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ABSTRACT

The nature and strength of college culture were studied, along with how culture is related to perceptions of organizational performance. Data were obtained from a study conducted by the National Center for Higher Education Management Systems (NCHEMS). Questions of method, especially the validity of aggregating perceptual data to the organizational level, are examined and assessed. A questionnaire administered to trustees, administrators, and faculty required them to indicate the extent to which their colleges showed characteristics associated with each of four ideal cultural types along four dimensions: institutional characteristics, institutional leadership, institutional cohesion, and institutional emphases. The four ideal cultural types were: market, clan, hierarchy, and emergent. The survey of 334 colleges and universities produced responses from 1,321 administrators, 1,158 faculty, and 927 trustees for an overall response rate of 48%. Constructs measured by the survey include: changes in the institution's external environment, decreasing enrollments, decreasing revenues, institutional characteristics, institutional strategy and decision process, and performance and actions of the institution. The results suggest that cultural strength and type are clearly related to perceptions of organizational performance. Specific findings are analyzed, and the questionnaire is appended. (SW)

Organizational Culture and Performance

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Organizational Culture and Performance

Abstract

This research examines the nature and strength of college and university cultures, and how culture is related to perceptions of organizational performance. The results suggest that cultural strength and type are clearly related to perceptions of organizational performance. Different cultural types also appear to bear unique relationships to specific dimensions of organizational performance.

Organizational Culture and Performance

Introduction

According to Smircich (1983), culture is usually defined as the social or normative glue that holds an organization together (Tichy, 1982). It reflects the values and beliefs that organization members come to share. As such, it conveys a sense of identity for organization members, and serves as a sense-making device that can guide and shape behavior.

A number of recent books and articles (for example Peters and Waterman, 1982; Deal and Kennedy, 1982; Tichy, 1982; Quinn and Hall, 1983) suggest that organizations with "strong" cultures are more likely to be successful than organizations with weak cultures. To date, however, little empirical research has been conducted on the strength of organizational culture, or the relationship between organizational culture and organizational performance.

The lack of empirical research stems from the difficulty of assessing organizational culture. Shared values and beliefs, and organizational symbols and behaviors, are difficult to measure, especially in ways that allow comparisons across organizations. Yet, cross-organization comparisons are essential if we are to understand both the nature of organizational culture, and how it is related to organizational performance. The difficulty in carrying out such analyses has limited most research on the subject to single case studies.

This research is based on the results of a national study that was specifically designed to overcome the limitations of case-study approaches, as well many of the difficulties in asessing the nature of organizational culture and its relationship to performance across different organizations. Specific questions that it addresses include:

(1) What is the nature and strength of college and university cultures?

(2) To what extent are colleges and universities perceived as having a predominant culture?

(3) What is the relationship between (a) cultural strength, (b) cultural type, and (c) other institutional characteristics such as performance, decision processes, and organizational health?

Background

This research is based on data collected by the National Center for Higher Education Management Systems (NCHEMS) as a part of a national research study. The study assessed the perceptions of

more than 3400 college faculty, administrators, and trustees in 334 colleges. The study was based on the development and administration of a survey that included questions specifically designed to assess various aspects of organizational culture and performance. The survey is included as Appendix 1. The construct measured by each item is reported in Table 1. Complete descriptions of each construct as well as other psychometric properties of the survey instrument are reported by Krakower and Niwa (1985).

[Table 1 about here]

Questions on the survey regarding the nature of organizational culture derived from the Competing Values Framework (CVF) developed by Quinn and Rohrbaugh (1981), and Quinn and Hall (1983). The CVF provides a "cognitive map" of several of major criteria and values appropriate to the study of organizational culture. It identifies four ideal types of organizational forms. Ideal types refer to extreme statements or abstractions. Organizational forms refer to "stable patterns of transactions or norms for engaging in social change" (Quinn and Hall, 1982, p.288). The four ideal types include the (1) market (Williamson, 1975, 1981), (2) clan (Ouchi, 1981), (3) hierarchy (Williamson, 1975, 1981), and (4) adhocracy (Quinn and Cameron, 1983). The four ideal types are described in Table 2.

[Table 2 about here]

The survey included questions that required respondents to indicate the extent to which their institution evidenced characteristics associated with each of the four ideal cultural types along four dimensions: institutional motive, institutional leader, institutional glue, and institutional emphases. The questions are shown in Table 3.

[Table 3 about here]

Organizational Culture and Organizational Climate

The assessment of cultural strength is a critical component of this research. While little empirical research has been done on this subject, techniques have been developed that can be applied to the problem at hand. These stem from research on the validity and reliability of aggregating perceptual data (Joyce and Slocum, 1979, 1984; Jones and James, 1979; Drexler, 1977; Howe, 1977; Gavin, 1975).

Drawing on the aggregation literature, however, turns out to be a double edge sword. On the one hand, it provides us with techniques, specifically the intraclass correlation coefficient, that can be used to assess cultural congruence or strength. On the other hand, the literature raises serious questions about the validity of aggregating perceptual data to the organization level

in the first place. We will discuss the validity issue first. We will then show how the intraclass correlation can simultaneously be used to assess the validity of aggregating perceptual data, and to measure cultural strength.

The literature in psychology refers to individuals' perceptions of organizational characteristics as "psychological climates" (Joyce and Slocum, 1979; Weick, 1979; James and Jones, 1974; Jones and James, 1979; Schneider, 1975, 1981; Gavin and Howe, 1975; Payne, Fineman, and Wall, 1976; Woodman and King, 1978). It is generally assumed that psychological climates are influenced by individuals' experiences, biases, preferences--that is, they are viewed as subjective and psychological in nature. Such perceptions are useful because they help us understand the influence of the organizational environment on individual performance and satisfaction.

When psychological climate data are aggregated the resulting measures are referred to as "organizational climates" (Drexler, 1977; Joyce and Slocum, 1979; Gavin, 1975; Gavin and Kelley, 1978; Howe, 1977; Jones and James, 1979; Newman, 1975). The utility of organizational climates rests on the assumption that they reflect how each member of the group generally perceives, imputes meaning, and responds to the environment. However, a body of research that has evolved during the last fifteen years indicates that when aggregate indices are based on existing groups, both the reliability and validity of the resulting indices are suspect.

Most of the research that has been done on the reliability and validity of aggregating individual perceptual data to more macro units of analysis has focused on business and military organizations (Drexler, 1977; James and Sells, 1981; Jones and James, 1979; Joyce and Slocum, 1979; Payne and Pugh, 1976; Powell and Butterfield, 1978). Review of these studies provides little support for the validity of aggregating individuals' perceptions of organizational characteristics. Estimates of perceptual aggreement (based on intraclass correlation coefficients) ranged between .00 and .50, with a median of approximately .12 (Hater, 1977; James and Sells, 1981; Jones and James, 1979).

It seems appropriate to digress slightly for a moment to examine the relationship between organizational culture and organizational climate. A widely agreed upon definition of organizational climate does not exist. It is most commonly defined (Ashforth, 1985, p. 837) in terms of the "shared and enduring molar perceptions of the psychologically important aspects of the work environment."

In distinguishing between culture and climate Ashworth (1985, p. 841) argues that "it is not a large conceptual step from shared assumptions (culture) to shared perceptions (climate)." He suggests that it is the shared and enduring assumptions and values of culture that "undergird perceptions and inferences and help

define what is psychologically important." In other words, climate is the visible manifestation of culture.

Whether one subscribes to these interpretations of culture and climate is, in fact, incidental to the outcomes of this research. Because, by definition, organizational culture and organizational climate are both organizational characteristics. And, the evidence is irrefutable that when perceptual data (i.e., individuals' perceptions) are used to assess organizational characteristics, the resulting data are subject to "aggregation bias" (James, 1982).

This does not mean that the data cannot be aggregated. There are, however, criteria to be met before aggregating scores on a variable for which the "unit of theory" (James, 1982; Roberts, Rulin, and Rousseau, 1978) is the individual. These criteria include (Joyce and Slocum, 1984, p.722): (1) discrimination, or demonstrable differences between the mean climate perceptions of different groups (Drexler, 1977; Howe, 1977; Newman, 1975); (2) predictable relationships to organizational or individual performance (Pritchard and Karasick, 1973); and (3) internal consistency, or agreement of perceptions within groups (Howe, 1977).

In drawing on the aggregation literature, we find ourselves having to deal with a whole new problem--the validity of aggregating perceptual data in the first place. Fortunately, the data required to address the second and third criterion for aggregating perceptual data are virtually identical to the data used to address the first and third research questions in this study. That is, the intraclass correlation coefficient can be used both as a measure of internal agreement, and as a measure of cultural strength. The correlations between the culture measures and the institutional performance data describe the relationship between culture and performance--the second aggregation criterion and the third research question in the study.

For the sake of brevity and to be consistent with the original research objectives of this study, we will not address the first criterion for aggregating perceptual data--discrimination, or demonstrable differences between the mean climate perceptions of different groups. This research has been done, however, and supports the results presented in the sections that follow.

The Intraclass Correlation

Reliability may be defined as the ratio of true score variance to total score variance (Winer, 1971):

$$\rho = \sigma_{\pi}^2 / \sigma_{\pi}^2 + \sigma_{\eta}^2 \qquad (1)$$

Where σ_T^2 equals true score variance, and σ_E^2 equals error score variance. In terms of this definition of reliability, it is easily shown that the intraclass correlation provides a measure of the reliability of measurements (Winer, 1971; Bartko, 1966; 1976; Ebel, 1967).

Derived in terms of a single factor analysis of variance model with repeated measures (Winer, 1971), the formula for the intraclass correlation coefficient for k raters is

$$ICC(k) = \frac{MS_{b.people} - MS_{w.people}}{MS_{b.people}} \quad (2)$$

where, k = number of raters
$MS_{b.people}$ = mean square between people
$MS_{w.people}$ = mean square within people

Negative coefficients are defined as zero. The reliability of a single measurement is given by

$$ICC(1) = \frac{MS_{b.people} - MS_{w.people}}{MS_{b.people} + (k-1)\ MS_{w.people}} \quad (3)$$

ICC(1) is most directly interpreted as the average correlation between any two judges ratings. It is easily shown that the magnitude of ICC(1) is a function of intra-class rater agreement.

ICC(k) can be estimated from ICC(1) by application of the Spearman-Brown prophecy formula:

$$ICC(k) = \frac{k*ICC(1)}{1 + (k-1)*ICC(1)} \quad (4)$$

ICC(k) reflects the correlation between the average ratings of two randomly selected groups of judges. However, James (1982) demonstrates that ICC(k) is not a measure of perceptual agreement. Furthermore, by applying the Spearman-Brown prophecy formula, James demonstrates that a trivial ICC(1) may lead to a very large ICC(k).

In typical rater reliability studies, a random sample of n targets is rated independently by k judges. Three cases of this kind can be defined (Shrout and Fleiss, 1979, p. 420):

1. Each target is rated by a different set of k judges, randomly selected from a larger population of judges.

2. A random sample of k judges is selected from a larger population, and each judge rates each target, that is, each judge rates n targets altogether.

3. Each target is rated by each of the same k judges, who are the only judges of interest.

The case 1 model is illustrated below:

Target	Ratings
1	2 3 3 4
2	4 5 5 7 8 9
3	3 4 5
.	.
n	k

The case 1 model reflects a situation where the ratings are incomplete, and the sources of ratings are unknown. Different groups of judges rate targets associated with their class. Qualitative differences among targets are irrelevant in this model. However, it is generally presumed that all targets are being rated on the same dimension. In this situation, ICC(1) provides us with a measure of average within-class agreement.

The case 2 model is illustrated below:

Target	Ratings
1	1 2 3 ... k
2	1 2 3 ... k
3	1 2 3 ... k
.	.
n	1 2 3 ... k

The case 2 model applies when a random sample of raters is selected from a larger population, and each rater rates all n targets of interest. In this instance, ICC(1) provides a measure of perceptual agreement between raters on all targets. The case 3 model differs from the case 2 model only in so far that the k raters represent the only raters of interest, rather than a random selection.

A high ICC(1) follows from high intra-class perceptual agreement. The difference between inter-class and intra-class agreement is illustrated below for a case 1 situation. In this example, the ratings and mean rating of two schools on a single dimension (e.g., morale) are identical.

Item #1	Ratings	Mean
School 1	1, 2, 3, 4, 5	3.0
School 2	1, 2, 3, 4, 5	3.0

In this example ICC(1) equals zero because intra-school agreement is zero. In terms of the model specified in equation 3, we obtain:

$$ICC(1) = \frac{MS_{b.people} - MS_{w.people})}{MS_{b.people} + (k-1)\ MS_{w.people}}$$

$$= \frac{0 - 2.5}{(5-1)(2.5)} = -.25$$

$$= 0$$

Conversely, because the intra-class correlation measures within-class agreement, raters in different schools could view their schools in entirely opposite but consistent ways, and ICC(1) would equal 1.00. This is illustrated below:

Item #1	Ratings	Mean
School 1	1, 1, 1, 1, 1	1.0
School 2	5, 5, 5, 5, 5	5.0

In terms of the model specified in equation 3 we obtain,

$$ICC(1) = \frac{MS_{b.people} - MS_{w.people}}{MS_{b.people} + (k-1)\, MS_{w.people}}$$

$$= \frac{4 - 0}{4 + (5-1)*0}$$

$$= 1.0$$

Cultural Strength

Deal and Kennedy (1983, p. 15) suggest that a culture is "strong" when people know and generally follow the "system of informal rules" that spell out how they should behave. This description means that an organization may have a "strong" culture even when it is comprised of characteristics from more than one ideal type--since strength follows from knowledge, agreement, and action, rather than form. In fact, defining strength in terms of a single ideal type or cultural form would mean that organizations with strong cultures rarely exist--since the single form appears to be the exception rather than the rule (Wilkins and Ouchi, 1983; Quinn and Hall, 1983).

In light of this interpretation of what constitutes a strong culture, we can identify at least two criteria of cultural strength. First, we can describe strength in terms the extent to which individuals affiliated with an organization agree, or share similiar perceptions about the organization's culture. Second, we can describe strength in terms of the extent which an organization manifests the characteristics of a single cultural form.

The first criterion rests on the assumption that the more individuals agree about the nature of an organization's culture, the stronger the culture. By this criterion, an organization could have a "strong culture" irrespective of whether it was concentrated in a single cultural form, or a mixture of several forms.

The reader is reminded that the intraclass correlation provides an empirical estimate of intraclass agreement--which is precisely how we defined cultural strength. Thus, when intraclass correlations are calculated for survey items concerned with describing an organization's culture, the resulting statistic may be interpreted both as a measure of intraclass agreement, and as a measure of cultural strength. This is what we have done in this study.

The second criterion defines strength in terms of concentration in a single cultural form. This criterion has a number of potential problems. If we define strength in terms of concentation, and then assess concentration with a survey instrument, we come face-to-face with the aggregation problem described above. That is, it is difficult, if not impossible, to use anything other than aggregate scores to measure concentation. However, before we can aggregate perceptual data, we must first demonstrate that they meet the aggregation criteria reported in the section on organizational culture and climate. More will be said about the use of the concentration criterion in the sections that follow.

Research Method

Colleges selected for participation in the national study were stratified on the basis of enrollment size (200 to 20,000 students); institutional control (public versus private); the presence or absence of graduate programs; and enrollment changes between 1978 and 1981 (growing, stable, declining).

717 institutions were invited to participate in the study. 334 institutions agreed to participate, received, and returned questionnaires. Table 4 details the participant institution characteristics according to the four selection characteristics.

[Table 4 about here]

A contact person was designated by the president of each institution. The contact person provided the names of trustees, administrators, and randomly selected faculty. The survey was sent to a random sample of trustees, faculty, and key administrators in each institution. On average, 21 surveys were sent to each institution--seven to trustees, seven to administrators, and seven to faculty.

The number of respondents per instititution ranged from one to nineteen. Ninety-three percent of the institutions had seven or more respondents. The overall response rate was approximately 48%. 3,406 people responded to the survey--1,321 administrators (39%), 1,158 faculty (34%), and 927 trustees (27%). The average per institution was 4.0 administrators, 3.5 faculty, and 2.8 trustees. The overall average was 10.2 respondents per institution.

Intraclass correlations (ICCs) were calculated for each question shown in Table 3 for each institution. The case 2 model was employed since we have a random sample of raters in each institution rating a fixed set of targets. The model is illustrated below for a single institution with four judges for Question 1 (Institutional Characteristics).

Question 1:	Ratings			
Institutional Characteristics	1	2	3	4
1A-Personal Place [Clan]	50	60	50	40
1B-Dynamic [Adhocracy]	20	10	10	0
1C-Formalized & Structured [Hierarchy]	20	20	40	40
1D-Production Oriented [Market]	10	10	0	20

Many of the analyses that follow include statistical estimates for variables that were created by averaging individual's ratings of the same culture type across the four questions. For example, an overall average clan score for each individual was created by summing their ratings on items 1A, 2A, 3A, and 4A, and then dividing by four. This procedure produced four overall average scores for each individual--one for clan, adhocracy, hierarchy, and market cultures.

The "overall average" scores provide a parsimonious way of examining many of the relationships we are interested in. This form of aggregation appears justified on the basis of intra-culture and inter-culture item correlations. Inter-item correlations and coefficient alphas for each cultural set (e.g., items 1A, 2A, 3A, and 4A), are reported in Table 5. In all but three instances the correlations within culture types was higher than the correlations between culture types. These three instances are noted at the bottom of Table 5.

[Table 5 about here]

The correlations between intra-item ratings are reported in Table 6. The direction and magnitude of these correlations support both the construct validity of the questions, and the validity of aggregating the data to the organization level of analysis. That is, in accord with the Quinn and Halls Competing Values Framework (1983), clan items are strongly negatively correlated with market items; and, hierarchy items are strongly negatively correlated with adhocracy items.

[Table 6 about here]

Results

Intraclass Agreement and Cultural Strength

Intraclass correlations (ICCs) were calculated for each culture item for each institution using equation 3. The values of the ICCs at the 25th, 50th, and 75th percentiles are reported in table

7. The last row in Table 7 reports the ICCs for the overall average scores described above.

[Table 7 about here]

We remind the reader that the ICCs in table 7 reflect both intraclass agreement, and cultural strength. An ICC of zero means no agreement, or no cultural congruence; and, an ICC of 1.0 means perfect agreement, or maximum cultural congruence.

For the first item (Institutional Characteristics) and the overall average scores, about half the institutions in the sample yielded ICCs that are higher than any previously reported in the literature (James. 1982). The ICCs at the 50th percentile for items 2, 3, and 4 (.38, .39, and .24, respectively) compare favorably with those reported in the literature, but are lower than one might hope for.

There is no established criterion level (i.e., in terms of a numerical value for an ICC) for aggregating perceptual data. However, in light of the fact that at least half the coefficients in Table 7 meet or exceed those reported in the literature, it seems valid to employ aggregate indices in the analyses that follow based on an intraclass agreement criterion.

The distribution of ICC values for each question make it difficult to draw general conclusions about cultural strength. At minimum, the differences between the values of the ICCs at the 25th and 75th percentiles suggest that about one-fourth of the organizations in the study have cultures that are many times stronger than other organizations.

Cultural Predominance

Cultural predominance was evaluated on the basis of the institution's average score on each option to each question. Institutions were classified as having a "predominant culture" if 3 out of 4 scores in a single culture domain (e.g., clan--items 1A, 2A, 3A, and 4A) were greater than or equal to 50.

Only 12 of the 334 institutions in the study were identified as having a predominant culture--all were in the clan domain. At the same time, however, many institutions had profiles that were very low (where low is defined as $\leq$ 25 points) on at least 3 of 4 items for a particular domain. For example, 51 institutions (15% of the study sample) had very low average scores on, at least, 3 out of 4 clan items. 235 institutions (71% of the sample) had very low average scores on at least 3 of 4 adhocracy items. 124 institutions (34% of the sample) had very low average scores on the hierarchy items. And, 256 institutions (77% of the sample) had very low scores on the market items.

The data in Table 8 reflect a different approach toward examining the notion of cultural predominace. The table shows the mean of

all individuals' responses to each culture question. Differences in means across questions (e.g., the mean clan scores across the four items were 50.8, 17.1, 46.2, and 33.9) suggest that different cultural dynamics predominate in different situations. That is, Clan-type behaviors appear to dominate "Institutional Characteristics" and "Institutional Glue." Whereas, the Hierachical form appears to dominate "Institutional Leader" characteristics. There is no clear consensus about "Institutional Emphases."

Cultural Strength & Institutional Characteristics

The relationship between perceived institutional characteristics and cultural strength was examined through correlations between selected survey questions and two different measures of cultural strength. The first measure is based on the intraclass correlations for each of the four culture questions and the overall average culture score variables described in the research methods section. The results of this analysis are reported in Table 9. Coefficients greater in absolute value than .09 are significant at the .05 level. Coefficients greater than .13 are significant at the .01 level.

[Table 9 about here]

We must digress for a moment to discuss a potentially serious problem with the data reported in Table 9. The correlations in Table 9 were derived by pairing each institution's ICC for a specific culture question with the mean response in each institution to the other items on the survey. The reader will undoubtedly recognize that the validity of aggregating individuals' perceptions on the other survey items is no less questionable than aggregating their responses on the culture items. In fact, for this data, it turns out to be even more questionable.

Intraclass correlations were calculated for all non-culture items in the survey using the case 1 model.[1] These are reported for administrators, faculty, and trustees in each institution, and for combined respondents in each institution in Table 10.

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[1]Estimating reliability in case 1 situation presents a special problem. The formula requires a value of k, the number of ratings of each target. However, case 1 allows for a different number of raters for each target. Snedecor (1946), and Ebel (1967) suggest that we can obtain an average k which provides a consistent estimate of ICC(1) with the following formula:

$$k_o = \frac{1}{n-1}\left[\sum k - \frac{\sum k^2}{\sum k}\right] \qquad (4)$$

[Table 10 about here]

By way of example, the first line in the table shows intraclass coefficients of .07, .06, .00, and .04, for administrators, faculty, trustees, and combined respondents in each institution, respectively, for item 1 in Section 1. The item reads:

> Major factors outside our institution that affects its enrollments have become more predictable over the past few years.

The small magnitude of the coefficients in this example indicate that, in general, there is essentially no agreement among raters within the institutions included in this study with respect to major factors affecting enrollments.

The coefficients reported in Table 10 range between .00 and .60. However, more than 80% of the coefficients are less than .30. The results are consistent across administrator, faculty, and trustee groups. The low magnitude of these coefficients strongly argues against aggregating individuals' perceptions of non-cultural conditons to the institution level. A more complete discussion of this problem is reported by Drakower (1987).

We find ourselves on the horns of a dilemma. The ICCs for the non-culture items strongly argue against aggregating the data to the institution level of analysis. However, by attending to this warning we find ourselves unable to examine the general relationships between institutional characteristics and cultural strength. Having warned the reader, we chose to forge ahead. We employ the rationalization that the dynamics inherent in the correlations reported in table 9 are not intended to describe the dynamics in any single institution. Rather, they describe "general" relationships between institutional characteristics and cultural strength.

Returning to Table 9, we find that strength as measured by the ICC for the first question is positively related to such things as mission (.52), investor confidence (.27), administrator credibility (.30), and student-faculty relations. It is negatively related to such things as scapegoating (-.22), conflict (-.32), and autocratic decisionmaking (-.25).

In addition to providing insight into the relationship between institutional characteristics and cultural strength, the direction and magnitude of these coefficient address and support the second criterion for aggregating perceptual data--predictable relationships to organizational performance. This is true at least for the culture questions. They also provide support for aggregating both the culture and non-culture items.

The second measure is based on a formula from information theory that can be used to determine the extent to which ratings are concentrated in one category, versus dispersed across categories:

$$\text{Dispersion} = \frac{> p_i \log_e (p_i)}{D_{max}}$$

where $D_{max} = \log_e (1/c)$
c = number of categories
p_i = proportion of points assigned to category i

The values on this measure range between 0.0 and 1.0. A score of 0.0 means that ratings across each culture types are concentrated in one category--e.g., 100, 0, 0, and 0. A score of 1.0 means the ratings are equally dispersed across categories--i.e., 25, 25, 25, and 25. The overall average clan, market, hierarchy, and adhocracy scores were used in calculating the value of the dispersion statistic for each institution.

The correlations between institution mean scores on selected items from the survey and the dispersion scores are reported in Table 11. A positive correlation indicates that high dispersion (or low concentration) goes hand-in-hand with high scores on the items in Sections 4, 6, 7, and 8. A negative correlation indicates that low dispersion (or high concentration) goes hand-in-hand with high scores on the items in these sections. Again, coefficients greater in absolute value than .09 are significant at the .05 level. Coefficients greater than .13 are significant at the .01 level.

[Table 11 about here]

For example, the correlation between the dispersion measure and mission (Section 4, item 6) is -.25. The mission item reads:

> People associated with this institution share a common definition of its mission.

The sign of the coefficient means that institutions are more likely to score high on this item if there culture is more concentrated than dispersed. Other variables exhibiting a strong relationship with concentration include student-faculty relations (-.33), and student personal development (-.29). Variables exhibiting a strong positive relationship to dispersion include innovation (.22), and ability to acquire resources (.13).

Cultural Type & Institutional Characteristics

The overall average clan, market, hierarchy, and adhocracy scores for each institution were correlated with the mean scores of selected survey items. These correlations are reported in Table 12. The data in this table also show the respondent level correlations. Comparisons of respondent and institution level correlations often shows substantial differences--e.g., see the

correlations between the adhocracy and hierarchy variables and variables in Section 6. These differences demonstrate some of the potential problems that arise when data are aggregated to more macro units of analysis.

[Table 12 about here]

The data in Table 12 generally lend support to the validity of aggregating the data, and offer useful insights into the relationship between organizational culture and various aspects of institutional performance. For example, scores on the clan variable show strong a positive relationship to mission (.46), investor confidence (.29), administrator credibility (.21), student-faculty relations (.63), and organizational health (.42). These same variables are all strongly negatively correlated with the market variable. In addition, almost all items that are positively correlated with the adhocracy variable, are negatively correlated with the hierarchy variable.

Differences in the direction of the correlations (i.e., in the relationships) between the institutional variables and the culture variables is illustrated in Table 13. For example, the signs in the first row, indicate that clan and adhocracy cultures have a positive relationship with investor confidence, while hierarchy and market cultures have a negative relationship. The signs on the correlations between antithetical culture forms (i.e., based on the Competing Values Framework: clan versus market, and adhocracy versus hierarchy--are, in all but three instances, opposite from one another.

[Table 13 about here]

Culture Strength and Culture Type

The relationship between culture strength and type was investigated by correlating the ICCs for each question with the mean culture scores on that question. These correlations are reported in Table 14. For example, the data in the first row of Table 14 indicate that a high ICC score on the first question (Institutional Characteristics) was associated with a high number of points being allocated to the clan option--the correlation between ICC-1 and the mean clan rating was .82. Conversely, high market scores on the first question tend to be negatively related to intraclass agreement--the correlation between ICC-1 and the mean market rating was -.71.

[Table 14 about here]

Consistent with the characteristics of the four ideal culture types, the data in Table 14 suggest that individuals in clan oriented institutions show greater agreement about the characteristics of their organization than individuals in other types of organizations. Since the clan and market cultures are antithetical in nature, we are not surprised to find that agreement is inversely related high scores on the market items.

Implications

The results of this research have important implications both for understanding and changing organizational performance. If organizational performance is strongly influenced by organizational culture, then knowledge of an organization's culture affords a great deal of insight into an organization's strengths and weakenesses. Similiarly, to the extent that an organization's culture can be manipulated, it suggests that managers may have a set of levers that can be used to influence and direct the course of their institutions.

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Table 1
Constructs Measured by the Survey

Section	Item	Construct
1		Changes in the institution's external environment
	1	Enrollment Predictability
	2	Revenue Predictability
	3	Competitor Predictability
	4	Students' Tastes & Preferences
	5	Intensity of Competition
	6	Enrollment Competition
	7	Supply of Students
	8	Availability of Financial Resources
2		Decreasing Enrollments
	1	Consensus
	3	Inevitability
	4	Threat
	5	Administrative Control
	6	Duration
3		Decreasing Revenues
	1	Consensus
	3	Inevitability
	4	Threat
	5	Administrative Control
	6	Duration
4		Institutional Characteristics
	1	Specialization
	2	Formalization
	3, 4, 5, 6	Mission
	7	Investor Confidence
	8	Structural Coupling
	9	Centralization
	10	Planning
	11	Innovation
	12	Scapegoating
	13	Resistance to Change
	14	Administrative Turnover
	15	Morale
	16	Slack Resources
	17	Interest Groups
	18	Administrator Credibility

	19	Reallocation Priorities
	20	Conflict
	21	Locus of Control
	22	Internal Mobility
6		Institutional Strategy
	1, 2	Diversity
	4, 7	Conservatism
	5, 8	Moderate Change
	6, 9	Innovation
	3, 10, 11, 12, 13, 14	Administration
7		Institutional Decision Processes
	1, 7	Bureaucratic Allocation
	2, 8	Autocratic Allocation
	3, 9	Collegial Allocation
	4, 10	Rational Allocation
	5, 11	Allocation as Organized Anarchy
	6, 12	Political Allocation
8		Performance and Actions of the Institution
	1, 8, 10	Student Educational Satisfaction
	12, 13, 14	Student Academic Development
	15, 16, 17, 22, 23, 24	Professional Development & Quality of the Faculty
	3, 4, 25	Student Personal Development
	5, 6, 7	Faculty & Administrator Employment Satisfaction
	18, 19, 20, 21	System Openness & Community Interaction
	26, 27, 28, 29, 30, 31, 32	Organizational Health
	2, 9, 11	Student Career Development

Table 2
The Four Ideal Types

The questions in Section 5 are concerned with assessing the type or types of culture that exist in an institution. The four questions in this section are concerned with general institutional culture, leadership, cohesion, and emphases. Each question listed four characteristics; each of these characteristics is indicative of one of four types of cultures. On each question respondents were asked to parcel 100 points among the four types of characteristics (cultures), as an indication of the extent to which each description was reflected in their institution. Throughout the four questions the following characteristics represented these cultures:

Item	Culture	Characteristic
A	Clan	A clan is much like a family; it is highly personal and formal. Loyalty and tradition are bonding forces and morale is usually high. Clans are usually led by father or mother figures or by mentors.
B	Emergent System	An emergent system is dynamic and entrepreneurial it emphasizes innovation and new ideas. This kind of institution is strongly committed to development and progress, and its leader is usually an innovator or entreprenuer.
C	Hierarchy	A hierarchy is a formalized, tightly structured institution governed by formal rules and procedures. As archetypal bureaucracies, such institutions emphasize efficient, well-oiled processes. They value stability and permanence. Hierarchies are usually led by organizers and coordinators.
D	Market	A market culture implies that the institution is production-oriented and values the accomplishment of tasks. Goals drive the institution's activities, and there is a sense of competition and achievement among members. The leader is usually a hard-driving producer who places high priority on results.

TABLE 3 Questions that assessed four types of cultures in institutions

SECTION 5. Type of Institution

These questions relate to the type of organization that your institution is most like. Each of these items contains four descriptions of institutions of higher education. Please distribute 100 points among the four descriptions depending on how *similar* the description is to your school. None of the descriptions is any better than the others; they are just different. *For each question, please use all 100 points.*

FOR EXAMPLE:

In question 1, if institution A seems very similar to mine, B seems somewhat similar, and C and D do not seem similar at all, I might give 70 points to A and the remaining 30 points to B.

1. **Institutional Characteristics** (Please distribute 100 points)

_____ points for A Institution A is a very **personal** place. It is like an extended family. People seem to share a lot of themselves.

_____ points for B Institution B is a very **dynamic** and entrepreneurial place. People are willing to stick their necks out and take risks.

_____ points for C Institution C is a very **formalized and structured** place. Bureaucratic procedures generally govern what people do.

_____ points for D Institution D is very **production oriented.** A major concern is with getting the job done. People aren't very personally involved.

2. **Institutional Leader** (Please distribute 100 points)

_____ points for A The head of institution A is generally considered to be a **mentor, a sage,** or a **father or mother figure.**

_____ points for B The head of institution B is generally considered to be an **entrepreneur,** an **innovator,** or a **risk taker.**

_____ points for C The head of institution C is generally considered to be a **coordinator,** an **organizer,** or an **administrator.**

_____ points for D The head of institution D is generally considered to be a **producer,** a **technician,** or a **hard-driver.**

3. **Institutional "Glue"** (Please distribute 100 points)

_____ points for A The glue that holds institution A together is **loyalty and tradition.** Commitment to this school runs high.

_____ points for B The glue that holds institution B together is a **commitment to innovation and development.** There is an emphasis on being first.

_____ points for C The glue that holds institution C together is **formal rules and policies.** Maintaining a smooth-running institution is important here.

_____ points for D The glue that holds institution D together is the emphasis on **tasks and goal accomplishment.** A production orientation is commonly shared.

4. **Institutional Emphases** (Please distribute 100 points)

_____ points for A Institution A emphasizes **human resources.** High cohesion and morale in the school are important.

_____ points for B Institution B emphasizes **growth and acquiring new resources.** Readiness to meet new challenges is important.

_____ points for C Institution C emphasizes **permanence and stability.** Efficient, smooth operations are important.

_____ points for D Institution D emphasizes **competitive actions and achievement.** Measurable goals are important.

Table 4
Number of Institutions in Study Sample
by Selection Criteria

Graduate Program(s)?	#FTE Students	Enrollment Change	Public	Private
Yes	200-2,500	Growing	2	9
		Stable	4	6
		Declining	8	7
	2,501-10,000	Growing	24	16
		Stable	19	14
		Declining	8	10
	10,001-20,000	Growing	10	3
		Stable	11	4
		Declining	5	1
No	200-2,500	Growing	10	51
		Stable	6	53
		Declining	5	20
	2,501-10,000	Growing	8	7
		Stable	5	6
		Declining	2	0
			127	207 = 334

Table 5
Correlation Matrices for Each Culture Type
Respondent Level (n=3,002)
Institution Level in parentheses (n=334)

Item A: Clan Culture (alpha= .82)

Q#	1	2	3	4
1	1.00			
2	.18 (.30)	1.00		
3	.59 (.76)	.19 (.31)	1.00	
4	.55 (.78)	.18 (.38)	.47 (.66)	1.00

Item B: Emergent System (alpha= .83)

Q#	1	2	3	4
1	1.00			
2	.37 (.48)	1.00		
3	.52 (.76)	.36 (.55)	1.00	
4	.32 (.50)	.32 (.57)	.41 (.60)	1.00

Item C: Hierarchy Culture (alpha= .67)

Q#	1	2	3	4
1	1.00			
2	.04[a] (.07[b])	1.00		
3	.60 (.76)	.09 (.13[c])	1.00	
4	.36 (.41)	.13 (.38)	.37 (.42)	1.00

Item D: Market Culture (alpha= .78)

Q#	1	2	3	4
1	1.00			
2	.29 (.40)	1.00		
3	.43 (.62)	.22 (.34)	1.00	
4	.37 (.57)	.27 (.44)	.39 (.53)	1.00

Question 1= Institutional Characteristics
2= Institutional Leadership
3= Institutional Cohesion
4= Institutional Emphases

[a]The correlation between Q1-item C and Q2-item C was .04 but the correlation between Q1-item C and Q2-item D was .15.

[b]The correlation between Q1-item C and Q2-item C was .07 but the correlation between Q1-item C and Q2-item D was .25.

[c]The correlation between Q2-item C and Q3-item C was .13 but the correlation between Q2-item C and Q3-item A was .20.

Table 6
Correlation Matrices for each Culture Question
Respondent Level (n=3,002)

Question 1: General Institutional Culture

	Clan	Emergent	Hierarchy	Market
Clan	1.00			
Emergent	-.19	1.00		
Hierarchy	-.61	-.40	1.00	
Market	-.66	-.17	.15	1.0

Question 2: Institutional Leadership

	Clan	Emergent	Hierarchy	Market
Clan	1.00			
Emergent	-.27	1.00		
Hierarchy	-.43	-.44	1.00	
Market	-.31	-.16	-.35	1.0

Question 3: Institutional Cohesion

	Clan	Emergent	Hierarchy	Market
Clan	1.00			
Emergent	-.40	1.00		
Hierarchy	-.47	-.28	1.00	
Market	-.60	-.06	-.06	1.0

Question 4: Institutional Emphases

	Clan	Emergent	Hierarchy	Market
Clan	1.00			
Emergent	-.38	1.00		
Hierarchy	-.36	-.44	1.00	
Market	-.50	.02	-.29	1.0

Table 7

Percentile Distribution of Intraclass Correlations
Institution Level (n=333)

Item	Construct	25th	50th	75th	Mean	SD
1	Institutional Characteristics	.18	.51	.76	.49	.30
2	Institutional Leader	.23	.38	.54	.40	.22
3	Institutional Glue	.18	.39	.69	.49	.28
4	Institutional Emphases	.06	.24	.42	.27	.22
5	Total Score	.22	.47	.66	.44	.26

Table 8

Means and Standard Deviations
Respondent Level (n=3,203 to 3,248)

Question	Clan		Emergent		Hierarchy		Market	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
1 General Culture	50.8	26.7	18.5	16.1	17.1	20.3	13.6	17.4
2 Leadership	17.1	24.3	21.3	22.1	44.6	27.6	17.0	20.7
3 Cohesion	46.2	27.0	16.7	17.4	16.5	18.9	20.7	18.4
4 Emphases	33.9	23.6	22.8	18.3	25.1	21.8	18.2	17.9

Table 9
Correlations of Intraclass Coefficients
with Selected Questionnaire Items
Institution Level (n=333)

Section & Question	Q1	Q2	Q3	Q4	Q5
Section 4					
1 Specialization	-.21	.03	.01	-.12	-.04
2 Formalization	-.09	.10	-.05	-.18	-.04
6 Mission	.52	.06	.39	.23	.37
7 Invtr.Confidence	.27	.12	.27	.17	.22
8 Struct.Coupling	-.27	-.10	-.15	-.11	-.14
9 Centralization	-.18	-.20	-.14	-.16	-.21
10 Planning	-.22	-.08	-.08	-.08	-.07
11 Innovation	.14	.05	.06	.10	.06
12 Scapegoating	-.22	-.07	-.14	-.22	-.14
13 Resist.to Change	-.25	-.03	-.02	-.18	-.09
14 Admin.Turnover	-.08	.18	-.09	-.08	-.07
15 Morale	.08	-.08	.05	.08	.01
16 Slack Resources	.08	-.08	-.05	.08	.01
17 Interest Groups	-.35	.03	-.21	-.20	-.23
18 Adm.Credibility	.30	.02	.10	.22	.14
19 Reall.Priorities	.13	.00	.04	.11	.05
20 Conflict	-.32	-.01	-.14	-.16	-.15
21 Locus of Control	-.26	.00	-.21	-.15	-.14
22 Int.Mobility	.04	.06	.10	.08	.14
Section 6					
4 Conservatism	.06	.07	.24	.03	.17
7*Conservatism	.09	-.10	-.02	.11	-.04
5 Moderate Change	.06	.06	.23	-.05	.16
8 Moderate Change	.15	.07	.12	.04	.09
6 Innovation	-.09	-.04	-.19	.07	-.10
9 Innovation	.03	-.20	-.19	.07	-.10
Section 8					
26*St/Fac Relations	.61	.13	.42	.30	.40
27*Equity	.33	.13	.28	.26	.26
28*Org.Health	.23	.18	.13	.13	.11
29 Trust	.26	.11	.23	.26	.26
30 No Conflict	.34	.13	.20	.22	.23
31*Rewards	.07	.06	.06	.05	.04
32*Feedback	.19	.09	.11	.11	.13

Table 9
(continued)

Section & Question	Clan	Emergent		Hierarchy	Market
Section 7					
1 Bureaucratic	.05	.10	.07	.00	.09
7 Bureaucratic	-.26	-.02	-.15	-.20	-.16
2 Autocratic	-.17	-.16	-.12	-.10	-.15
8 Autocratic	-.25	-.17	-.18	-.10	-.19
3 Collegial	.28	.16	.22	.19	.24
9 Collegial	.28	.12	.19	.18	.20
4 Rational	.22	.08	.15	.07	.12
10 Rational	.35	.13	.21	.19	.20
5 Org.Anarchy	-.04	-.02	.00	-.03	.01
11 Org.Anarchy	-.16	-.05	-.10	-.02	-.03
6 Political	-.32	-.08	-.16	-.18	-.18
12 Political	-.13	-.03	-.004	-.07	-.07
Section 8					
1 St.Ed.Satis	.16	.19	.11	.08	.11
2 St.Acad.Dev	.23	.09	.27	.14	.18
3 St.Career Dev	-.10	-.04	-.13	.04	-.08
4 St.Personal Dev	.48	.19	.48	.19	.36
5 Fac/Admin.Satis	.25	.20	.25	.21	.23
6 Dev.of Faculty	-.01	.09	.03	.02	.02
7 System Openness	.15	.00	.02	.07	.02
8 Ability Acq.Res	.00	.10	.04	-.01	-.06
9 Org.Health	.44	.18	.30	.26	.30

*Scale was reversed

Table 10
Intraclass Correlations

Section	Item	Administrators n=1321	Faculty n=1158	Trustees n=927	Total n=3406
1	1	.07	.06	.00	.04
	2	.04	.08	.03	.05
	3	.00	.01	.00	.01
	4	.04	.02	.10	.03
	5	.12	.14	.10	.13
	6	.17	.15	.14	.16
	7	.22	.16	.18	.17
	8	.23	.14	.22	.17
2	1	.60	.55	.38	.49
	3	.19	.08	.17	.14
	4	.31	.28	.34	.28
	5	.14	.14	.10	.11
	6	.31	.25	.28	.28
3	1	.31	.29	.29	.29
	3	.14	.12	.09	.09
	4	.28	.29	.17	.22
	5	.00	.12	.00	.09
	6	.32	.11	.24	.19
4	1	.17	.16	.10	.14
	2	.14	.11	.08	.10
	3	.30	.31	.18	.26
	4	.28	.29	.23	.24
	5	.17	.18	.13	.14
	6	.24	.23	.14	.19
	7	.19	.12	.06	.11
	8	.06	.06	.06	.07
	9	.12	.11	.06	.08
	10	.25	.22	.22	.18
	11	.13	.13	.12	.10
	12	.16	.07	.14	.10
	13	.21	.15	.16	.13
	14	.35	.38	.26	.30
	15	.23	.23	.20	.16
	16	.23	.07	.12	.12
	17	.15	.06	.14	.11
	18	.20	.23	.14	.14
	19	.10	.16	.07	.06
	20	.22	.25	.21	.17
	21	.25	.12	.13	.16
	22	.50	.55	.37	.45
6	1	.24	.16	.13	.18
	2	.21	.12	.06	.15
	3	.19	.10	.10	.10
	4	.09	.13	.10	.06
	5	.18	.20	.09	.13
	6	.24	.28	.21	.21

Section	Item	Administrators n=1321	Faculty n=1158	Trustees n=927	Total n=3406
6	7	.06	.20	.14	.11
	8	.16	.05	.10	.08
	9	.16	.19	.11	.14
	10	.10	.14	.16	.10
	11	.14	.17	.10	.10
	12	.22	.23	.18	.18
	13	.19	.12	.13	.11
	14	.07	.08	.04	.05
7	1	.08	.10	.04	.07
	2	.14	.11	.10	.10
	3	.14	.11	.06	.08
	4	.08	.10	.02	.05
	5	.11	.12	.05	.05
	6	.06	.13	.12	.06
	7	.08	.08	.07	.06
	8	.12	.08	.06	.07
	9	.11	.18	.04	.08
	10	.02	.08	.08	.04
	11	.07	.11	.10	.05
	12	.03	.05	.00	.04
8	1	.29	.22	.15	.22
	2	.12	.14	.01	.09
	3	.31	.34	.38	.29
	4	.33	.19	.31	.24
	5	.18	.17	.15	.12
	6	.25	.15	.19	.15
	7	.11	.12	.08	.09
	8	.27	.22	.15	.20
	9	.14	.08	.11	.10
	10	.24	.19	.15	.18
	11	.17	.14	.09	.13
	12	.42	.33	.34	.35
	13	.38	.26	.29	.30
	14	.19	.11	.04	.13
	15	.27	.30	.19	.24
	16	.21	.25	.12	.19
	17	.23	.23	.25	.23
	18	.16	.19	.18	.14
	19	.13	.21	.20	.16
	20	.14	.22	.26	.15
	21	.19	.14	.13	.14
	22	.40	.39	.19	.33
	23	.18	.09	.14	.10
	24	.26	.24	.19	.22
	25	.37	.33	.29	.33
	26	.38	.30	.26	.30
	27	.08	.13	.04	.08
	28	.18	.23	.16	.16
	29	.14	.18	.07	.11
	30	.18	.22	.17	.16
	31	.05	.09	.04	.06
	32	.06	.09	.00	.05

Table 11
Correlations of Dispersion Score
with Selected Questionnaire Items
Institution Level (n=333)

Section & Question	
Section 4	
1 Specialization	.08
2 Formalization	.17
6 Mission	-.25
7 Invtr.Confidence	-.12
8 Struct.Coupling	.03
9 Centralization	.15
10 Planning	-.05
11 Innovation	.02
12 Scapegoating	.04
13 Resist.to Change	-.01
14 Admin.Turnover	-.03
15 Morale	-.03
16 Slack Resources	.00
17 Interest Groups	.19
18 Adm.Credibility	-.01
19 Reall.Priorities	.01
20 Conflict	.03
21 Locus of Control	.06
22 Int.Mobility	-.13
Section 6	
4 Conservatism	-.21
7*Conservatism	.11
5 Moderate Change	-.17
8 Moderate Change	.00
6 Innovation	.22
9 Innovation	.18
Section 8	
26*St/Fac Relations	-.33
27*Equity	-.16
28*Org.Health	.03
29 Trust	-.14
30 No Conflict	-.09
31*Rewards	.04
32*Feedback	-.01

Section & Question	
Section 7	
1 Bureaucratic	-.01
7 Bureaucratic	.06
2 Autocratic	.08
8 Autocratic	.11
3 Collegial	-.14
9 Collegial	-.13
4 Rational	.03
10 Rational	-.07
5 Org.Anarchy	-.08
11 Org.Anarchy	-.08
6 Political	.08
12 Political	.05
Section 8	
1 St.Ed.Satis	.00
2 St.Acad.Dev	-.11
3 St.Career Dev	.08
4 St.Personal Dev	-.29
5 Fac/Admin.Satis	-.15
6 Dev.of Faculty	.03
7 System Openness	.00
8 Ability Acq.Res	.13
9 Org.Health	-.15

*Scale was reversed

Table 12
Correlations of Summary Culture Variables with
Selected Questionnaire Items

Respondent Level (n=3,002)
Institution Level in parentheses (n=333)

Section & Question	Clan	Emergent	Hierarchy	Market
Section 4				
1 Specialization	-.12 (-.20)	-.05 (.01)	.14 (.23)	.06 (.06)
2 Formalization	-.05 (-.14)	-.05 (-.22)	.16 (.42)	-.06 (.02)
6 Mission	.28 (.46)	.11 (-.01)	-.17 (-.36)	-.12 (-.38)
7 Invtr.Confidence	.17 (.29)	.14 (.05)	-.20 (-.26)	-.17 (-.26)
8 Struct.Coupling	-.11 (-.18)	-.09 (.08)	.11 (.07)	.11 (.14)
9 Centralization	-.11 (-.19)	-.10 (.03)	.11 (.00)	.14 (.28)
10 Planning	-.05 (-.09)	-.19 (-.11)	.17 (.18)	.09 (.08)
11 Innovation	.08 (.05)	.32 (.36)	-.29 (-.39)	-.12 (-.08)
12 Scapegoating	-.06 (-.20)	-.06 (-.11)	.07 (.24)	.07 (.21)
13 Resist.to Change	-.07 (-.12)	-.28 (-.41)	.27 (.52)	.08 (.11)
14 Admin.Turnover	-.10 (-.11)	-.01 (.11)	.02 (-.08)	.13 (.15)
15 Morale	.13 (.15)	.25 (.23)	-.25 (-.32)	-.16 (-.18)
16 Slack Resources	-.00 (-.02)	.04 (.07)	-.04 (-.05)	.01 (-.00)
17 Interest Groups	-.15 (-.33)	-.08 (-.05)	.16 (.33)	.12 (.24)
18 Adm.Credibility	.17 (.21)	.23 (.22)	-.25 (-.36)	-.20 (-.22)
19 Reall.Priorities	.07 (.06)	.21 (.21)	-.20 (-.27)	-.10 (-.05)
20 Conflict	-.16 (-.21)	-.20 (-.18)	.23 (.34)	.19 (.21)
21 Locus of Control	-.10 (-.19)	-.18 (-.20)	.21 (.35)	.09 (.16)
22 Int.Mobility	.05 (.06)	-.01 (.04)	.00 (-.03)	-.06 (-.13)
Section 6				
4 Conservatism	.00 (.20)	-.21 (-.37)	.16 (.22)	.04 (-.16)
7*Conservatism	-.06 (.06)	-.23 (-.38)	.22 (.35)	.07 (-.03)
5 Moderate Change	.01 (.21)	-.38 (-.61)	.29 (.41)	.05 (-.03)
8 Moderate Change	.08 (.13)	.15 (.11)	-.17 (-.25)	-.08 (-.08)
6 Innovation	-.06 (-.26)	.48 (.73)	-.34 (-.46)	-.05 (.08)
9 Innovation	-.01 (-.14)	.36 (.56)	-.28 (-.41)	-.06 (.03)
Section 8				
26*St/Fac Relations	.40 (.63)	.03 (-.14)	-.21 (-.37)	-.29 (-.50)
27*Equity	.19 (.34)	.16 (.04)	-.19 (-.30)	-.22 (-.30)
28*Org.Health	.14 (.19)	.18 (.07)	-.18 (-.19)	-.18 (-.19)
29 Trust	.22 (.33)	.17 (.13)	-.21 (-.33)	-.24 (-.35)
30 No Conflict	.22 (.29)	.15 (.15)	-.22 (-.34)	-.23 (-.29)
31*Rewards	.10 (.09)	.18 (.09)	-.17 (-.15)	-.15 (-.08)
32*Feedback	.13 (.16)	.17 (.06)	-.18 (-.17)	-.15 (-.17)

Table 12
(continued)

Section & Question	Clan	Emergent	Hierarchy	Market
Section 7				
1 Bureaucratic	.05 (.05)	-.01 (-.18)	.01 (.20)	-.07 (-.08)
7 Bureaucratic	.14 (-.18)	-.23 (-.31)	.29 (.45)	.12 (.18)
2 Autocratic	-.15 (-.17)	-.11 (.00)	.12 (.04)	.18 (.25)
8 Autocratic	-.16 (-.23)	-.13 (.01)	.14 (.03)	.21 (.31)
3 Collegial	.17 (.26)	.14 (.01)	-.16 (-.13)	-.21 (-.31)
9 Collegial	.17 (.27)	.19 (.09)	-.22 (-.24)	-.19 (-.30)
4 Rational	.11 (.12)	.17 (.06)	-.16 (-.12)	-.16 (-.15)
10 Rational	.14 (.25)	.21 (.14)	-.23 (-.31)	-.16 (-.24)
5 Org.Anarchy	-.06 (-.02)	-.12 (-.00)	.11 (-.03)	.09 (.07)
11 Org.Anarchy	-.06 (-.10)	-.15 (-.08)	.13 (.15)	.10 (.09)
6 Political	-.17 (-.26)	-.20 (-.07)	.24 (.27)	.18 (.22)
12 Political	-.04 (-.12)	.06 (.16)	-.05 (-.08)	.04 (.10)
Section 8				
1 St.Ed.Satis	.15 (.18)	.11 (.04)	-.16 (-.16)	-.15 (-.18)
2 St.Acad.Dev	.13 (.14)	.15 (.13)	-.20 (-.20)	-.12 (-.18)
3 St.Career Dev	-.01 (-.11)	.11 (.14)	-.10 (-.12)	.02 (.15)
4 St.Personal Dev	.34 (.56)	.00 (-.22)	-.19 (-.19)	-.26 (-.49)
5 Fac/Admin.Satis	.21 (.28)	.14 (.01)	-.20 (-.17)	-.22 (-.30)
6 Dev.of Faculty	-.02 (-.14)	.19 (.25)	-.14 (-.10)	-.01 (.05)
7 System Openness	.12 (.16)	.24 (.20)	-.25 (-.28)	-.13 (-.19)
8 Ability Acq.Res	.01 (-.09)	.22 (.23)	-.18 (-.14)	-.04 (.03)
9 Org.Health	.27 (.42)	.19 (.07)	-.27 (-.35)	-.28 (-.40)

*Scale was reversed

Table 13
Correlational Relationships Between Selected Survey Items and Overall Average Culture Scores
Institution Level (n=333)

	Cultural Type			
Variables	Clan	Adhocracy	Hierarchy	Market
Investor Confidence	+	+	-	-
Centralized Decisionmaking	-	-	+	+
Long Term Planning	-	-	+	+
Innovative Activity	-	-	+	+
Morale	+	+	+	+
Administrative Credibility	+	+	-	-
Conflict	-	-	+	+
Student-Faculty Relations	+	-	-	-
Equity of Rewards	+	+	-	-
Trust Among People	+	+	-	-
Feedback	+	+	-	-

Table 14
Correlations Between Culture Items and ICCs
Institution Level (n=333)

	Clan	Adhocracy	Hierarchy	Market
ICC-1	.82	-.15	-.58	-.71
ICC-2	-.11	-.18	.52	-.29
ICC-3	.78	-.31	-.47	-.62
ICC-4	.47	.00	-.25	-.40
ICC-OA	.65	-.23	-.17	-.66

An Assessment of the Performance of Colleges and Universities

National Center for Higher Education Management Systems
P.O. Drawer P Boulder, CO 80302

Dear Respondent:

This questionnaire is part of a national study of performance in colleges and universities conducted by the National Center for Higher Education Management Systems. Several administrators, faculty department heads, and trustees at your institution are completing this instrument. You were selected as a respondent because of the position you hold at this school.

We are seeking your perceptions of the *overall* institution rather than information about one particular department or program. The responses of all individuals will remain strictly confidential. The data will be analyzed at NCHEMS in Boulder, Colorado, and all individual responses will be aggregated. In addition, the name of your institution will be revealed only to individuals at your school in the feedback reports to be provided at the conclusion of the study. You will be able to compare your institution with other similar schools, but the other schools will be described on the basis of their general characteristics, not by name.

The questionnaire is designed to be mailed back to NCHEMS without needing an envelope. On the back cover is printed the address of NCHEMS, along with a sticker identifying your institution as the return address. Just seal up the questionnaire and drop it in the mail. We will pay the return postage. You will find three peel-off stickers included with the questionnaire for your use in sealing up the questionnaire prior to mailing it.

Please complete the questionnaire at your earliest convenience; if possible, we would like it within 10 days of when you received it. Previous respondents have averaged 20 minutes to complete the questionnaire, so despite its length, we hope you find the questions interesting and thought-provoking. If you have questions or comments, please feel free to contact Dr. Kim Cameron at (303) 497-0368. Thank you in advance for your cooperation.

SECTION 1: Changes in the Institution's External Environment

The following questions concern changes in conditions outside your institution over the past few years. Please circle the number to the right of each statement that best reflects your institution's experiences since 1979-80.

	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree	
1. Major factors outside our institution that affect its enrollments have become more predictable over the past few years.	1	2	3	4	5	–10
2. Major factors outside the institution that affect its revenues have become less predictable over the past few years.	1	2	3	4	5	–11
3. Competitive actions of other colleges and universities have become more predictable over the past few years.	1	2	3	4	5	–12
4. The tastes and preferences of students have become harder to forecast over the past few years.	1	2	3	4	5	–13
5. Competitive actions of other colleges and universities now affect this institution in more areas (e.g., price, programs, area served) than in the past.	1	2	3	4	5	–14
6. Competition with other colleges and universities for student enrollments has increased over the past few years.	1	2	3	4	5	–15
7. The number of potential students from whom our institution can recruit has increased over the past few years.	1	2	3	4	5	–16
8. Financial resources have become more difficult to obtain over the past few years.	1	2	3	4	5	–17

SECTION 2: Decreasing Enrollments

This section is concerned with whether your institution has experienced decreasing full-time equivalent enrollments during any of the academic years since 1979-80.

1. To the best of your knowledge, did full-time equivalent student enrollments decrease from one year to the next during any of the academic years from 1979-80 to 1982-83?

_____ (1) Yes
_____ (2) No –19

If you answered "no" to the above question, please skip to Section 3 on the following page. If you answered "yes," please complete the remaining items in this section.

2. Please check the years in which you believe that full-time equivalent enrollments decreased from those of the previous year.

_____ 1979-80 _____ 1980-81 _____ 1981-82 _____ 1982-83 –20 21 22 23

Please circle the number to the right of each statement that best reflects your institution's experiences during its most recent episode of decreasing enrollments.

	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree	
3. Decreasing enrollments were inevitable at that time.	1	2	3	4	5	–24
4. Decreasing enrollments presented an immediate threat to the viability of this institution.	1	2	3	4	5	–25
5. Predictions of decreasing enrollments provided adequate lead time to take actions that minimized their impact.	1	2	3	4	5	–26
6. Decreasing enrollments were a short-term problem.	1	2	3	4	5	–27

7. Please indicate in the space below the major factors that caused enrollments to decrease at your institution.

–28-29 30 31 32-33

SECTION 3: Decreasing Revenues

This section is concerned with whether your institution has experienced decreasing revenues, adjusted for inflation, during any of the academic years since 1979-80.

1. To the best of your knowledge, did revenues, adjusted for inflation, decrease from one year to the next during any of the academic years from 1979-80?

_____ (1) Yes
_____ (2) Yes —35

If you answered "no" to the above question, please skip to Section 4, which begins on this page. If you answered "yes," please complete the remaining items in this section.

2. Please check the years in which you believe that revenues, adjusted for inflation, decreased from those of the previous year.

_____ 1979-80 _____ 1980-81 _____ 1981-82 _____ 1982-83 —36-37 38-39

Please circle the number to the right of each statement that best reflects your institution's experiences during its most recent episode of decreasing revenues.

	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree	
3. Decreasing revenues were inevitable at that time.	1	2	3	4	5	—40
4. Decreasing revenues presented an immediate threat to the viability of the institution.	1	2	3	4	5	—41
5. Predictions of decreasing revenues provided adequate lead time to take actions that minimized their impact.	1	2	3	4	5	—42
6. Decreasing revenues were a short-term problem.	1	2	3	4	5	—43

7. Please indicate in the space below the major factors that caused revenues to decrease at your institution.

—44-45 46-47 48-49

SECTION 4: Institutional Characteristics

In this section, we are asking for your impressions of some general characteristics of your institution. Please answer each item. If you are not sure, make your best guess.

	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree	
1. This institution has many administrators performing specialized functions.	1	2	3	4	5	—51
2. Formal policies and rules govern most activities at this institution.	1	2	3	4	5	—52
3. This institution has a special identity, unlike any other in higher education.	1	2	3	4	5	—53
4. There is a general sense that this institution has a distinctive purpose to fulfill.	1	2	3	4	5	—54
5. The academic programs offered here reflect the mission of the institution.	1	2	3	4	5	—55
6. People associated with this institution share a common definition of its mission.	1	2	3	4	5	—56
7. Those who make a personal or financial investment in this institution believe that they receive an ample return.	1	2	3	4	5	—57
8. The activities of the various units in this institution are loosely coordinated or loosely coupled.	1	2	3	4	5	—58
9. Major decisions are very centralized.	1	2	3	4	5	—59
10. Long-term planning is neglected.	1	2	3	4	5	—60

Institutional Characteristics (continued)

	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree	
11. Innovative activity is increasing.	1	2	3	4	5	–61
12. Top administrators are often scape goats.	1	2	3	4	5	–62
13. There is a lot of resistance to change in this school.	1	2	3	4	5	–63
14. There is a great deal of turnover in administrative positions.	1	2	3	4	5	–64
15. Morale is increasing among members of this institution.	1	2	3	4	5	–65
16. We have no place that we could cut expenditures without severely damaging the school.	1	2	3	4	5	–66
17. Special interest groups within the institution are becoming more vocal.	1	2	3	4	5	–67
18. Top administrators have high credibility.	1	2	3	4	5	–68
19. When cutbacks occur, they are done on a prioritized basis.	1	2	3	4	5	–69
20. Conflict is increasing within this institution.	1	2	3	4	5	–70
21. Top administrators believe that factors outside the institution largely determine its condition.	1	2	3	4	5	–71
22. Top administrative positions are now held by individuals who were promoted from within the institution.	1	2	3	4	5	–72

SECTION 5. Type of Institution

These questions relate to the type of organization that your institution is most like. Each of these items contains four descriptions of institutions of higher education. Please distribute 100 points among the four descriptions depending on how *similar* the description is to your school. None of the descriptions is any better than the others; they are just different. *For each question, please use all 100 points.*

FOR EXAMPLE:

In question 1, if institution A seems very similar to mine, B seems somewhat similar, and C and D do not seem similar at all, I might give 70 points to A and the remaining 30 points to B.

1. **Institutional Characteristics** (Please distribute 100 points) _____

_____ points for A — Institution A is a very **personal** place. It is like an extended family. People seem to share a lot of themselves.

_____ points for B — Institution B is a very **dynamic** and entrepreneurial place. People are willing to stick their necks out and take risks.

_____ points for C — Institution C is a very **formalized and structured** place. Bureaucratic procedures generally govern what people do.

_____ points for D — Institution D is very **production oriented.** A major concern is with getting the job done. People aren't very personally involved. –74-75 76-77 78-79 80-81

2. **Institutional Leader** (Please distribute 100 points) _____

_____ points for A — The head of institution A is generally considered to be a **mentor,** a **sage,** or a **father** or **mother figure.**

_____ points for B — The head of institution B is generally considered to be an **entrepreneur, an innovator,** or a **risk taker.**

_____ points for C — The head of institution C is generally considered to be a **coordinator,** an **organizer,** or an **administrator.**

_____ points for D — The head of institution D is generally considered to be a **producer,** a **technician,** or a **hard-driver.** –82-83 84-85 86-87 88-89

Type of Institution (continued)

3. **Institutional "Glue"** (Please distribute 100 points)

_____ points for A — The glue that holds institution A together is **loyalty and tradition.** Commitment to this school runs high.

_____ points for B — The glue that holds institution B together is a **commitment to innovation and development.** There is an emphasis on being first.

_____ points for C — The glue that holds institution C together is **formal rules and policies.** Maintaining a smooth-running institution is important here.

_____ points for D — The glue that holds institution D together is the **emphasis on tasks and goal accomplishment.** A production orientation is commonly shared. —90 91 92 93 94 95 96 97

4. **Institutional Emphases** (Please distribute 100 points)

_____ points for A — Institution A **emphasizes human resources.** High cohesion and morale in the school are **important.**

_____ points for B — Institution B **emphasizes growth and acquiring new resources.** Readiness to meet new challenges is important.

_____ points for C — Institution C **emphasizes permanence and stability.** Efficient, smooth operations are important.

_____ points for D — Institution D **emphasizes competitive actions and achievement.** Measurable goals are important. —98 99 100 101 102 103 104 105

SECTION 6: Institutional Strategy

The following section deals with the strategy your institution is pursuing. Please indicate the extent to which you agree or disagree with each item, based on your own perceptions.

	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree	
1. We are making our academic programs more diverse.	1	2	3	4	5	—107
2. We are changing the composition of our student body, making it more diverse.	1	2	3	4	5	—108
3. We are increasing the investment of the college in functions that deal with external people (admissions, development, government relations, and others).	1	2	3	4	5	—109
4. This institution tries to insulate itself from pressures in the environment.	1	2	3	4	5	—110
5. This institution tries new activities or policies, but not until after others have found them successful.	1	2	3	4	5	—111
6. This institution is likely to be the first to try new activities or policies.	1	2	3	4	5	—112
7. Our top administrators educate important outsiders about the value of the institution in order to improve its legitimacy in their eyes.	1	2	3	4	5	—113
8. This institution tends to do more of what it does well, to expand in areas we have expertise.	1	2	3	4	5	—114
9. This institution establishes new domains of activity.	1	2	3	4	5	—115
10. We are increasing the quality of the individuals in top administrative positions.	1	2	3	4	5	—116
11. Top administrators emphasize finding new money, more so than saving money, for a balanced budget.	1	2	3	4	5	—117
12. The top administrative team has developed multi-year stategies to achieve long-term institutional objectives.	1	2	3	4	5	—118
13. The top administrative team receives rapid and accurate feedback about enrollment and financial conditions.	1	2	3	4	5	—119
14. The top administrative team provides incentives for conserving resources.	1	2	3	4	5	—120

Institutional Strategy (continued)

15. Of the four actions listed below, which one is the most likely response of this institution to changes in the outside world? (check one response)

    _____ 1. Change the institution's policies and procedures
    _____ 2. Change the institution's image through communication
    _____ 3. Change the kinds of students, suppliers, or donors we deal with
    _____ 4. Weather any storm, making no changes —121

16. Of the four actions listed below, which one is the least likely response of this institution to changes in the outside world? (check one response)

    _____ 1. Change the institution's policies and procedures
    _____ 2. Change the institution's image through communication
    _____ 3. Change the kinds of students, suppliers, or donors we deal with
    _____ 4. Weather any storm, making no changes —122

SECTION 7: Institutional Decision Processes

The following questions deal with the decision process used at the institution for allocating resources—whether the resources are staff positions, dollars, space, or other valuable items. Please indicate the extent to which you agree or disagree with each item.

	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree	
1. This institution has a standard set of procedures it uses to make resource allocation decisions.	1	2	3	4	5	—124
2. One individual at this institution makes all resource allocation decisions of any consequence.	1	2	3	4	5	—125
3. People at this institution make resource allocation decisions collegially.	1	2	3	4	5	—126
4. A rational process is used to make resource allocation decisions at this institution.	1	2	3	4	5	—127
5. No particular pattern characterizes the process by which resource allocation decisions are made here.	1	2	3	4	5	—128
6. Resource allocation decisions are political, based on the relative power of those involved.	1	2	3	4	5	—129
7. Resource allocation is decided bureaucratically at this institution.	1	2	3	4	5	—130
8. Resource allocation is decided autocratically.	1	2	3	4	5	—131
9. Resource allocation is a matter for group discussion and consensus.	1	2	3	4	5	—132
10. Resource allocation decisions are based on what objectively seems best for this institution overall.	1	2	3	4	5	—133
11. Resource allocation is decided by coincidence; it is a matter of organized anarchy.	1	2	3	4	5	—134
12. Persuasion, negotiation, and coalition-building are examples of what determines resource allocation.	1	2	3	4	5	—135

SECTION 8: Performance and Actions of the Institution

The items in this section ask about the performance and actions of your institution. If you are not sure of the item, please make your best guess.

To what extent are the following characteristics typical of this institution?

	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree	
1. One of the outstanding features of this institution is the opportunity it provides students for personal development in addition to academic development.	1	2	3	4	5	—137
2. This college is highly responsive and adaptive to meeting the changing needs of its external constituencies.	1	2	3	4	5	—138
3. This college has a very high ability to obtain financial resources in order to provide a high quality educational program.	1	2	3	4	5	—139
4. When hiring new faculty members, this college can attract the leading people in the country in their respective fields to take a job here.	1	2	3	4	5	—140
5. There seems to be a feeling that dissatisfaction is high among students at this institution.	1	2	3	4	5	—141
6. There have been relatively large numbers of students either drop out or not return because of dissatisfaction with their educational experiences here.	1	2	3	4	5	—142
7. I am aware of a large number of student complaints regarding their educational experience here as registered in the campus newspaper, meetings with faculty members and administrators, or other public forums.	1	2	3	4	5	—143
8. There is a very high emphasis on activities outside the classroom designed specifically to enhance students' personal, non-academic development.	1	2	3	4	5	—144
9. There is a very high emphasis on institution-community or institution-environment activities.	1	2	3	4	5	—145
10. Students develop and mature in non-academic areas (e.g., socially, emotionally, culturally) to a very large degree directly as a result of their experiences at this institution.	1	2	3	4	5	—146
11. A very large number of community-oriented programs, workshops, projects, or activities were sponsored by this institution last year.	1	2	3	4	5	—147

12. Think of last year's graduating class at this institution. Please rate the academic attainment or academic level achieved by that class as a whole. (Select one)

_____ 1) That class is among the very top classes in the country.

_____ 2) That class is well above average.

_____ 3) That class is slightly above average.

_____ 4) That class is about average.

_____ 5) That class is slightly below average.

_____ 6) That class is below average.

_____ 7) That class is near the bottom of classes across the country. —148

13. Estimate what percent of the graduates from this institution go on to obtain degrees in graduate or professional schools.

_____ 1) From 91% to 100% of the students here go on for advanced degrees.

_____ 2) From 76% to 90% go on.

_____ 3) From 61% to 75% go on.

_____ 4) From 46% to 60% go on.

_____ 5) From 31% to 45% go on.

_____ 6) From 16% to 30% go on.

_____ 7) From 0 to 15% go on to obtain advanced degrees. —149

Performance and Actions of the Institution (continued)

Please use the following scale in responding to the following questions

7 — All
6 — A large majority
5 — More than half
4 — About half
3 — Less than half
2 — A small minority
1 — None

14. _____ How many students would you say engage in extra academic work (e.g., reading, studying, writing) over and above what is specifically assigned in the classroom. —150

15. _____ What proportion of the students who graduated from this institution last year and entered the labor market obtained employment in their major field of study? —151

16. _____ How many students would you say attend this college to fulfill definite career or occupational goals as opposed to attending for social, athletic, financial, or other reasons? —152

17. _____ Of those students who obtained employment after graduating from this institution, for how many of them was career training received at this institution important in helping them obtain their jobs? —153

18. _____ If given the chance of taking a similar job at another school of his or her choice, how many faculty members do you think would opt for leaving this school? —154

19. _____ If given the chance of taking a similar job at another school of his or her choice, how many administrators do you think would opt for leaving this school? —155

20. _____ Estimate how many faculty members at this institution are personally satisfied with their employment. —156

21. _____ Estimate how many administrators at this college are personally satisfied with their employment. —157

22. _____ How many faculty members at this institution would you say published a book or an article in a professional journal, or displayed a work of art in a show last year? —158

23. _____ What proportion of the faculty members would you estimate teach at the "cutting edge" of their field—i.e., require current journal articles as reading, revise syllabi at least yearly, discuss current issues in the field, etc.? —159

24. _____ How many faculty members at this college are actively engaged now in professional development activities—e.g., doing research, getting an advanced degree, consulting, etc.? —160

25. _____ Colleges may be rated on the basis of their relative "drawing power" in attracting top high school students. In relation to other colleges with which it competes, what proportion of the top students attend this institution rather than the competition? —161

This section asks you to rate your perceptions of the general day-to-day functioning of the overall institution. Please respond by circling the number that best represents your perceptions of each item. If you agree strongly with one end of the scale, circle a number closer to that end of the scale. If you feel neutral about the item, circle a number near the middle of the scale.

FOR EXAMPLE:

How is the weather in this town?

warm, bright, and sunny — 1 (2) 3 4 5 6 7 — cold, wet, and dismal

How do you perceive the following?

26. **Student/faculty relationships**

unusual closeness, lots of informal interaction, mutual personal concern — 1 2 3 4 5 6 7 — no closeness, mostly instrumental relations, little informal interaction —162

27. **Equity of treatment and rewards**

people treated fairly and rewarded equitably — 1 2 3 4 5 6 7 — favoritism and inequity present, unfair treatment exists —163

Performance and Actions of the Institution (continued)

28. **Organizational health of the college**

college runs smoothly, healthy organization, productive internal functioning	1	2	3	4	5	6	7	college runs poorly, unhealthy organization, unproductive internal functioning —164

29. **General levels of trust among people here**

high suspicion, fear, distrust, insecurity	1	2	3	4	5	6	7	high trust, security, openness —165

30. **Conflicts and friction in the college**

large amount of conflict, disagreements, anxiety, friction	1	2	3	4	5	6	7	no friction or conflicts, friendly, collaborative —166

31. **Recognition and rewards received for good work from superiors**

recognition received for good work, rewarded for success	1	2	3	4	5	6	7	no rewards for good work, no one recognizes success —167

32. **The amount of information or feedback you receive**

feel informed, in-the-know, information is always available	1	2	3	4	5	6	7	feel isolated, out-of-it, information is never available —168

SECTION 9: Respondent Demographics

These items ask for some personal demographic information. This information will not be used to try to identify you, rather it simply will help us in our analysis of the questionnaire data. Please answer each item. —170

1. In what year were you born? _____ 171 172 173

2. In how many organizations have you worked in your professional career? _____ —174 175

3. How many years have you held your current position? _____ —176 177

4. Are you male _____ or female _____ ? —178

5. Have you received degrees (i.e., bachelors, masters, or doctorate) in any of the following fields? (please check all that apply)

_____ 1) Business administration
_____ 2) Educational administration
_____ 3) Public administration
_____ 4) Health Care administration
_____ 5) Personnel or Industrial administration
_____ 6) Other administration fields —179

6. In what field did you receive your last degree?

_____ 1) Humanities (e.g., literature, languages)
_____ 2) Fine Arts (e.g., music, sculpture)
_____ 3) Physical Sciences (e.g., physics, chemistry)
_____ 4) Biological Sciences (e.g., zoology, botany)
_____ 5) Social Sciences (e.g., sociology economics)
_____ 6) Mathematics and Computer Sciences
_____ 7) Professional Fields (e.g., law, engineering)
_____ 8) Administration Fields (educational, business)
_____ 9) Other _____ —180

7. How many years have you been affiliated with this institution? _____ —181 182

8. What is your highest academic degree?

_____ 1) Doctorate or other terminal degree
_____ 2) Masters
_____ 3) Bachelors
_____ 4) Associate —183

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