School Values and Teachers' Feelings: 
A LISREL Model 

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In research about organizational culture, qualitative methods are the traditional ones, and quantitative assessment of organizational culture is controversial. However, when organizational culture is interpreted as layers of assumptions, values and norms, different layers of culture are amenable to different research methods. In this study, part of doctoral research based on a sample of schools in Hong Kong, an attempt was made to build a structural model of the relationships between school values and teachers' general feelings about school life. The study employed quantitative methods with a self-constructed, standardized instrument, School Values Inventory (SVI), to assess organizational values in schools in terms of bureaucratic linkage and cultural linkage. Structural equation modeling using the LISREL computer program was employed to analyze the data. The result of the study was a structural model of school values. This model indicates that cultural linkage in schools promotes teachers' feelings of commitment, job satisfaction, sense of community and order and discipline, whereas bureaucratic linkage undermines such feelings. 

A key methodological distinction in assessing culture concerns the familiar oppositions between subjectivist/objectivist approaches and qualitative/quantitative methods. The concept of organizational culture has stemmed from anthropology and sociology which employ phenomenological, subjective, interpretive and qualitative approaches as their research paradigm. Thus an objective, standardized and quantitative approach in assessing organizational culture is controversial. Advocates of qualitative methods have taken several positions supporting qualitative research and countering the use of quantitative culture measures. Louis (1983) and Smirich (1983) have argued that culture reflects a social construction of reality unique to members of a social unit, and that this uniqueness makes it impossible for standardized measures to tap cultural processes. Schein (1985) further argues that interview methodology is the only correct way to uncover cultural assumptions in an organization (p.119). Deal (1986) suggests that traditional academic methods applied to studying culture render the construct invalid and reflect a re-labeling of old
approaches to studying organizations. In sum, proponents of qualitative methods argue that culture is most appropriately assessed by interactive probing and nonstandardized assessments because the fundamental content of culture is unconscious and highly subjective and each culture is idiosyncratic and unique (Rousseau, 1990). Although qualitative methods are the traditional and appropriate approaches in assessing it, some researchers have attempted to assess organizational culture quantitatively (Cameron and Ettington, 1988; Smart and Hamm, 1992; Zammuto and Krakower, 1991). Usually, different researchers will have different ways of forming interpretations about culture. When culture is interpreted as something an organization has, a nomothetic, quantitative procedure that encompasses an etic perspective is employed. When culture is interpreted as something an organization is, an idiographic, qualitative procedure that encompasses an emic perspective is used. The etic perspective imposes meaning on a set of data rather than the emic perspective which lets the meaning emerge from the members of the group under study (Barley, 1983). While the study of culture as something an organization is does not easily lend itself to quantitative methods, the study of culture as something an organization has is amenable to such use. The lack of empirical and quantitative research on culture may be a function of the concept of culture's relative youth in the field of research into organizations compared to the maturity of other strands, e.g., climate and leadership, and may be explained by the difficulty of doing such research and/or of getting it published (Reichers and Schneider, 1990, p.26). Nevertheless, Firestone (1987) suggests that qualitative and quantitative methods in the research of organizational culture are not mutually exclusive, but complementary. Thus, considering the fact that qualitative and quantitative methods in the research of organizational culture should not be mutually exclusive to each other, and the fact that there are fewer quantitative research studies into organizational culture, this study took the view of culture as something an organization has and adopted an etic perspective in assessing organizational culture in schools. While the traditional use of qualitative methods in the study of organizational culture may result in richer, more useful descriptions of organization, quantitative assessment offers opportunity for inter-organizational comparisons to assess relations between culture and organization success, strategies and goals.

Quantitative Research of Organizational Culture

This study has been based on Schein's (1985) model of levels of organizational culture which consists of assumptions, values and norms, each occurring at a different level of depth. At its deepest layer, culture is the collective manifestation of tacit assumptions which are abstract premises about the nature of human relationship, human nature, truth, reality and environment. At the next lower layer are the values which are shared conceptions of what is desirable. They are reflections of the underlying assumptions of culture. In contrast to the abstract
conception of culture as a set of tacit assumptions, or as shared
values, forming the top layer in the model are the norms and artifacts
which are much more visible. Rousseau (1990) suggests that idifferent
layers of culture are amenable to different research methodi (p.166).
The methods appropriate to assessing culture depend on those elements
we choose to examine. Given the model of culture as layers of elements
varying in observability and accessibility, it would be reasonable to
expect quantitative assessments of culture to focus on more observable
elements. As the elements of culture become more conscious (values),
behavioral (norms), observable (artifacts), they are accessible by both
standardized and nonstandardized assessments. The cross-sectional
approaches to assessing culture facilitate assessments of many members' perspectives. Quantitative assessments facilitate intra- and inter-unit
comparisons and can reveal a diversity of cultural patterns.
Reichers and Schneider (1990) further argue that ishared meanings and
values can be accurately assessed through questionnaire methodologyi
(p.25). The use of questionnaires, that are both developed for the
particular organization being studied and derived from in-depth
interviews with key people, makes it possible to compare the meanings
different people attach to activities and to compare one culture with
another. This kind of research also makes multivariate analyses of the
antecedents and consequences of particular cultural forms possible.
Based on these beliefs, the research project reported here was
undertaken and organizational values of schools were chosen as elements
of culture in Schein's model to be assessed quantitatively to determine
the effects of school values on school outcomes.

Organizational Values in Schools
Organizations, like persons, have values and these values are
integrated into coherent values system. Rokeach's (1973) defines values
and values system as follows:
A value is an enduring belief that a specific mode of conduct or end
state of existence is personally or socially preferable to an opposite
or converse mode of conduct or end state of existence. A value system
is an enduring organization of beliefs concerning preferable modes of
conduct along a continuum of relative importance. (p.5)
In any organization, the members generally have a set of values about
what is acceptable and unacceptable organizational behavior. In
addition, these values can be ordered in importance in a reliable
fashion by the members of the organization. For example, in some
schools, especially bureaucratic ones, doing things according to rules
and avoiding any risk of failure is seen as the most important
principle to consider in taking action. In some achievement-oriented
schools, getting the job done, despite the costs, might be the
paramount values permeating the school life of the teachers.
It is important to note that organizational values are held by
collections of individuals. Organizational values in a school are the
general values that are espoused by most of its members, that is,
teachers, administrators and the principal. New teachers are recruited
into the school by their willingness to accept these values and much of
the focus of the school's socialization is to shape these values and
beliefs. Thus, while values can be held only by individual members of a
school, a school's selection and socialization do produce a general,
cohesive set of values that typifies the school. Such a set of values
will inevitably change gradually over time.

This study has been designed to assess organizational values in schools
that are espoused by teachers, administrators and principals, and to
determine the effects of school values on school outcomes. Values in
this study are simply defined as "taken-for-granted beliefs about the
proper functioning of a school." They may mean "the ways we do things
here," "what ought to be," and "the ways a school should be operated." While
organizational values exist in the various elements of school
life, this study focuses only on aspects of educational administration
and management. It is believed that different administration and
management systems in schools may have different impacts on teachers'
performance which in turn will determine students' achievement.

Bureaucratic Linkages and Cultural Linkages in Schools
A long tradition of organizational research has suggested that schools
are loosely coupled organizations that provide limited means for
principals to influence teachers' work (Ainley, Reed and Miller, 1986;
Weick, 1982). However recent research on effective schools suggests
that in some cases principals can have strong linkages in the
management of schools. Firestone and Wilson (1985) suggest that
effective schools are strong both in bureaucratic and cultural
linkages. The bureaucratic linkages come as a result of schedules,
rules, procedures, hierarchy, authority, superordinate-subordinate
relationships, power, and the use of rewards and sanctions. The
cultural linkages come as a result of communication, persuasion, and
the sharing of missions and goals, meanings, assumptions, values and
norms. Deal and Kennedy (1983) speak of it as the 'glue' that holds
organizations together. Purkey and Smith (1985) suggest that the
strategies to build cultural linkages may include (i) assigning all
staff members clear responsibilities and high expectations; (ii)
encouraging collaborative planning and participative decision making;
and (iii) fostering collegiality through shared staff development
experiences and peer teaching and learning. These strategies define the
school's culture and lead to the development of the school climate.
They will evolve organically in each school. The outcomes will be a
school culture and climate that support and nourish academic success.

Both the cultural and bureaucratic linkages influence the quality of
teachers' and students' school life, independently and interactively.
The main purpose of this paper is then to analyze organizational values
concerning educational administration and management espoused by
schools and to see what are the effects of these school values on
school outcomes. More specifically, the paper aims to assess
organizational values of schools in the dimensions of bureaucratic
linkage and cultural linkage and to see their effects on teachers'
feelings about school life. Bureaucratic linkages are the hierarchical and organizational structures built to facilitate and enhance the achievement of school goals. Cultural linkages are the strategies in managing a school that facilitate the development of a school culture. The four aspects which were chosen as outcome variables in school life were teachers' feelings of commitment, job satisfaction, sense of community and order and discipline.

METHODOLOGY
Sample
The data for this study were collected in a pilot study which focused on the development of the instrument, School Values Inventory (SVI), during March and April, 1994 in Hong Kong. One hundred and one teachers from a random selected sample of 14 aided secondary schools from Hong Kong took part in the study. These aided schools were selected because they had shown their willingness to participate in the study and because they formed a homogeneous group. The population bore similar characteristics. All these schools had management committees and were governed by the Code of Aided (Education Department, 1990). All sample teachers were trained teachers on the same salary scale. They formed a stable group with low mobility which helped to maximize the internal validity of the findings and the conclusions could be generalized to the population of Hong Kong aided secondary schools. The gender breakdown was 56% male and 44% female.

Instruments
A questionnaire method was employed in this study. Little research has been done to investigate such an issue. Thus new questionnaires were created and developed for this study. Two questionnaires were developed, one for the assessment of organizational values espoused by school authority--the School Values Inventory (SVI) Form-I and one for teachers' feelings about school life--the Teachers' Feelings Questionnaire (TFQ) (Pang, 1994).

Both the SVI Form-I and the TFQ were found to be valid and reliable instruments. The initial, original versions of the SVI Form-I comprised 54 statements of school values and the TFQ consisted of 44 items about teachers' feelings. Literature was the primary source of inspiration for the content areas covered by the values statements and feelings items. Principal component analyses with oblique rotations were then the methods used to select the appropriate values statements and feelings items in forming coherent scales. The final version SVI Form-I consisted of 38 value statements concerning how a school should be operated in five confirmed first-order scales: Formality and Control, Bureaucratic Rationality, Achievement Orientation, Participation and Collaboration, and Collegiality. Reliability coefficients (alphas) for these five scales in the pilot study were respectively 0.84, 0.77, 0.88, 0.88 and 0.78. The final version of the TFQ consisted of 32 items regarding teachers' feelings about school life in four different aspects: Teachers' Commitment, Job Satisfaction, Sense of Community, and Order and Discipline. Their respective reliability coefficients (alphas) in the pilot study were 0.75, 0.90, 0.80 and 0.85. Teachers
were asked to rate the value statements and feeling items in a 7-point Likert scale. A brief description of the meaning of the scales of the SVI Form-I and the TFQ and sample items are provided in Tables 1 and 2; the mean scores and standard deviations of these scales are shown in Tables 3 and 4.

TABLE 1
Scales and Sample Items of the School Values Inventory Form-I

Formality and Control
A high score on this scale indicates that the school has a well-established system of superordinate-subordinate relationships and is highly formalized and centralized.

Item Examples:
1. Regular checks on teachers for rule violations can prevent wrong doing.
2. Little action should be taken until decisions are approved by the school authority.

Bureaucratic Rationality
A high score on this scale indicates that the school administrators are highly rational in the running of the school.

Item Examples:
1. Promotion should be based on merit.
2. School administrators should make decisions based on facts, not feelings.

Achievement Orientation
A high score on this scale indicates that the school emphasizes academic achievement and success and there is a high expectation of excellence.

Item Examples:
1. The school should have high expectations for student achievement and behavior.
2. The school should reinforce high expectations by establishing academic standards and incentives.

Participation and Collaboration
A high score on this scale indicates that the school has a high spirit of cooperation among teachers, administrators, and principals and the sharing of leadership and decision-making are emphasized.

Item Examples:
1. Teachers should have participation in decision making.
2. Teachers should be asked to suggest the areas for the school's
Collegiality
A high score on this scale indicates that the staff in that school have a strong collegial relationship.

Item Examples:
1. The major management function is to support teachers' work.
2. The line between administrators and teachers should not be drawn very tightly.

TABLE 2
Scales and Sample Items of the Teachers' Feelings Questionnaire

Commitment
A high score on this scale indicates that teachers have a strong belief in and acceptance of the school's goals and values, a willingness to exert considerable effort on behalf of the school.

Item Examples:
1. I regard pupils having problems as challenges.
2. I am willing to do extra work in order to help this school to be successful.

Job Satisfaction
A high score on this scale indicates a high extent of satisfaction of faculty members and administrators with their employment and jobs at the school.

Item Examples:
1. I have a sense of pride and belonging in the school.
2. I would recommend this school to someone like myself as a good place to work.

Sense of Community
A high score on this scale indicates that the school is a 'family' for all its members.

Item Examples:
1. In this school, the experienced teachers always help the new teachers to improve.
2. In this school, there is an active concern for others in the community.

Order and Discipline
A high score on this scale indicates that the school provides a safe, secure and peaceful learning environment which facilitates academic and social growth.
Item Examples:
1. When attending assemblies, sport days or big events, the students are well disciplined and behave well.
2. Our school has a high reputation among parents in terms of students' behavior.

TABLE 3
Reliability Coefficients (‡), Means and Standard Deviations of the Scales of the School Values Inventory Form-I

Note: All scores of the scales of the SVI Form-I have been transformed into a full range equal 100. The higher the mean score in the scale, the greater is the magnitude of the meaning defined by the scale.

TABLE 4
Reliability Coefficients (‡), Means and Standard Deviations of the Scales of the Teachers' Feelings Questionnaire

Note: All scores of the scales of the TFQ have been transformed into a full range equal 100. The higher the mean score in the scale, the greater is the magnitude of the meaning defined by the scale.

Data Analysis
Structural equation modeling using LISREL 7 (Joreskog & Sorbom, 1989) was used to analyze the data. LISREL analyzes linear structural relationships among observed variables using various estimating techniques. LISREL was used, rather than multiple regression analysis or path analysis, since it enables the researcher to incorporate measurement error in his model and to search for appropriate models. In addition, multiple regression or path analysis assumes variables measured without error, and perfect measurement of variables is rarely found in educational research.

The methodology of this study included the following steps:
1. The Construction of a LISREL Model. A linear structural equation model linking the relationships of school values and teachers' feelings was postulated and is shown in Figure 1. The hypothesized model consists of three minor parts: two measurement components and one structural equation component. One of the measurement components specifies that Bureaucratic Linkage, one of the exogenous variables, is measured in terms of two observed variables in the SVI Form-I: Formality and Control and Bureaucratic Rationality; Cultural Linkage is measured in terms of the other three observed variables: Achievement Orientation, Participation and Collaboration and Collegiality. Another measurement component specifies that all four observed variables in the TFQ (Teachers' Commitment, Job Satisfaction, Sense of Community and
Order and Discipline) will contribute to a single endogenous variable, Feelings About School Life. Finally, the structural equation component theoretically formulates the causal relationship among the latent variables, i.e., Bureaucratic Linkage, Cultural Linkage and Feelings About School Life as depicted in Figure 1. It was implicitly assumed in the proposed model that schools' values in bureaucratic linkage and cultural linkage have their respective effects on teachers' feelings about school life. The aim of the construction of such a model is to determine whether such formulation would survive the test or be disconfirmed. In the model, observed variables are enclosed in rectangles and latent variables in ovals. Correlation between the latent variables is represented by a curved line. Each observed variable also contains a unique error term.

2. Data Input. A zero-order correlation matrix of all the observed variables was constructed. Listwise deletion of cases was used in the creation of this matrix. In total, 90 cases were left and included in the computation of the correlation matrix. This matrix was then used as the data input for LISREL analysis and is shown in Table 5. The main purpose of presenting the data is to make the re-examination of the data possible by other researchers.

3. Model Development. This phase was conducted to develop a LISREL model of the relationship between school values and teachers' feelings. The goal was to derive an acceptable model in terms of statistical fit that describes the relationships of the variables in substantive terms. Based on the first initial postulated model, parameters were estimated by using the LISREL program. Subsequently, the model was modified based on the criteria of assessment of fit, e.g., the determination indices, goodness-of-fit index (GFI), adjusted goodness-of-fit index (AGFI), root mean square (RMS) residual value, chi-square index (2), degree of freedom (df) and the ratio of (2/df, etc. Error residuals, t-values and modification indices (MI) were also examined until a satisfactory, substantive model was result.

TABLE 5
Correlation Matrix to be Analyzed in the LISREL Computer Program

<table>
<thead>
<tr>
<th></th>
<th>F1_COMIT</th>
<th>F2_JOBSA</th>
<th>F3_COMTY</th>
<th>F4_DISCI</th>
<th>B1_CONTR</th>
<th>B2_RATIO</th>
</tr>
</thead>
<tbody>
<tr>
<td>F2_JOBSA</td>
<td>0.498</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F3_COMTY</td>
<td>0.374</td>
<td>0.587</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F4_DISCI</td>
<td>0.207</td>
<td>0.557</td>
<td>0.211</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B1_CONTR</td>
<td>-0.118</td>
<td>-0.220</td>
<td>-0.084</td>
<td>-0.156</td>
<td>1.000</td>
<td></td>
</tr>
<tr>
<td>B2_RATIO</td>
<td>-0.069</td>
<td>0.003</td>
<td>0.206</td>
<td>0.037</td>
<td>0.528</td>
<td>1.000</td>
</tr>
<tr>
<td>C1_ACHIE</td>
<td>0.168</td>
<td>0.260</td>
<td>0.290</td>
<td>0.037</td>
<td>0.491</td>
<td>0.480</td>
</tr>
<tr>
<td>C2_PARTI</td>
<td>0.233</td>
<td>0.369</td>
<td>0.502</td>
<td>0.072</td>
<td>0.265</td>
<td>0.470</td>
</tr>
<tr>
<td>C3_COLLE</td>
<td>0.183</td>
<td>0.290</td>
<td>0.445</td>
<td>0.014</td>
<td>0.393</td>
<td>0.485</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>C1_ACHIE</th>
<th>C2_PARTI</th>
<th>C3_COLLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1_ACHIE</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C2_PARTI</td>
<td>0.524</td>
<td>1.000</td>
<td></td>
</tr>
</tbody>
</table>
RESULTS
Parameter Estimation and Assessment of Fit
Figure 1 (Model 1) represents the LISREL parameter estimates for the theoretical model proposed for the relationships between school values and teachers' feelings. Maximum likelihood (ML) was the fitting function used to estimate the parameters. The parameter estimates reflect indices representing the simultaneous contribution of each observed and latent variable to the overall model.

The goodness-of-fit of the entire model under consideration may be determined by the GFI, AGFI, RMS and the (2/df) ratio displayed in Table 6 (see Joreskog and Sorbom (1989) for a description of these fit indices). The GFI indicates the relative degree of variance and covariance jointly explained by the model. Although the exact distribution of this index is unknown, it is generally agreed that values close to or above 0.9 indicate a good fit of the model to the data. The GFI in the present model is 0.86, indicating a fair fit of the model to the data. AGFI is similar to the GFI, except that it adjusts for the number of degrees of freedom in the model. This index is 0.73, indicating that the hypothesized model is moderately fitted to the data. On the other hand, RMS is the average of the variance and covariance left unexplained by the model. Given a good fit of the model to the data, this value should be close to zero. The value of this index is 0.10, indicating that very few of the variances and covariances were left unexplained by the proposed model. The (2/df) ratio is 2.74; a ratio of less than 5 is considered to be indicative of good fit between the observed and reproduced correlation matrices (Hayduk, 1987).

Specification Search
If a model does not fit adequately, a specification search can be conducted. Parameters can be dropped from the model if they are not significantly different from zero. Alternatively, parameters can be added to the model. By relaxing the parameter with the maximum value of modification index, the greatest improvement in fit is obtained. A specification search was conducted using procedures recommended by Joreskog and Sorbom (1989) in order to improve fit and meaning of the
proposed model. For each step in the search, estimated parameters, the pattern of residual terms and their respective t-values were examined. Modification indices (MI) were also examined to identify possible errors in the specification. Because a single change in the specification of a model can influence the other parameters in a model, modifications were made one at a time (Long, 1983). Specification changes were made only if they were warranted on substantive or reasonable grounds.

Two sequential modifications were made during the specification search. In examining the fit of the initial model (Model 1), several large MIs were observed. The largest MI called for the loading of Bureaucratic Rationality on Cultural Linkage to be set free and estimated, suggesting that Bureaucratic Rationality might have effects on Teachers' Feelings through schools' values in Cultural Linkage. Addition of this path produced a significantly better fitting model (Model 2, Figure 2). The goodness-of-fit statistics of Model 2, shown in Table 6, are: GFI = 0.87; AGFI = 0.74; RMS = 0.09; (2  = 60.27, df = 23, p = 0.000 and (2/df ratio = 2.62.

<table>
<thead>
<tr>
<th>Goodness-of-Fit Statistics</th>
<th>Model 1</th>
<th>Model 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>GFI</td>
<td>0.858</td>
<td>0.867</td>
</tr>
<tr>
<td>AGFI</td>
<td>0.733</td>
<td>0.740</td>
</tr>
<tr>
<td>RMS</td>
<td>0.103</td>
<td>0.092</td>
</tr>
<tr>
<td>df</td>
<td>24</td>
<td>23</td>
</tr>
<tr>
<td>Chi-square</td>
<td>65.74</td>
<td>60.27</td>
</tr>
<tr>
<td>prob</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>Chi-square/df</td>
<td>2.74</td>
<td>2.62</td>
</tr>
</tbody>
</table>

Figure 2: Parameter Estimates of Model 2 of School Values and Teachers' Feelings

The results for the second model still showed some large MIs. The largest MI indicated that the loading of Achievement Orientation on Bureaucratic Linkage should be set free and estimated. However, when the parameter was set free to be estimated, the result showed that the overall model did not fit the data. Because the admissibility test failed at this step and because of substantive considerations, the specification search was stopped.

In deciding the final choice of model in the specification search, the initial postulated model (Model 1) was selected as the more appropriate one. Although Model 2 improved the fit between the observed and reproduced correlation matrices, its improvement was only marginal. While Models 1 and 2 had similar degrees of goodness-of-fit, Model 1
showed simpler, clearer and substantive relationships between school values and teachers' feelings. The initial model sufficiently accounted for the variability observed in the data. Therefore, based on the present results, the model which was originally hypothesized (Model 1, Figure 1) was selected.

Square Multiple Correlations and Determinations of the Proposed Model

Table 7 shows the square multiple correlations (SMCs) and the determinations of the three components of the entire model. They determine how well the observed variables measure the constructs, both individually and jointly. The SMCs for the measurement components are interpreted as the reliability of the observed variables for the measurement of the latent variables (factors). The SMCs for the structural equation component indicate the proportion of variance in the endogenous variable accounted for by the exogenous variables in the structural equations.

For the measurement component of school values in Linkages, the SMCs range from 0.42 to 0.80. Formality and Control (0.51) and Bureaucratic Rationality (0.55) seem to have more or less the same reliabilities in determining the exogenous variable, Bureaucratic Linkage. In the determination of Cultural Linkage, Collegiality has the highest reliability (0.80), Participation and Collaboration had the moderate one (0.76) and Achievement Orientation the least (0.42). Generally, the SMCs of the observed variables are all high, so none is a poor measure of its latent variable. The total coefficient of determination of this measurement component is 0.95, i.e., the observed variables are reliable to measure the construct jointly.

TABLE 7
Square Multiple Correlations and Determinations of the Measurement Components and the Structural Equation Component

<table>
<thead>
<tr>
<th>SMCs and Determinations</th>
<th>Model 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMC for X1</td>
<td>0.512</td>
</tr>
<tr>
<td>SMC for X2</td>
<td>0.545</td>
</tr>
<tr>
<td>SMC for X3</td>
<td>0.420</td>
</tr>
<tr>
<td>SMC for X4</td>
<td>0.756</td>
</tr>
<tr>
<td>SMC for X5</td>
<td>0.795</td>
</tr>
<tr>
<td>Determination for Xs</td>
<td>0.951</td>
</tr>
<tr>
<td>SMC for Y1</td>
<td>0.256</td>
</tr>
<tr>
<td>SMC for Y2</td>
<td>0.976</td>
</tr>
<tr>
<td>SMC for Y3</td>
<td>0.356</td>
</tr>
<tr>
<td>SMC for Y4</td>
<td>0.311</td>
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<tr>
<td>Determination for Ys</td>
<td>0.976</td>
</tr>
<tr>
<td>SMC for n1</td>
<td>0.438</td>
</tr>
<tr>
<td>Determination for n</td>
<td>0.438</td>
</tr>
</tbody>
</table>

Another measurement component is that of Feelings About School Life. The SMCs of the observed variables are 0.26, 0.98, 0.36 and 0.31
respectively for Teachers' Commitment, Job Satisfaction, Sense of Community and Order and Discipline. Among all four observed variables, Job Satisfaction is the most important and reliable variable in the determination of Teachers' Feelings About School Life. Nevertheless, the total coefficient of determination for the construct is very high and reliable with a coefficient of 0.98.

Although both the two measurement components have very high total coefficients of determination, the determination for the structural equations is just 0.44, i.e., only 44% of the variability of Teachers' Feelings About School Life is explained jointly by school values in Bureaucratic Linkage and Cultural Linkage.

The Relationships Between School Values and Teachers' Feelings

As part of the results in the LISREL analysis, the intercorrelations between latent variables are given in Table 8. It indicates that Teachers' Feelings About School Life correlates negatively to Bureaucratic Linkage and positively to Cultural Linkage. School values in Bureaucratic Linkage and Cultural Linkage are themselves highly correlated with a coefficient of 0.68.

Table 9 shows the standardized regression matrix of Feelings About School Life with Bureaucratic Linkage and Cultural Linkage. It is evident that Teachers' Feelings regresses negatively on Bureaucratic Linkage and positively on Cultural Linkage. Such relationships are also evident in Table 10 which shows the total effects of school values on teachers' feeling in the four specified aspects. It seems that Cultural Linkage has positive effects on Teachers' Commitment, Job Satisfaction, Sense of Community and Order and Discipline, whereas Bureaucratic Linkage has negative effects on all these aspects. Among others, Job Satisfaction is more vulnerable to the effects of school values in both Bureaucratic Linkage and Cultural Linkage, as indicated by the coefficients in Table 10.

<table>
<thead>
<tr>
<th>TABLE 8</th>
<th>Correlation Matrix of Latent Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>FEELINGS</td>
<td>BUREA_LK</td>
</tr>
<tr>
<td>FEELINGS</td>
<td>1.000</td>
</tr>
<tr>
<td>BUREA_LK</td>
<td>-0.140</td>
</tr>
<tr>
<td>CULTU_LK</td>
<td>0.382</td>
</tr>
</tbody>
</table>

Note: FEELINGS = Feelings About School Life, BUREA_LK = Bureaucratic Linkage, and CULTU_LK = Cultural Linkage.

| TABLE 9 | Regression of Feelings About School Life |
on Bureaucratic Linkage and Cultural Linkage

<table>
<thead>
<tr>
<th></th>
<th>BUREA_LK</th>
<th>CULTU_LK</th>
</tr>
</thead>
<tbody>
<tr>
<td>FEELINGS</td>
<td>-0.734</td>
<td>0.878</td>
</tr>
</tbody>
</table>

Note: FEELINGS = Feelings About School Life; BUREA_LK = Bureaucratic Linkage; and CULTU_LK = Cultural Linkage. Figures are given as standardized regression coefficients (beta weights).

**TABLE 10**
Total Effects of Bureaucratic Linkage and Cultural Linkage on Outcome Variables

<table>
<thead>
<tr>
<th></th>
<th>Bureaucratic Linkage</th>
<th>Cultural Linkage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teachers' Commitment</td>
<td>-0.502</td>
<td>0.498</td>
</tr>
<tr>
<td>Job Satisfaction</td>
<td>-0.981</td>
<td>0.973</td>
</tr>
<tr>
<td>Sense of Community</td>
<td>-0.592</td>
<td>0.588</td>
</tr>
<tr>
<td>Order and Discipline</td>
<td>-0.554</td>
<td>0.549</td>
</tr>
</tbody>
</table>

Note: Figures are given as effect coefficients.

**DISCUSSION**
The purpose of this study was to assess the organizational values in schools and to see their effects on teachers' feelings of commitment, job satisfaction, sense of community and order and discipline. Additionally, an attempt was made to link up all these variables in a LISREL model in a schematic way. The LISREL methodology provides a useful tool to test the adequacy of a variety of proposed theoretical models. Research has shown that searches for proper LISREL models are more likely to be successful when the initial model is carefully formulated. The model proposed in this study has been guided by theory and the data gathered are able to test this theory. It is worth noting that the hypothesized LISREL model comprises three sub-models and that success in testing the entire model indicates success in testing the three minor parts. The results of the modeling indicate that the derived model portrays the underlying content of school values. A confirmatory factor model of school values, as part of the entire LISREL model, was obtained. The identified factors of school values are generally consistent with the belief of Firestone and Wilson (1985) that two kinds of linkages can be distinguished in schools: bureaucratic and cultural. Bureaucratic linkages are the formal, enduring arrangements that allow an organization to operate. Cultural linkages work directly on people's consciousness to influence how they think about what they do. The task
for principals is to consistently employ the full range of linkages through a multitude of major and minor actions to generate a common purpose and effect in schools. Another important piece of information provided by the confirmatory factor model of school values is that achievement orientation, collaboration, participation and collegiality are the significant and coherent strategies which contribute to the building of school culture. The argument here is also consistent with Purkey and Smith's (1985) suggestions in their critical review of effective schools literature that clear goals and high expectations commonly shared, together with collaborative planning and collegial relationships are the crucial factors that create the school's culture and lead to the development of the schools climate (pp. 358-359).

Another confirmatory factor model encompassed in the entire LISREL model is that of teachers' feelings about school life. From this sub-model, it is evident that teachers' feelings can be distinguished into four kinds as indicated by the observed variables, i.e., teachers' feelings of commitment, job satisfaction, sense of community and order and discipline. Among them, job satisfaction is the one that determines such feelings to the greatest extent.

The third minor part of the entire LISREL model is the structural equation model between school values and teachers' feelings. In analyzing the relationships, the structural equation model was divided into two components: (1) the effects of school values on teachers' general feelings about school life and (2) the effects of school values on teachers' commitment, job satisfaction, sense of community and order and discipline in the schools. The findings of the present study, which basically were derived from regression analysis and path analysis techniques can be summarized as follows:

(i) the stronger the strength of bureaucratic linkage in schools, the worse will be teachers' general feelings about school life; and the stronger the strength of cultural linkage, the better will be such feelings.

(ii) similarly, cultural linkage in schools will promote teachers' commitment, job satisfaction, sense of community and order and discipline in schools; on the contrary, bureaucratic linkage will undermine all these.

(iii) although bureaucratic linkage and cultural linkage in schools are positively correlated, they have opposite effects on teachers' feelings, teachers' commitment, job satisfaction, sense of community and order and discipline in schools.

(iv) the structural equation model accounts for only 44% of the variability in teachers' feelings, revealing that teachers' feelings about school life may be more complicated than that; teachers' feelings in other aspects, for example, working environment, students' academic and moral achievement, professional status and development and the like, should therefore be dealt with in future research.

Of greater importance is a discussion of the underlying meaning of the model. In structural terms, the model is not complex. The three latent
factors identified in the model do a very reasonable job of accounting for the relationships among them. The results of these modeling efforts indicate reasonable support for the mediated model of school values and teachers' feelings. The parameter estimates depicted in Figure 1 constitute the basis for the comprehensive assessment of school values and teachers' feelings and recommendation regarding possible interventions in school management and administration. Lastly, considering the fact that bureaucratic linkages in schools have their primary and necessary functions in the daily operation of schools and also the fact that total avoidance of bureaucratic linkages in schools is impractical and impossible, school principals should resort more to cultural linkages as the strategies to bind people together and to give people meanings in their work.

A final comment should be put forward to the causal relationship in the hypothesized model. Strictly speaking, to establish the causal relationship between school values and teachers' feelings, the temporal sequence of causes and effects should be considered. However, to establish causality with any certainty is difficult. Causal or structural modeling techniques do not allow the researcher to determine the direction of causality between the latent variables nor do they allow the researcher to conclude that a causal relationship exists (Asher, 1976). Longitudinal studies or experimental methods to establish causality usually involve much time, resources and funds. Thus it was assumed in the model that schools' values (causes) are connected with teachers' feelings (effects) because the assumption connects them. The analysis of the data designed is to shed light on the question of whether or not the model is consistent with the data. If the model is inconsistent with the data, doubt is cast about the assumption that has generated it. Consistency of the model with the data, however, does not necessarily constitute a proof of causality; but at least it lends support to it. Since the model under study was found to fit the data quite well, it can be claimed that the proposed model and the assumption have survived the test and they have not been disconfirmed.

Several weaknesses of this study should also be discussed to guide future work. The sample size of this study was only around a hundred and it was considered smaller than desired. It is recommended that a large sample size should be taken in future research. Secondly, because a specification search of the model has the potential for capitalizing on chance factors in the data, the fit of the LISREL model should be cross validated on a new sample. Cross validation is highly recommended to confirm the stability of the developed factors and the LISREL model. Finally, one should always consider the results of structural models as limited to the variables and factors specified within the model context. Other variables outside of the model that are not specified may also affect the outcome variables. To more fully understand school values, future research efforts will need to attend to other variables like communication, staff consensus, recognition, professional orientation and teachers' autonomy. Teachers' feelings about school life in other aspects, for example, regarding students' achievement,
should also be considered.

CONCLUSIONS

The concept of culture seems originated in anthropology and has become a central concern of other fields such as sociology and social theory. Cultural researchers have devoted numerous articles and books to explorations of the nature of the concept, to its definition, and to discussion of what is and is not in the concept of culture (Frost and Others, 1985; Geertz, 1973; Kroeber and Kluckhohn, 1952). However, we are still in the early phases of understanding culture's role in organizations. Since the concept of organizational culture is still relatively new, few analyses and critiques of the subject have been written. Taking the emic perspective, much previous research defines culture as something an organization is. Research reports on organizational culture are largely descriptive rather than prescriptive; results are expressed more in qualitative terms rather than quantitative terms (Corbett and Others, 1987; Mitchell and Willower, 1992; Page, 1987). They generally emphasize within-unit interpretations of the meaning of organizational phenomena. Recently, research taking the etic perspective has become increasingly popular (Cheng, 1993; Maehr and Fyans, 1990; Renchler, 1992). When culture is defined as something an organization has, organizational culture is examined as systems of shared meanings, assumptions, and underlying values. This approach encourages the investigation of causes and effects of organizational culture. Clearly, there is a need for balance between etic and emic perspectives. This research took an etic perspective and used quantitative methods to assess culture in schools and to examine the cause-and-effect relationship of organizational culture with an ultimate intention of contributing to uphold such balance.

Different researchers prefer to investigate different layers of culture. Different layers of culture are amenable to different research methods. This study chose organizational values, the middle layer of culture in Schein's model, as the subject to be investigated quantitatively. Two standardized instruments, School Values Inventory and Teachers' Feelings Questionnaire, were created and developed to fulfill these purposes. LISREL modeling technique was employed, integrating the traditional statistical methods (confirmatory factor analysis, multiple regression analysis and path analysis) altogether in a single model. In this study, a LISREL model of school values and teachers' feelings was successfully hypothesized and tested. Within the model, two factors of school values were confirmed and expressed in terms of bureaucratic linkage and cultural linkage. These are the strategies with which a principal runs a school and which bind people together within the school. Bureaucratic linkage in schools has two indicators: formality and control and bureaucratic rationality; cultural linkage has three: achievement orientation, collaboration and participation and collegiality. Only a single factor of teachers'
feelings was confirmed, with four indicators: teachers' commitment, job satisfaction, sense of community and order and discipline. Findings show that cultural linkage in schools promotes teachers' feelings of commitment, job satisfaction, sense of community and order and discipline; whereas bureaucratic linkage undermines all such feelings. However, the LISREL model accounted only for about 44% of the total variance in the relationships between school values and teachers' feelings. It suggests that more and new process and outcome variables concerning school values and teachers' feelings should be incorporated into the model in future research.

REFERENCES