioral prescriptions (and proscriptions) generally are viewed as an important component of group or organizational "culture" given that they reflect and are shaped by the basic assumptions and values held in common by members (Homans, 1950; Siehl & Martin, 1984; Schein, 1985; O'Reilly, 1989).

The inventory focuses on 12 sets of thinking and behavioral styles that might be implicitly or explicitly required for people to "fit in" and "meet expectations" in their organization or subunit. At the level of normative beliefs, the strength of norms for these styles is represented by a respondent's reports regarding the extent to which the behaviors associated with each style are expected. At the level of shared behavioral expectations, the strength of these norms is represented not only by members' reports of the extent to which the behaviors are required (based on their aggregated responses) but also by the extent to which they agree about these expectations. In organizations or work groups where there is relatively great a consensus along such measures, that is, where norms are highly crystallized (Jackson, 1966), these shared behavioral norms reflect a strong organizational culture and well-defined pattern of underlying values and ways of seeing things (Sathe, 1985; Kilmann, Saxton, & Serpa, 1986; Cooke & Rousseau, 1988). Furthermore, in such organizations, these shared norms are likely to be relatively stable and enduring as they are based on common assumptions and understandings that do not readily change (Sergiovanni & Corbally, 1984; Sathe, 1985, p. 15).

Given that the inventory is used to measure shared and relatively enduring behavioral expectations as well as individual normative beliefs, its psychometric adequacy depends directly on the demonstration of within-group consensus among respondents and the stability of their scores over time. The initial analyses reported in this article therefore are directed toward assessing the interrater and test-retest reliability of the inventory as well as the internal consistency of its scales. Subsequent analyses focus on validity. The multiple dimensions of normative beliefs purported to be assessed by the inventory require that the scales tapping these dimensions are distinct. Also, research in social psychology and organizational behavior suggests that certain types of criteria should be related to measures of normative beliefs and shared behavioral expectations. In particular, normative beliefs have been argued to be related to different forms and amounts of chronic work stress (e.g., Kahn, Wolfe, Quinn, Snoek, & Rosenthal, 1964; Katz & Kahn, 1966) whereas shared expectations have been posited to be related to group or organizational outcomes, such as innovativeness and turnover (e.g., O'Reilly, 1989). Thus, analyses are presented here which assess the construct and criterion-related validity of the inventory. These analyses are based on data collected through use of the first three published versions of the inventory. Finally, the results of these analyses are discussed in relation to previous research on culture surveys and some of the questions that have been raised regarding the use of standardized instruments for the assessment of organizational cultures.

METHOD

The Instrument

The Organizational Culture Inventory was originally designed to measure behavioral norms in organizations operating within the North American societal context. However, the inventory is now used widely in the United Kingdom, Australia, and New Zealand as well as in the United States and Canada. French, Dutch, and German editions have been published and preliminary translation keys for a number of different languages (e.g., Korean, Spanish, Afrikaans, Chinese) have been developed for specialized applications. Similarly, although the inventory was originally designed for organizational change and development purposes (Cooke, 1989; Jablonski, 1990), it is being used with increasing frequency for research on the cultures of government agencies (Cooke & Fisher, 1985; Cremona, 1991), business firms (Klein, 1992), health care organizations (Thomas, Ward, Chorba, & Kumiega, 1990; Draper, Wagner, Russo, Bergner, Shortell, Rousseau, Gillies, & Knaus, 1989), and educational systems (Cocchiola, 1990).

The impetus for the development of the culture inventory was the need for a reliable tool that could identify pressures on organizational members to behave in dysfunctional ways as well as forces within organizations impeding individual and group development programs. This need was identified in the context of research and consulting experience with the Life Styles Inventory (Lafferty, 1973), an instrument used for individual development programs by organizational change consultants, clinical and organizational psychologists, and training and development specialists. Long-term organizational change programs, intensive counseling sessions, and the statistical analysis of cross-

sectional data sets consistently indicated that the Life Styles Inventory focused on a sufficiently broad set of styles to characterize behavior within a wide variety of organizational settings and that the styles differed systematically with respect to their effects on such criteria as problem-solving effectiveness, managerial performance, and individual well-being (Cooke & Lafferty, 1982; Nediger & Chelladurai, 1989; Gratzinger, Warren, & Cooke, 1990). At the same time, however, cultural forces appeared to be operating within many organizations in which their members exhibited the same sets of sometimes dysfunctional styles. Individual development programs designed to reduce these styles were unlikely to succeed unless these norms (and ultimately the communication, reward, promotion, socialization, and other systems reinforcing them) could be identified and altered. Thus, the Organizational Culture Inventory was developed to measure the strength of norms and expectations for the same set of styles assessed by the Life Styles Inventory.

Conceptual Framework

Based on a refined and modified version of the framework developed for the Life Styles Inventory, the culture inventory assesses 12 sets of normative beliefs and behavioral expectations defined by two underlying dimensions (Cooke & Lafferty, 1982/1989). The first dimension distinguishes between a concern for people versus a concern for tasks. This distinction has been emphasized consistently not only in the literature on organizational culture (e.g., Harrison, 1972; Sethia & Van Glinow, 1985; Shockley-Zalabak & Morley, 1989; McDonald & Gandz, 1992) but also in that one group interaction (e.g., Cattell, 1948; Bales, 1950; McGrath, 1984), leadership (e.g., Stogdill, 1963; Blake & Mouton, 1964), and personal orientations (Cooke, Rousseau, & Lafferty, 1987). The second dimension distinguishes between behavioral expectations for personal styles directed toward the fulfillment of higher-order growth needs versus those directed toward protecting and maintaining one's security (Maslow, 1954). Although the literature on normative beliefs and organizational culture has not explicitly considered this second dimension, the work of Harrison (1972), Hofstede, Neuijen, Ohayv, and Sanders (1990), and McDonald and Gandz (1992) indirectly supports the importance of this distinction with respect to norms and values.

The 12 measured styles are conceptually organized around a circumplex. This type of configurational model (Guttman, 1954; Leary, 1957) is characterized by a circular ordering of styles in which the distance between them reflects their degree of similarity and correlation. As shown in Fig. 1 of the Results section, styles that are conceptually similar are placed close to one another on the circumplex; styles that are more distinct or independent of one another are placed further apart. Styles on the right side of the circumplex reflect a concern for people; those on the left side reflect a concern for tasks. Styles near the top are directed toward the fulfillment of higher-order "satisfaction" needs; those near the bottom are directed toward the fulfillment of lower-order "security" needs.

Consistent with the "security-satisfaction" and "task-people" distinctions, the 12 sets of normative beliefs and behavioral expectations measured by the inventory can be categorized into three general types of organizational cultures, Constructive, Passive-

Defensive, and Aggressive-Defensive. The behavioral norms are associated with these three types of cultures as follows:

1. *Constructive* cultures, in which members are encouraged to interact with others and approach tasks in ways that will help them meet their higher-order *satisfaction* needs, are characterized by Achievement, Self-actualizing, Humanistic-Encouraging, and Affiliative norms;

2. *Passive-Defensive* cultures, in which members believe they must interact with *people* in ways that will not threaten their own *security*, are characterized by Approval, Conventional, Dependent, and Avoidance norms; and

3. *Aggressive-Defensive* cultures, in which members are expected to approach *tasks* in forceful ways to protect their status and *security*, are characterized by Oppositional, Power, Competitive, and Perfectionistic norms (Cooke, 1989, pp. 12-13).

General descriptions of the 12 styles are provided in the Appendix (pp. _____ - _____); more detailed descriptions are presented by Cooke and Szumal (1987).

Empirical justification for grouping the styles into the Constructive, Passive-Defensive, and Aggressive-Defensive clusters is provided by extensive research conducted on the Life Styles Inventory. Studies based on principal components analyses, cluster analyses, and smallest space analyses—and focusing on different data sets—have consistently identified these three underlying factors or empirical clusters (Cooke & Lafferty, 1982/1989; Cooke, *et al.*, 1987; Nediger & Chelladurai, 1989; Gratzinger, *et al.*, 1990; Levin, 1991). Clinical analyses of organizations, studies based on critical incidents methods, and statistical analyses of data on the early versions of the culture inventory similarly support the clustering of norms for these styles into these three categories (Cooke & Fisher, 1985; Gundry, 1987; Cooke & Rousseau, 1988; van der Velde & Class, 1992). This typology and the construct validity of the inventory are examined further in the present study.

The Measures

Each of the 12 styles is measured by ten items describing behaviors that might be expected or implicitly required of members of an organization. On a scale ranging from 1 ("not at all") to 5 ("to a very great extent"), respondents are asked to indicate the extent to which the particular behavior "helps people to 'fit in' and 'meet expectations' in their organization." (Illustrative items are included in the Appendix, pp. _____ - _____.) Respondents can profile their own beliefs about what is expected by summing their responses to the appropriate items and plotting their 12 scores on a normed profile. Scale scores can range from 10 (if all items measuring a particular style are assigned a response of "1") to 50 (if all items measuring a particular style are responded to with a "5"). Responses by members of the same organization or subunit can then be averaged to generate an aggregated or composite cultural profile. As discussed below, the "shape" of these individual and aggregated profiles is hypothesized to be related to various outcomes, with relatively strong extensions along the Constructive (as opposed to the

Defensive) styles positively associated with criteria of individual and organizational effectiveness.

Procedure

The data for this assessment were collected through the use of three versions of the Organizational Culture Inventory including Form I, which was published as a research prototype (Cooke & Lafferty, 1983). Form II (Cooke & Lafferty, 1984) included simplified instructions and eight replacement items to enhance either scale reliability (e.g., the Oppositional scale) or content validity (e.g., the Achievement scale). Also, a set of questions assessing respondents' organizational satisfaction (3 items) and stress (4 items on the inconsistency or ambiguity of norms) were added to collect data for the criterion-related validation of the scales. Changes in Form III (Cooke & Lafferty, 1986) were limited to the norming of the circumplex used to profile scores along the 12 styles; no changes in the instructions or items were made.

Samples

The reliability and validity estimates presented in this paper are based on data provided by approximately 4,890 respondents involved in a number of different research and consulting projects (see Table 1). Internal-consistency reliability was assessed on the basis of four data sets. The first is the largest of a number of single-organization data sets collected during the field testing of Form I. Respondents included 1,375 air traffic controllers and related employees, supervisors, and managers of the Eastern Region of the Federal Aviation Administration (Cooke & Fisher, 1985). The second data set, also based on Form I, is comprised of 650 respondents—including 553 from 18 organizations using the inventory on an experimental basis for organization assessment or development purposes. (The remaining 97 respondents were business students and participants in management development seminars.) This "consulting" data set, collected by a number of internal organizational change agents and external consultants, includes respondents in a wide range of positions within organizations in diverse industries and geographical locations (see Cooke & Rousseau, 1988).

The third data set, based on Form II, is from a cross-sectional study of an East Coast chain of retail stores (Klein & Cooke, 1989; Klein, 1992). Scale reliability statistics were computed on data provided by 183 managers, assistant managers, and sales personnel from 44 stores within the chain. The final data set used to assess internal-consistency reliability is from 203 subunits of different organizations in the Chicago metropolitan area. Within each subunit, the inventory was completed by approximately five members who, in most cases, were at the same organizational level, held similar jobs, and reported to the same supervisor. These data were collected for research purposes by the authors and their colleagues at the University of Illinois at Chicago using Form III of the survey (Szumal, Cooke, & Wayne, 1993).

Interrater reliability and consensus was estimated using data from the consulting (Form I) and research (Form III) samples and another cross-sectional research sample. Based on Form II, this additional sample consists of subunits (i.e., usually five employees and their

immediate supervisor) from 95 different organizations that vary in terms of size, function, and technology. This set is an expanded version of one used previously for validation purposes (Cooke & Szumal, 1987).

Test-retest reliability was assessed through the use of data from two large processing organizations that have adopted the inventory to monitor the progress of cultural change programs. The time interval between the initial administration and the follow-up survey was 24 months for one of these organizations and 21 months for the other. In the first organization, "Organization A," the overlap between the Time 1 sample (n = 152) and the Time 2 sample (n = 158) is 65%. for "Organization B," the Time 2 sample is much larger than the initial sample (n = 80 versus n = 270); while the overlap cannot be ascertained, it is estimated to be much lower than that for the first organization.

Estimates of construct validity were based on three data sets—the cross-sectional consulting sample (Form I) and the two cross-sectional research samples (Forms II and III). Finally, criterion-related validity was assessed using a total of three data sets for two different types of analyses. First, the cross-sectional research sample (Form II) and another cross-sectional consulting sample consisting of 676 respondents from 22 organizations (also based on Form II; see Cooke & Szumal, 1987) were used to estimate the inventory's validity at the individual level of analysis. The criteria for individual normative beliefs were the self-reported satisfaction and stress outcomes noted above. Second, the two cross-sectional research samples (Forms II and III) were used to estimate validity at the organizational or subunit level of analysis. The criteria for shared normative expectations were estimates of the percentage of employees who offer innovative suggestions to improve the unit (innovativeness), actively assist coworkers (mutual assistance) and, on the negative side, do as little work as possible (work avoidance) and have to be replaced each year (due to turnover). These estimates were provided by the supervisors of each of the subunits.

Analysis

The internal-consistency reliability of each of the 12 scales was estimated separately for each of the three forms and within the four samples using Cronbach's alpha. The sample for Form III was then split into two groups based on tenure (less than one year versus a year or more with the organization). Separate sets of Cronbach alpha coefficients were calculated for these two groups to assess whether the reliability of the scales differs for newcomers versus organizational members with greater seniority and experience.

Interrater reliability and consensus along the 12 scale scores was computed separately for each of the three forms using one-way analysis of variance and the η^2 statistic with organizational membership as the independent variable and the inventory styles as the dependent variable. Significant F ratios would confirm that the variance in scale scores is greater between organizations than within organizations and would provide justification for aggregating individual responses to the unit level. Similar to the R^2 in a regression analysis, the η^2 statistic provides an unadjusted estimate of the amount of variance in scale responses explained by the independent variable (which in this case is organizational or subunit membership).

Within-organization agreement was assessed further for the largest research sample (Form III) using the multiple-item estimator $r_{wg(j)}$ discussed by James, Demaree, and Wolf (1984). As a measure of convergence among a group of raters, this estimator is particularly appropriate for instruments purporting to measure organizational-level variables, such as shared behavioral norms, on the basis of individual-level reports (see Kozlowski & Hattrup, 1992). Multiple-item $r_{wg(j)}$ estimates were calculated for the Form III scales by using the formula for rectangular distributions as well as the formula which adjusts for a small-skew condition. (The unadjusted formula could potentially produce inflated estimates in view of the tendency for the Constructive and Defensive scales to be skewed in a negative and positive direction, respectively.) Along with significant F ratios and high η^2 statistics, reasonably large median $r_{wg(j)}$ estimates would provide support for the consistency of individual responses within units and for the assertion that the inventory measures shared behavioral expectations as well as individual-level normative beliefs.

The test-retest reliability of the scale scores was assessed by calculating separate z values for the two processing organizations described above. These z values were computed by subtracting each scale mean at Time 2 from the scale mean at Time 1 and dividing this difference by the estimated standard error of the difference between the two means (i.e., the square of the sum of the Time 1 and Time 2 standard deviations divided by the sum of the number of respondents at Time 1 and Time 2). Although the use of z values is most appropriate when the samples being compared are independent, it is noted that the Time 1 and Time 2 samples included some of the same respondents, particularly for Organization A. However, neither correlations nor pairwise t tests could be used, given that the respondents across the two points in time could not be matched and were not necessarily the same. Finally, z values rather than Student ts were selected for these analyses because both samples consisted of more than 30 respondents (Winer, 1971).

The construct or convergent-discriminant validity of the 12 scales was estimated for each of the three forms using factor analysis with varimax rotation (Anastasi, 1988). The results would provide support for convergent validity if the scales hypothesized to be associated with a particular type of culture (e.g., Achievement, Self-actualizing, Humanistic-Encouraging, and Affiliative) all showed factor loadings above .40 on the same (i.e., Constructive) factor. Discriminant validity would be supported if the scales showed loadings below .40 on the factors representing the other types of cultures (i.e., Passive-Defensive and Aggressive-Defensive).

Finally, the criterion-related validity of the scales was examined using zero-order correlations as estimates of the direction and degree of association between scale responses and the outcome measures as reported by the respondents and their superiors. Correlations between the 12 styles and the outcomes reported by respondents (i.e., their normative stress and satisfaction) were conducted at the individual level of analysis. Correlations between the styles and the outcomes reported by superiors were conducted at the unit level of analysis. For these analyses, the inventory scores of respondents within each organization (or subunit) were averaged to obtain aggregated scores for the 12 styles.

The theoretical framework underlying the inventory posits that Constructive styles (i.e., Achievement, Self-actualizing, Humanistic-Encouraging, and Affiliative) are positively related to desirable outcomes such as members' satisfaction and negatively related to undesirable outcomes such as normative inconsistency and turnover. In contrast, Defensive styles, particularly those that are Passive and people-oriented, are posited to be negatively related to desirable outcomes and positively related to undesirable outcomes. Previous studies based on the inventory as well as other measures of culture generally support these relationships with respect to criteria similar to those reported here (Posner, Kouzes, & Schmidt, 1985; Human Synergistics, 1986; Lafferty & Cooke, 1988; Klein & Cooke, 1989; Denison, 1990; van der Velde & Class, 1992). Correlation coefficients consistent with these hypothesized relationships would provide support for the criterion-related validity of the inventory's scales.

RESULTS AND INTERPRETATION

Internal Consistency Reliability

Cronbach alpha coefficients for Form I range from .71 to .95 for the Federal Aviation Administration sample and from .67 to .92 for the consulting data set (Table 2). Coefficients for Form II range from .65 to .90 (retail store sample) and for Form III from .75 to .91 (research sample). Although the domain assessed by certain scales was broadened somewhat by the Form II revisions (as possibly reflected by a slightly lower "ceiling" on the range of coefficients from Form I to Forms II and III), these results indicate that acceptable consistency among items within scales has been maintained.

Average Cronbach alpha coefficients for the research sample using Form III suggest that the inventory is equally reliable for members who have been with their organization for less than one year (n = 177) and those who have been with their organization for one year or more (n = 559). The means of the coefficients for the 12 scales are identical for the two groups (average alpha = .84; results not shown in Table 2). The largest differences between the two groups are along the Approval (alpha = .82 for < 1 year; alpha = .85 for ≥ 1 year), Oppositional (alpha = .78 for < 1 year; alpha = .75 for ≥ 1 year), and Perfectionistic (alpha = .81 for < 1 year; alpha = .78 for ≥ 1 year) scales. These results suggest that respondents who have been with their organizations one year or more might discriminate slightly less among different types of Approval-oriented (Passive-Defensive) norms and expectations, while respondents who have been with their organizations for less than one year might discriminate less amount different forms of Oppositional and Perfectionistic (Aggressive-Defensive) norms and expectations. In general, however, the coefficients indicate that tenure has little or no effect on the consistency of responses to the items constituting each scale.

Interrater Reliability and Consensus

The interrater reliability of the 12 scales is fairly high across the three forms of the inventory (Table 3). The obtained F and η^2 statistics indicate that a significant amount of

variance in responses is explained by organizational membership. The variance explained by organizational membership is considerably greater for Forms II and III (research samples) than for Form I (consulting sample). Rather than reflecting the minor changes in the forms, these differences likely are due to the composition of the samples. As noted above, the research samples consist of subunits in which respondents are relatively heterogeneous along these factors. Individual beliefs regarding expectations can be influenced by individual thinking styles, background, level in the organization, education, and other demographic and positional characteristics (Katz & Kahn, 1966), and these factors probably account for a portion of the difference in interrater agreement between the research and consulting samples.

The effects of positional factors are illustrated by the Power style, which shows the relatively low η^2 (.06) and F (1.68) statistics for the Form I consulting sample. In many organizations, including some of those in this sample, expectations for power-oriented behaviors are stronger for members at higher hierarchical levels than for those at lower levels. This leads to relatively greater within-group variance for the Form I consulting sample (which spans multiple hierarchical levels within each organization) than for the Form II research sample which includes respondents at only two hierarchical levels within each unit (η^2 = .27 and F = 1.72). The difference in interrater reliability along the Power style is even greater when the Form I consulting sample is compared to the Form III research sample (η^2 = .37 and F = 2.16) which consists primarily of respondents at a single hierarchical level within each subunit.

The median unadjusted $r_{wg(j)}$ estimates for the units in the Form III research sample range from .88 for the Power scale to .93 for the Affiliative scale (Table 2). The median $r_{wg(j)}$ statistics, adjusted for the skewedness of the inventory's scales, range from .60 for Power to .85 for Affiliative. The true interrater agreement along each scale lies somewhere between the range of the coefficients generated by the unadjusted and the adjusted formulas (see James, *et al.*, 1984). The higher estimates would be representative to the extent that relatively high mean scores along the Constructive styles and lower mean scores along the Defensive styles reflect the reality of norms and expectations within the organizations studied. The lower estimates would be representative to the extent that the differences in mean scores between the Constructive and Defensive scores reflect only response biases.

Whether the adjusted or unadjusted estimator is used, the $r_{wg(j)}$ statistics for the 12 scales vary greatly across the discrete organizational units. For most scales, the estimates range from .00 (indicating almost no agreement among members regarding the norm) to .99 or 1.00 (indicating virtually complete agreement among members). This finding is consistent with the theoretical model of norms proposed by Jackson (1966) which posits that social systems differ greatly in the extent to which norms are crystallized. This variation is also consistent with popular writings on organizational culture that draw a distinction between organizations with strong cultures and those with weak ones (e.g., Deal & Kennedy, 1982).

While these results provide evidence for the interrater reliability of the inventory, it appears that within-group agreement regarding norms depends partly on the degree to

which respondents are similar in terms of positional and demographic factors. Also, different consensus may likely reflect differences across organizations in the pervasiveness of their cultures (i.e., the extent to which norms for specific behaviors are generally applicable to members at different levels and in different subunits and functional areas). These results suggest that composite cultural profiles be developed for subunits and groups of employees (i.e., subculture profiles) as well as for the organization as a whole. Also, the finding that consensus around norms differs greatly across organizations suggests that a coefficient such as $r_{wg(j)}$ could be used for research purposes as a measure of crystallization or cultural strength.

Test-Retest Reliability

Test-retest data on the two processing organizations using the inventory to monitor organizational change efforts are presented in Fig. 1. Visually the profiles appear to be stable over time—despite the change programs initiated in these organizations. This is consistent with the proposition that the cultures of organizations tend to be resilient and difficult to change (Ott, 1989) and that, even in organizations where changes are being implemented, cultural measurements at different points in time should not produce dramatically different results.

For each of the two organizations profiled in Fig. 1, the mean scale responses at Time 1 are depicted by the thick lines and at Time 2 by the thin lines on the normed circumplex.[3] Both profiles for Organization A (left side of the figure) and Organization B (right side) show marked consistency over time. z values on the difference between average scale scores for Organization A indicate change in only one inventory style over the two-year period—a slight decrease in the Achievement style ($z = -2.75$, $p < .01$). Although the Competitive and Approval styles were targeted for change by Organization A, no decreases were observed with respect to these styles. (External consultants attributed this lack of change to comparative performance appraisal systems which reinforced these shared behavioral expectations.) Similar tests performed on the mean scale scores for Organization B yielded significant change along only two styles—Humanistic ($z = 3.36$, $p < .001$) and Affiliative ($z = 1.90$, $p < .05$). (These positive changes were in a direction consistent with management development programs initiated by the organization and were followed by further changes in the profile over the next year.)

Construct Validity

The factor analysis results shown in Table 4 are generally supportive of the construct validity of the inventory across the three different forms. Each of the analyses identifies a three-factor solution—Constructive, Aggressive-Defensive, and Passive-Defensive—which together account for approximately 65% of the variance in scale responses for the Form I sample, 65.7% for the Form II sample, and 72.9% for the Form III sample. The amount of variance explained in scale scores by the three factors appears to have increased somewhat from Form I to Forms II and III; the communalities range from .40 to .81 for Form I, .45 to .79 for Form II, and .59 to .82 for Form III. Part of this increase can be attributed to the changes made in the Oppositional scale which, in Form I, had the lowest communality.

Across all three forms (and samples) the results strongly support the construct validity of the Constructive scales. The Humanistic-Encouraging, Affiliative, Achievement, and Self-actualizing scales all show loadings above .80 on a single factor and loadings below |.25| on the other two factors. These loadings support the convergent and discriminant validity of these scales.

The results for the Aggressive-Defensive scales also are consistent with the theoretical framework underlying the inventory but are not as definitive as those for the Constructive scales. The Oppositional, Power, Competitive, and Perfectionistic scales all load onto a single factor (Aggressive-Defensive) across the three forms; however, the Oppositional scale shows a loading of .41 on the Passive-Defensive factor (for Form I), and the Perfectionistic scale shows loadings of .40 on that factor (for Forms II and III). Since these loadings are lower than the corresponding loadings on the Aggressive-Defensive factor (i.e., .46 for Oppositional on Form I and .52 and .68 for Perfectionistic on Forms II and III, respectively), they do not pose a serious challenge to discriminant validity.

Finally, the results for the Passive-defensive scales provide strong evidence for their convergent validity but are somewhat equivocal with respect to their discriminant validity. Approval, Conventional, Dependence, and Avoidance all show loadings above .40 on the same factor; however, Avoidance also loads on the Aggressive-Defensive factor (.53 and .48 for Forms II and III, respectively) as does the Conventional style (.42 for Form II). While the loadings of the Avoidance scale raise questions regarding discriminant validity, they re not inconsistent with the underlying circumplicial framework which specifies an empirical relationship between adjacent styles. These loadings n the two Defensive factors might reflect some of the subtle similarities between Avoidance and the style next to it, Oppositional. Furthermore, these two styles might serve to "link" the Passive and Aggressive norms, both of which are associated with defensiveness. The dual loadings for the Conventional scale cannot be explained by this logic but occurred only in the Form II sample.

Over-all, the factor structure and pattern of factor loadings is consistent with the conceptual framework underlying the inventory. These results support the construct validity of the 12 scales, but more so with respect to convergent than discriminant validity.

Criterion-related Validity: Individual Normative Beliefs

The results based on the self-reported criteria of normative stress and satisfaction are supportive of the criterion-related validity of the inventory's scales as all significant correlation coefficients are in the expected direction (see Table 5). All four of the Constructive scales are significantly and positively related to the three measures of satisfaction (over-all satisfaction, intention to stay, and propensity to recommend the organization as a good place to work) in both the research and consulting samples. Similarly, these styles are negatively associated, in most cases significantly so, with normative stress. Two of the four stress items, normative inconsistency and person-environment conflict, reflect the presence of norm-related stress. The negative

correlation coefficients indicate that when Constructive normative beliefs are weak, people receive conflicting messages regarding what is expected of them (normative inconsistency) and feel that they have to think and behave differently than would otherwise be the case (person-environment conflict). Results for these criteria are all significant at the .001 level for the consulting sample; however, the correlations between person-environment conflict and the Humanistic-Encouraging, Achievement and Affiliative styles are not significant for the research sample.

The other two items, measuring clarity of norms (knowing what is expected) and person-environment fit (comfortably "fitting in"), reflect the absence of norm-related stress. The correlation coefficients with the Constructive styles are in the expected, positive, direction. Taken together, these result indicate that the measures of Constructive normative beliefs are related to the stress and satisfaction criteria in the manner predicted.

The results for the Passive-Defensive scales are all in the expected direction but lend more support to some scales than others. Avoidance is strongly related to all of the self-reported measures across both samples. The Conventional scale also shows significant relationships with all seven criterion measures with only two exceptions (clarity of norms and intention to stay, in the research sample). Approval and Dependence, although significantly related to dissatisfaction and normative stress in the consulting sample are related to only normative inconsistency and person-environment conflict in the research sample. Over-all, these results indicate that the Conventional and Avoidance measures are more consistently related to stress and dissatisfaction than are the Dependence and Approval measures.

Finally, the results for the Aggressive-Defensive scales suggest that these norms are more consistently related to normative inconsistency and conflict than to dissatisfaction, role ambiguity and poor fit. Oppositional, Power and Competitive norms are all significantly and positively related to normative inconsistency. Also, all four Aggressive-Defensive styles are significantly and negatively related to person-environment conflict across both samples. In general, however, the negative impact of these aggressive norms is not as strong as that of the passive norms. This finding is possibly due to the consistency of aggressive norms with the personal styles of many people (Lafferty, 1973) and the belief of members of at least some organizations, either correct or incorrect, that aggressive styles are required to get the job done.

In summary, these results strongly support the criterion-related validity of the four Constructive scales and the Conventional and Avoidance scales with respect to normative stress and satisfaction. The Aggressive-Defensive scales were not expected to be as strongly related to these individual-level criteria and the results are generally consistent with this prediction.

Criterion-related Validity: Shared Behavioral Expectations

Validity results for the scales of the inventory with respect to unit-level criteria as reported by respondents' supervisors are shown in Table 6. Again, there is strong evidence for the validity of the Constructive scales, particularly Achievement and Self-

actualizing which are significantly and positively related to the percentage of employees offering innovative suggestions (in both the Form II and III research samples) and assisting one another (Form II sample only) and negatively related to the percentage of employees avoiding work (in both samples). Achievement is also significantly and negatively related to the annual turnover rate across units in the Form III sample. Both the Humanistic-Encouraging and Affiliative styles are positively related to innovativeness and mutual assistance (Form II sample) and are negatively related to work avoidance (Form III sample). Humanistic-Encouraging also is negatively related to work avoidance in the Form II sample, supporting the generalizability of this result. Over-all, for the two samples, 18 of the 32 correlation coefficients between the Constructive styles and the criteria are significant in the predicted direction.

Similar to the criterion-related results based on self-reports, the results for the Passive-Defensive scales and the criteria based on superiors' reports are strongest for the Conventional and Avoidance scales. The Conventional style is positively related to turnover rate (in both samples) and employees working as little as possible (Form III sample) and negatively related to employees offering innovative suggestions and assisting others (Form II sample). Expectations for Avoidant behaviors are negatively related to assisting others (both samples) and offering innovative suggestions (Form III sample) and positively related to work avoidance (Form III sample). Approval and Dependence show significant positive relationships with turnover in the Form II and Form III samples, respectively. Finally, Dependence is also positively associated with the percentage of employees who do as little work as possible in the Form III sample. In summary, 12 of the 32 correlation coefficients for the Passive-Defensive styles and the criteria reported by respondents' superiors are significant and in the predicted direction.

The Aggressive-Defensive scales generally are not related to this set of criteria with two important exceptions. First, Perfectionistic norms are significantly and negatively related to work avoidance in the Form II sample. Aggressive norms supporting a strong detail-orientation and unrealistically high standards apparently can reduce work avoidance and "loafing" on the job. Although inconsistent with our prediction that Aggressive-Defensive norms would not be positively related to criteria of effectiveness, this finding makes sense in view of the behaviors prescribed by Perfectionistic norms and the proximity of this style to Achievement. Second, the Oppositional style is significantly and positively related to reported rates of turnover in both samples. Norms promoting conflict and confrontation apparently creative a negative environment from which people are likely to remove themselves. This second finding is more consistent than the first with the general prediction that Aggressive-Defensive norms have a somewhat adverse effect on organizations and their members.

DISCUSSION

Resumé of Statistical Results

Data collected through the use of three forms of the Organizational Culture Inventory and from respondents in eight samples indicated that the inventory is a reliable and valid tool

for assessing organizational norms and expectations. With respect to reliability, all 12 scales show acceptable internal consistency. Longitudinal data from two different organizations provide evidence for the test-retest reliability. Similarly, analyses of data from three cross-sectional samples show that organizational membership explains a significant amount of the variance in individuals' responses to the inventory. These results provide support for the interrater reliability of the inventory which, along with test-retest reliability, is critical for an instrument designed to measure behavioral norms and expectations that are, by definition, shared and enduring.

Results for construct validity based on factor analysis indicated that the inventory measures what it is designed to measure. The factor structure of the instrument appears to be acceptable, with the scales consistently loading on three factors corresponding to Constructive, Passive-Defensive, and Aggressive-Defensive cultures. It is noted, however, t hat certain scales (i.e., Conventional, Avoidance, Oppositional, Perfectionistic) show dual loadings in one or more samples. These results either indicate weaknesses with respect to discriminant validity or suggest that norms for Aggressive-Defensive and Passive-Defensive are loosely linked in certain settings. It has been observed elsewhere that respondents in lower-level and nonmanagerial positions (as opposed to those in managerial positions) are less likely to distinguish between Passive and Aggressive norms, particularly for styles such as Avoidance and Perfectionism. This tendency appears to be particularly strong in large, bureaucratic organizations (e.g., Cooke & Fisher, 1985). Organizational characteristics—such as size, function, and private versus public ownership—and demographic and positional variables—including age, education, and organizational level—potentially are related in a systematic manner to the structure of normative beliefs held by organizational members. Further research on this issue is needed.

Finally, the inventory is generally valid with respect to individual- and group-level criteria. Data from two samples show that the normative beliefs measured by the inventory are related to the levels of satisfaction and stress reported by individual members. The results are in the predicted direction, with constructive styles strongly associated with satisfaction and low stress, Passive-Defensive styles associated with dissatisfaction and high stress, and Aggressive-Defensive styles weakly related to certain measures of dissatisfaction and stress. Although the pattern of results across the two samples is strikingly similar, it is noted that the strength of these relationships can very depending on such factors as the personal beliefs and values of members. Differential relations are similarly suggested by the criterion-related validity results at the organizational level (i.e., for shared behavioral expectations). In the first of the two samples studied, the Constructive styles appear to have a stronger effect on the criteria; in the second sample, the Defensive styles had a stronger impact on at least two of the outcomes. More generally, however, the organizational-level data show a number of significant correlations between the norms and the outcomes in the predicted directions.

Implications for the Assessment of Organizational Cultures

The above results not only provide support for the validity of the inventory but also lend credence to the popular, but largely untested, belief that culture affects the satisfaction

and performance of organizational members. These results also provide support for the premise that organizational culture can be measured through the use of quantitative techniques. This premise is one that continues to be challenged in some academic circles (e.g., Schein, 1990; Trice & Beyer, 1993)—despite the proliferation of inventories designed to measure culture (e.g., Harrison, 1975; Kilmann & Saxton, 1983; Sashkin, 1983), their widespread adoption by organizations for cultural change programs (Allen, 1985; Kilmann, *et al.*, 1986; Jablonski, 1990), and their extensive use by researchers in various disciplines (and countries) to enhance our understanding of organizational phenomena (e.g., Deshpande & Webster, 1989; Denison, 1990; Hofstede, *et al.*, 1990; O'Reilly, Chatman, & Caldwell, 1991; Sheridan, 1992; van der Velde & Class, 1992).

Researchers using qualitative measures have argued, among other things, that surveys cannot identify the more deeply hidden underlying aspects of culture, that the variables measured by quantitative assessments are not really components of culture, that such inventories tap organizational "climate" rather than culture, and that standardized surveys are not sufficiently broad to cover the dimensions that might be relevant to a particular organization (Wilkins & Dyer, 1988; Ott, 1989; Schein, 1990; Trice & Beyer, 1993). Given that these criticisms have implications for the validity and use of any culture inventory, they are addressed here in terms of the objectives for this inventory and other culture-related surveys and the results of this and previous empirical studies.

First, the criticism that surveys cannot identify the deeply hidden underlying aspects of culture (Ott, 1989) has some merit. The format, standardized questions and response options, and noninteractive nature of most paper-and-pencil surveys are not conducive to directly investigating latent assumptions or the sense-making meaning of events—and the Organizational Culture Inventory (like most other culture surveys) was not designed to do so. In contrast, the inventory was explicitly developed to measure norms, the aspect of culture that has the most direct influence on day-to-day behaviors and performance (Cooke, 1989) and that would be most likely understood by organizational members (Allen, 1985). Such quantitative methods, by focusing on the relatively salient components of culture, make "a fuzzy field at mystification" of the construct (Hofstede, *et al.*, 1990, pp. 313-314). They generate data that can be understood, interpreted, and used by researchers, consultants and, most importantly, organizational members for identifying the more fundamental aspects and possibly hidden foundations of the culture being analyzed.

Second, the question has been raised as to whether factors that can be assessed by means of surveys (e.g., norms, values, ideologies) really represent components of culture (Sathe, 1985; Ott, 1989; Rentsch, 1990). Coupled with the above criticism of quantitative approaches, a negative answer to this question would render culture as one of the only organizational constructs that cannot be assessed through the use of surveys. While the impetus for this question might be to keep the study of culture exclusively within the domain of qualitatively oriented researchers, it has some legitimacy given the more general debate regarding the definition of culture as applied to organizations. For example, Ott (1989) presents a list of almost 40 alternative definitions of organizational culture, only subsets of which include any specific construct such as norms, values, beliefs, meaning, symbols, assumptions, rites, or rituals. Most definitions do, however,

make reference to *patterns* of ideas and other abstractions that are *shared* by members of a society or organization (see reviews by Kroeber & Kluckhohn, 1952; Deshpande & Webster, 1989; Reichers & Schneider, 1990).

Empirical results presented here and elsewhere show that the norms (and values) measured by culture inventories are, in fact, shared by members of organizations and reflect and promote patterns of behaviors, reactions, and interpretations (Cooke & Rousseau, 1988; Hofstede, *et al.*, 1990; O'Reilly, *et al.*, 1991; Sheridan, 1992; van der Velde & Class, 1992). Further, possibly because norms are so closely related to patterns of behavior (Reno, Cialdini, & Kallgren, 1993), they historically have been used in both qualitative and quantitative studies to categorize the cultural aspects of organizations and to effect organizational change (Homans, 1950; Argyris, 1970; Walton, 1979). Consistent with such work, many contemporary definitions of organizational culture emphasize or at least encompass shared normative beliefs and behavioral expectations (e.g., Schwartz & Davis, 1981; Deal & Kennedy, 1982; Sergiovanni & Corbally, 1984; Siehl & Martin, 1984; Allen, 1985; Kilmann, *et al.*, 1986; Cooke & Rousseau, 1988; O'Reilly, 1989; Deshpande & Webster, 1989). It is noted, however, that norms are treated in most such definitions as less fundamental and deeply seated components of culture than underlying assumptions and shared meanings (Schein, 1985).

Related to the above argument is the contention that survey instruments purported to measure culture tap organizational "climate" instead. However, organizational culture is distinct from organizational climate and surveys purporting to measure the former generally are distinct from those designed to measure the latter. Although defined in as many different ways as culture, climate is generally construed in terms of "the way things are around here" and, more precisely as "shared perceptions of organizational policies, practices, and procedures, both formal and informal" (Reichers & Schneider, 1990, p. 22). Thus measures of climate generally focus on perceptions of organizational structures, reward-punishment processes, human resource-management systems, decision-making processes, job design, and members' valuations of these and other environmental attributes. In contrast, measures of culture focus on the patterns of values and beliefs that lead to the emergence of these structures and systems and on the behavioral norms that are communicated and reinforced by these systems and structures.

In a certain sense, therefore, the foci of climate surveys could be viewed as artifacts of culture and, also, as culture-bearing mechanisms. Although some "culture" surveys do seem to focus on such artifacts and mechanisms, the inventory described in this paper does not. Similarly, while some climate surveys appear to assess norms, they tend to focus more on what have been termed descriptive norms—"what most people do in particular situations"— as opposed to injunctive norms—"what people approve and disapprove of within the culture and motivate action by promising social sanctions" (see definitions proposed by Reno, *et al.*, 1993, p. 104). This suggests that norms might serve as a point of convergence for culture and climate; however, while both constructs potentially encompass norms, they focus on discrete types of norms.

The final criticism to be addressed here is that standardized surveys, in contrast to qualitative approaches and customized questionnaires, are too narrow in scope to capture

the cultural themes relevant to a specific organization (Wilkins & Dyer, 1988; Schein, 1990). This criticism, although potentially valid, is unwarranted when considered in the context of the purpose of culture surveys. Most such surveys were explicitly designed to permit comparisons between organizations and subunits along a relatively specific set of dimensions (and to do so in a way that is inexpensive and conducive to the involvement of large numbers of members). As delineated above, the Organizational Culture Inventory was designed to measure the strength of norms for constructive and defensive behaviors oriented toward people and tasks (Cooke, 1989). Similarly, Harrison's (1975) culture survey was developed to assess organizational ideologies with respect to four specific orientations, Sashkin's (1983) Pillars of Excellence to tap ten types of values relevant to the accomplishment of work, and the Kilmann-Saxton Culture-Gap Survey (1983) to assess norms with respect to technical-human and short- or long-term orientations. The validity and utility of such surveys is appropriately evaluated in terms of what they were designed and are used to measure (Anastasi, 1988)—rather than in terms of what they were *not* designed to measure.

Nevertheless, in permitting cross-sectional comparisons along specific dimensions, it is possible that standardized surveys might miss the factors, the language, and the meanings most critical to a specific site (Wilkins & Dyer, 1988; Ott, 1989). It is also likely that the content of surveys, even those based on years of developmental research, can be limited by the theoretical interests, paradigms, and cultural biases of their developers (Hampton, 1982). However, alternative approaches—qualitative methods in which the measurement instrument is basically the researcher or consultant—are not free of such biases and limitations. Analytical description (Siehl & Martin, 1984), ethnography (Van Maanen, 1988), and clinical description (Schein, 1990) potentially are subject to similar problems—and such problems might be less salient and more difficult to detect *a priori* with respect to an individual than a survey instrument. As noted by Warwick (1973, p. 190), ". . . every method of data collection is only an approximation to knowledge. Each provides a different and usually valid glimpse of reality, and all are limited when used alone."

The other alternative, customized questionnaires based on extensive qualitative research on specific types of organizations (Wilkins & Dyer, 1988), is not necessarily more reliable, valid, or informative than standardized surveys. For example, a set of customized items for a specialized type of organization (those oriented toward safety and reliability) was administered along with the culture inventory in fossil-fuel and nuclear power plants. These items were written by an independent group of researchers on the basis of months of analytical description, focus-group interviews, and other qualitative research in reliability-oriented organizations. The customized scales have not discriminated across plants and subunits within plants; in contrast, the present standardized scales produced significant differences and were later related to a measure of effectiveness (Haber, O'Brien, Metlay, & Couch, 1991); Haber & Shurberg, 1992). In this case, the superior performance of the standardized survey might be attributed to the fact that it tapped behavioral expectations that not only paralleled the relatively strong (and therefore obvious and socially desirable) norms assessed by the customized scales but also other, more subtle, norms that were nevertheless relevant to the operation of this type of organization. More generally, such results challenge the assumption that

customized surveys (based on qualitative studies of specific organizations) are consistently superior to standardized surveys designed to be applicable to (and field tested in) a wide range of organizations.

Conclusion

The Organizational Culture Inventory, although subject to the limitations inherent in any type of survey, can be used in organizations to identify the sometimes subtle pressures placed on members to behave in defensive or constructive ways. The feedback generated by the inventory provides organizational members with a framework for discussing current behavioral expectations, identifying norms that would be more conducive to performance and proposing changes to communicate and reinforce the preferred norms. The inventory also offers the potential for identifying subcultures (across subunits and hierarchical levels), estimating the strength or intensity of subcultures (using interrater agreement statistics), assessing the relationship between different normative beliefs and relevant indices of performance, and monitoring the effects on organizational change programs. For research purposes, the inventory can be administered along with climate or other surveys in cross-sectional studies to test hypotheses on the factors leading to and reinforcing constructive and defensive norms as well as the outcomes associated with these norms. Finally, in both research and consulting applications, the inventory can be used along with other, more qualitative, methods to study organizational culture. This "triangulation" (Jick, 1979) offsets the weaknesses inherent in any single method and generates data that are not only comparative but also sensitive to the more latent aspects of organizational culture.

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Accepted April 16, 1993.

APPENDIX

DESCRIPTIONS OF THE TWELVE STYLES MEASURED BY THE ORGANIZATIONAL CULTURE INVENTORY (AND ILLUSTRATIVE ITEMS)*

Constructive Norms
[Styles Promoting Satisfaction Behaviors]

Achievement

An Achievement culture characterizes organizations that do things well and value members who set and accomplish their own goals. Members are expected to set challenging but realistic goals, establish plans to reach these goals, and pursue them with enthusiasm. (Pursuing a standard of excellence)

Self-Actualizing

A Self-actualizing culture characterizes organizations that value creativity, quality over quantity, and both task accomplishment and individual growth. Members are encouraged to gain enjoyment from their work, develop themselves, and take on new and interesting activities. (Thinking in unique and independent ways)

Humanistic-Encouraging

A Humanistic-Encouraging culture characterizes organizations that are managed in a participative and person-centered way. Members are expected to be supportive, constructive, and open to influence in their dealings with one another. (Helping others to grow and develop)

Affiliative

An Affiliative culture characterizes organizations that place a high priority on constructive interpersonal relationships. Members are expected to be friendly, open and sensitive to the satisfaction of their work group. (Dealing with others in a friendly way)

Passive-Defensive Norms
[Styles Promoting People-Security Behaviors]

Approval

An Approval culture describes organizations in which conflicts are avoided and interpersonal relationships are pleasant - at least superficially. Members feel that they should agree with, gain the approval of, and be liked by others. ("Going along" with others)

Conventional

A Conventional culture is descriptive of organizations that are conservative, traditional, and bureaucratically controlled. Members are expected to conform, follow the rules, and make a good impression. (Always following policies and practices)

Dependent

A Dependent culture is descriptive of organizations that are hierarchically controlled and nonparticipative. Centralized decision making in such organizations leads members to do only what they are told and to clear all decisions with superiors. (Pleasing those in positions of authority)

Avoidance

An Avoidance culture characterizes organizations that fail to reward success but nevertheless punish mistakes. This negative reward system leads members to shift responsibilities to others and avoid any possibility of being blamed for a mistake. (Waiting for others to act first)

Aggressive-Defensive Norms
[Styles Promoting Task-Security Behaviors]

Oppositional

An Oppositional culture describes organizations in which confrontation and negativism are rewarded. Members gain status and influence by being critical and thus are reinforced to oppose the ideas of others. (Pointing out flaws)

Power

A Power culture is descriptive of nonparticipative organizations structured on the basis of the authority inherent in members' positions. Members believe they will be rewarded for taking

charge, controlling subordinates and, at the same time, being responsive to the demands of superiors. (Building up one's power base)

Competitive

A Competitive culture is one in which winning is valued and members are rewarded for outperforming one another. Members operate in a "win-lose" framework and believe they must work against (rather than with) their peers to be noticed. (Turning the job into a contest)

Perfectionistic

A Perfectionistic culture characterizes organizations in which perfectionism, persistence, and hard work are valued. Members feel they must avoid any mistake, keep track of everything, and work long hours to attain narrowly defined objectives. (Doing things perfectly)

*From *Organizational Culture Inventory by* R. A. Cooke and J. C. Lafferty, 1983, 1986, 1987, Plymouth, MI: Human Synergistics. Copyright 1987 by Human Synergistics, Inc. Adapted by permission.

TABLES AND FIGURES