

Developing a Comparative Measure of the Learning Climate in Professional Schools

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The Learning Climate Questionnaire (LCQ) was developed to assess the learning climate of professional schools. Seven populations of students from four schools participated in this study ($N = 455$). Five factors were extracted from the LCQ (Grading Process, Physical Environment, Task Relationships With Faculty, Social Relationships With Faculty, and Course Material Presentation) which were fairly independent (average intercorrelations = .33) and had high internal consistency (average $\alpha = .84$) across all samples. Comparisons of the objective properties of the schools and measures of overall student satisfaction with the LCQ factors suggest considerable validity of the instrument. Consequently, it seems appropriate to utilize the LCQ for substantive research investigations into the organizational dynamics of professional schools.

Recent studies of organizational climate have suggested its usefulness for investigating important aspects of organizational behavior, performance, and effectiveness (e.g., Litwin & Stringer, 1968; Pritchard & Karasick, 1973; Taguiri & Litwin, 1968). In some cases, researchers have defined the concept of climate as being equivalent to the structural properties of the organization (Forehand & Gilmer, 1964) or as being synonymous with morale and satisfaction (Guion, 1973). We, along with Schneider (Note 1), suggest that organizational climate be defined as the descriptive, perceptual aspect of some organizational phenomenon, rather than the evaluative (i.e., satisfaction and morale) or objective aspects. In particular, organizational climate is viewed as the set of intervening variables between the antecedent objective properties of organizational systems, for example, technology, formal rules, span of control, number of hierarchical levels (Porter & Lawler, 1966),

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and the resulting motivation, performance, and satisfaction of organizational members (Marrow, Bowers, & Seashore, 1967).

The intention of the present study was to develop a measure of learning climate, that is, the dimensions of the organizational climate moderating the impact of the objective properties of the professional schools on the motivation, learning, and satisfaction of the students. The basic assumption was that educational institutions develop a climate analogous to that found in industrial organizations and that this climate has a measurable impact on students. A climate focus was chosen for two reasons. First, there has been increasing attention to organizational change and development programs in educational systems (Schmuck & Miles, 1971; Watson, 1967; Kilmann, Note 2). This suggests the need for measures of organizational climate in these settings to assess, guide, and evaluate the effect of any change program designed to enhance the learning climate in the schools. Second, because of the previous difficulties in developing reliable and valid measures of organizational climate (e.g., Litwin & Stringer, 1968), it was decided to give special attention to instrument development before a concerted research program was undertaken in this area.

Educational psychologists have made some attempts to measure learning environments. Stern (1970) developed a theory of environmental press and investigated the types of

press which tend to enhance or block the personal development of college students. One of Stern's questionnaires is the Organizational Climate Index. Stern, however, quite explicitly emphasizes his primary interest in testing a need—press theoretical framework, rather than in attempting to determine the dimensions of climate as perceived by students. Astin (1968, 1970) and Pace (1963) have also developed questionnaires to measure students' impressions of their college environment. The theoretical perspective in these two questionnaires varies; Astin's is somewhat closer to the organizational climate concept, while Pace's work is a modification of Stern's. However, all three investigators focused on undergraduate rather than professional schools.

This article describes a two-phase study of the development and preliminary validation of the Learning Climate Questionnaire (LCQ), an instrument which attempts to assess the descriptive, perceptual aspects of professional schools which have a major impact on the learning process. The theoretical framework underlying the LCQ reflects the extensive research on participative management (e.g., Leavitt, 1965), organizational influence (Likert, 1967), and organizational control (Tannenbaum, 1967). These authors suggest that the difference between perceived and desired influence over one's work environment is an important determinant of motivation, performance, and satisfaction.

Design of the LCQ was also based upon Lewin's (1947) notion of the "restraining forces" in a situation (i.e., obstacles) versus the "driving forces" (i.e., influences). The Lewinian framework of quasi-stationary social equilibria has been shown to be useful in general analyses of organizational dynamics (e.g., Lippitt, Watson, & Westley, 1958), and specifically to educational systems (Jenkins, 1962).

Validation of the LCQ sought to achieve: (a) substantive validity (defining the pool of relevant items for the instrument and the selection of items, factor analyzing items to investigate the underlying dimensions of climate being assessed, testing the internal consistency of items identified with each dimension), (b) structural validity (that the format of the instrument and the calculation of indi-

vidual and organizational scores is consistent with the intended concept of "climate"), and (c) external validity (investigating the expected relationships between learning climate and student satisfaction). This is the validation framework suggested by Loevinger (1967), which incorporates the notions of reliability and construct validity discussed by Peak (1953), Cronbach and Meehl (1967), and Campbell (1967).

METHOD

Study 1

Sample. One hundred twenty-five full-time master of business administration (MBA) students (virtually the entire population) responded to the LCQ at the beginning of their second semester in Business School IA. The school is noted for the work pressures generated; students are permitted very few electives; the physical environment is an old building, timeworn, without air-conditioning, study carrels, conference rooms, or a student lounge.

Procedure. The LCQ was administered during class by students participating in the conduct of the study. Respondents answered anonymously. A brief explanation of the purpose of the study (to study factors affecting learning in the school) was provided by the questionnaire administrators, with the same information and a guarantee of anonymity provided on a cover sheet to the questionnaires.

Questionnaire items. The investigators with the aid of several student representatives from the MBA program generated a pool of 36 items which were expected to represent the salient characteristics of the learning climate in a professional school. The items were cast in a Likert scale (a 7-point scale, 1 = not at all, 7 = extremely) and were explicitly designed into a particular questionnaire framework which was expected to promote structural validity (i.e., construction of the instrument should be based on fairly well-established evidence in the organizational behavior literature).

Specifically, Section A of the LCQ asks students: "To what extent *do you feel influential* in determining the following?" Section B asks (for the same 10 items): "To what extent *would you want to be influential* in determining the following?" Ten aspects of the learning climate are evaluated in terms of the discrepancy between experienced and desired influence:

1. The material that the instructor presents. (Item number 11 in Section B, etc.)
2. The manner in which class material is presented by the instructor.
3. The use of audiovisual and other classroom aids (e.g., cases).
4. The choice of which courses to take.
5. The choice of instructor for a course.
6. The type of graded assignments (e.g., problem sets, theory paper).

7. The topic of graded assignments.
8. The content and type of in-class exams.
9. The grading process in quantitative courses.
10. The grading process in qualitative courses.

Perceived versus desired influence represented the operationalization of the degree of participation by students in governing the learning process.

To measure the restraining forces (obstacles) in the environment, Section C of the LCQ instructs respondents to indicate (for 16 items): "To what extent *have you experienced* the following as obstacles to a meaningful and useful learning environment?"

21. Size of classes.
22. Faculty do not know students by name.
23. Students do not feel free to address faculty by their first name.
24. Lack of social activities with faculty.
25. Faculty are not easily accessible outside class.
26. Faculty do not seem to value student opinions and experiences.
27. Faculty do not treat students as willing to learn.
28. The presence of the current grading system.
29. Faculty seem more interested in activities besides teaching.
30. Students do not feel they can be open with faculty.
31. Faculty do not know students by *first* name.
32. Lack of audiovisual aids.
33. Lack of conference rooms.
34. The physical design of classrooms.
35. Design of student lounge.
36. General apathy of fellow students.

Analysis. The data were standardized for each of the 26 items (the 10 difference scores from Sections A and B, plus the 16 scores from Section C) and analyzed by the McKelvey factor and measet analysis program (McKelvey, Note 3, Note 4). This program employs a principle factor solution for identifying eigenvalues and a varimax rotation. The highest row correlations constitute the initial communality estimates, and with each iteration, the positive eigenvalues are computed, the vectors extracted, and the variance explained by these vectors becomes the communality estimate for the next iteration (except for the final iteration). The number of iterations is determined by the number of factors requested by the investigator. Having achieved a best estimate of simple structure, the program next attempts to identify a set of optimally efficient "measets"—scales composed of linear combinations of the highest loading items on each factor. Optimality is assessed on the basis of mean Cronbach alpha reliability coefficients (Cronbach, 1951), a process which rejects factorially complex items loading substantially on two or more factors; the result is a set of "pure" (internally consistent) measets or scales which measure *independent* dimensions. Correlations between measets and Spearman-Brown reliability estimates are also computed.

Study 2

Sample. Six additional samples were obtained from three business schools and one nonbusiness professional school.

1. Business School IB. Thirty-four part-time evening MBA students responded to the LCQ. The curriculum of the MBA program is virtually identical for all three samples from Business School I, and evening students use the same classroom and library facilities used by full-time students. The sample of 34 constitutes less than 10% of the evening student population.

2. Business School IC. The 25 students comprising this sample were an elite group of executives on a specially designed part-time program. In contrast to Business Schools IA and IB, all courses are held in air-conditioned, modernized facilities. Classes are small, and relationships with faculty are facilitated by the size of the class, special orientation arrangements, and the status of the participants.

3. Business School II. The 55 participants in this sample were both full- and part-time MBA students. The dean of the school emphasized the policy of the school to avoid making distinctions between the two types of students. About 40% of the program consists of elective courses, and some of these may be available to students in the first year of the program. The school is located in the heart of the city in a modernized, air-conditioned, and attractive building.

4. Business School III. The 44 respondents in this sample were full-time first-year MBA students at a prestigious business school in the suburbs of a large city. The school has a new building. The first-year students sampled take a core program with no electives, in contrast to the considerable flexibility available later in the program. The school is fairly large (total of 400 students), but class size is carefully controlled.

5. Nonbusiness Professional School (NBPS). The nonbusiness professional school sample consists of two subsamples: NBPS 1 consisted of first-year students taking a highly structured program (no electives) in large classes. A tradition of rigorous socialization to the profession is emphasized in the first year, but is gradually relaxed to an atmosphere of social informality later in the program. Advanced students in this school (NBPS 3) take many electives, in smaller classes, and have some choice over instructors. Grades are felt to be extremely important for progressing in the field. The physical environment of the school is slightly better than but generally comparable to that of Business School I.

The samples were 82 and 90 students for NBPS 1 and NBPS 3, respectively.

Procedure. Faculty and administrators were contacted in the schools sampled to obtain permission to conduct the study and to obtain background information on the school. In Business School III, the questionnaires were administered by a faculty member; in the other schools, the questionnaires were administered by the group of students participating in the project.

A revised cover sheet for the questionnaire was devised to explain that the purpose of the study was to extend a study of factors affecting learning, and to assure students and schools of the anonymity of their responses. These conditions were repeated by the administrators of the questionnaires.

Questionnaire revision. In order to assess the impact of LCQ dimensions on satisfaction with the learning process, the following nine items were added as Questions 37-45, using a 5-point Likert response format (1 = strongly agree, 3 = undecided, 5 = strongly disagree):

37. I am satisfied with my present program.

38. The program stretches me to my full potential.

39. I would look forward to interacting with my classmates in a school alumni association after graduation.

40. I feel this program is preparing me for my future career.

41. If I had to do it over again, I would enroll in the same program, or a similar program.

42. If I had to do it over again, I would enroll at the same school.

43. I really enjoy studying the course material.

44. I would like to do more course-related work beyond that required for courses.

45. I would describe the purpose of my enrollment as being primarily for the sake of learning.

TABLE 1
FACTOR AND MEASET ANALYSIS OF 26 ITEMS (QUESTIONNAIRE SECTIONS A, B, AND C)
FOR COMBINED SAMPLES

Factor and Learning Climate Questionnaire item	Factor loading				
	I	II	III	IV	V
I—Grading Process					
The grading process in quantitative courses.	.86	.14	.10	.03	.25
The grading process in qualitative courses.	.86	.13	.11	-.01	.22
The type of graded assignments. ^a	.71	.11	.02	.03	.39
The content and type of in-class exams. ^a	.67	.05	.08	.04	.38
The topic of graded assignments. ^a	.62	.07	.04	.14	.31
The choice of instructors for a course. ^a	.46	.04	.16	.05	.41
II—Task Relationships with Faculty					
Faculty do not treat students as willing to learn.	.04	.75	.11	.15	.10
Faculty do not seem to value student opinions and experiences.	.12	.72	.11	.20	.13
Students do not feel they can be open with faculty.	.05	.61	.13	.28	.14
Faculty seem more interested in activities besides teaching.	.06	.60	.15	.26	.12
Faculty are not easily accessible outside class.	.07	.52	.24	.29	.03
The presence of the current grading system. ^a	.30	.42	.18	.11	.05
III—Physical Environment					
The physical design of classrooms.	.12	.12	.80	.12	.14
Lack of conference rooms.	-.04	.13	.70	.24	.15
Design of student lounge.	.14	.08	.67	.23	.11
Size of classes. ^a	.13	.20	.47	.25	-.16
Lack of audiovisual aids. ^a	-.12	.26	.43	.40	.23
IV—Social Relationships with Faculty					
Students do not feel free to address faculty by first name.	.07	.23	.16	.75	.14
Lack of social activities with faculty.	-.02	.18	.23	.72	.08
Faculty do not know students by first name.	.04	.25	.23	.65	.07
Faculty do not know students by name.	.15	.28	.30	.57	-.04
V—Course Material Presentation					
The use of audiovisual and other classroom aids.	.21	.11	.18	.15	.67
The manner in which the class material is presented by the instructor.	.29	.11	.04	.02	.66
The material that the instructor presents.	.32	.18	-.02	.09	.63
The choice of which courses to take. ^a	.35	.02	.12	.03	.53
Percentage of common variance	25.5	20.2	18.5	18.2	17.5
Measet reliabilities					
Cronbach alpha	.95	.82	.81	.83	.79
Spearman-Brown	.93	.83	.83	.84	.74

^a Indicates item deleted from measet to improve reliability.

A final section of the questionnaire was added to obtain the following demographic data from respondents: age, sex, grade point average in present program, undergraduate major, number of credits completed at the end of the current term, and status as a full- or part-time student.

Analysis. Responses from all seven samples ($N = 455$) were standardized for each item for the first 36 questions (26 scores) from Sections A, B, and C of the LCQ, and the data were again analyzed using the McKelvey (Note 4) program. (Occasional missing data points resulted in some fluctuation in the N for a particular analysis. The programs employed disregard missing data points; they do not read them as zeros. An N of 453 was the basis of the factor analysis and the analyses involving measet scores.)

Measet scores, computed again as linear combinations of item scores, were correlated with the demographic variables of age and grades (all correlations were close to zero).

Six of the satisfaction questions were found to intercorrelate substantially (Numbers 37, 38, 40, 41, 42, and 43) and were combined to form an index of overall satisfaction. The alpha coefficient of internal consistency for the index was .83. Satisfaction scores were also found to be virtually independent of grades and age.

RESULTS

Factor and Measet Analysis

Evaluation of the data from the first study began with the factor analysis of the 26 climate items. Having examined all of the McKelvey solutions from 3 to 9 factors, a 5-factor solution was selected, one which explained 53.55% of the total variance.

Examination of the factors suggested the following descriptive titles: I—Grading Process; II—Physical Environment; III—Task Relationships with Faculty; IV—Social Relationships with Faculty; and V—Course Material Presentation.

Inspection of these data suggested that the five measet compare quite favorably in terms of reliabilities normally reported for questionnaires. The average alpha coefficient of internal consistency was .83. The average intercorrelation between scales was .32, the largest (.56) between Measet I and V. Since these two measet (but none of the others) are composed entirely of items computed from differences between Sections A and B of the questionnaire, method variance may contribute to this correlation. In the second analysis, the correlation between these two measet was .50.

Since the items composing the five factors were virtually identical in Study 1 and Study 2, the description of the factor composition will be presented for the combined samples only.

Responses for all seven samples ($N = 455$) were subsequently pooled, standardized, and factor analyzed. Table 1 shows the factor and measet analysis based on the *combined* samples. The factors which emerged were similar to those found in the preliminary analysis in item contents, reliabilities (average α coefficient = .84, range = .80-.95), and measet intercorrelations (an average of .33 with a high of .56 between Scales II and IV).

It should be observed that the items loading on the factors provide considerable intuitive evidence for substantive validity of the measet (see Table 1).

Were the results for the combined sample reasonably similar to those for the first school (IA)? To answer this question, a new set of measet scores were computed for Business School IA, using only the items identified for the combined samples in the second factor analysis. Spearman-Brown reliabilities for the new measet ranged from .85 to .79 with an average of .81. The comparable range for the original Business School IA measet was .92 to .79 with a mean of .84. Measet intercorrelations averaged .33 with the highest (.53) occurring between Scales II and IV—two scales from Section C of the questionnaire. The results indicated that the general solution from the combined samples was almost equally reliable when applied to the original Business School IA data. Both factor analyses produced encouraging evidence for the substantive and structural validity of the LCQ.

Tables 2 and 3 summarize responses and some relevant objective comparisons among the sampled professional schools. For example, samples known to occupy better physical facilities (Business Schools IC, II, and III—see sample descriptions) reported that the physical environment was less of an obstacle to a useful and meaningful learning environment ($p < .01$). Also, the differences in perceiving both forms of faculty-student relationships in Business Schools IC and II, and in NBPS 3 were in accordance with prior expectations, as

TABLE 2
 MEANS (AND STANDARD DEVIATIONS) OF LEARNING CLIMATE QUESTIONNAIRE SCORES
 AND SATISFACTION IN SEVEN SAMPLES

Dimension	Samples						
	Business School IA (<i>n</i> = 125)	Business School IB (<i>n</i> = 34)	Business School IC (<i>n</i> = 25)	Business School II (<i>n</i> = 55)	Business School III (<i>n</i> = 44)	NBPS 1 (<i>n</i> = 82)	NBPS 3 (<i>n</i> = 90)
Grading Process	4.06 (1.44)	3.35 (1.52)	3.34 (1.39)	3.51 (1.44)	3.40 (1.60)	4.76 (1.62)	4.47 (1.74)
Task Relationships with Faculty	3.75 (1.21)	3.40 (1.63)	1.87 (.81)	2.98 (1.10)	3.63 (1.40)	3.17 (1.24)	3.11 (1.17)
Physical Environment	3.84 (1.57)	3.32 (1.62)	1.83 (.92)	2.11 (.96)	2.22 (1.09)	3.82 (1.75)	3.76 (1.91)
Social Relationships with Faculty	3.21 (1.36)	2.90 (1.39)	1.48 (.56)	2.45 (1.34)	3.29 (1.27)	3.04 (1.44)	2.84 (1.63)
Course Material Presentation	3.31 (1.28)	3.47 (1.45)	2.94 (.77)	2.75 (1.26)	2.86 (1.26)	3.60 (1.61)	3.14 (1.20)
Overall satisfaction with learning process	Not Measured	2.96 (.82)	2.34 (.64)	2.80 (.73)	3.03 (.79)	3.15 (1.09)	3.08 (.74)

Note. Sample sizes for a particular item may vary slightly, due to missing data. Higher scores indicate greater perceived control discrepancy, more of an obstacle, or more dissatisfaction. Abbreviations: NBPS = nonbusiness professional school.

were most of the differences on the Grading Process dimension. The major surprise in these results was that Business School III did not cluster with Business School IA. Subsequent investigation, however, uncovered potential critical differences in grading policy at the two schools: Business School III, where students evidence less concern with grading policy, requires a "C" average and allows "Fs" to be made up. At Business School IA, a "B minus" average is required, and making up "Fs," even if approved by the faculty, is extremely difficult within the structured framework of the program. At the nonbusiness professional school, grades are believed to be major determinants of subsequent career success.

The differences in Course Material Presentation could not be predicted on the basis of available knowledge about the schools. On the other hand, the outstanding showing of Business School IC on all five scales seems to reflect the exceptional treatment of this group in terms of orientation program, facilities, and other tokens of attention.

In sum, considerable confidence in the external validity of the measets seems merited based on predictable objective differences in the learning environments across the subsamples.

Table 4 presents the correlations between individual scores on the measets and overall satisfaction in the six schools where the latter data were collected. For the entire sample ($N = 315$), overall satisfaction appears to be most immediately related to the Task Relationships with Faculty ($+ .46$, $p < .001$) and Course Material Presentation ($+ .39$, $p < .001$)—an intuitively plausible outcome. All other scale scores evidenced smaller yet significant correlations ($p < .001$).

Within samples, variation in measet-overall satisfaction correlations is seen. Table 4 illustrates the aforementioned tendency for Task Relationships with Faculty and Course Material Presentation to account for disproportionate variance in overall satisfaction. For purposes of diagnosing individual school learning climates, however, it is clear that the significant relationships may be different, depending upon the sample. For example, comparison of Business School IB and NBPS 3 reveals a situation where, in the business school, Social Relationships with Faculty accounts for a significant correlation ($r = + .46$), while for the nonbusiness sample, this factor accounts for a small correlation ($r = + .07$).

While one aspect of the LCQ's validity (i.e., as a measure of individual perceptions) is evident in the measet-satisfaction correlations, the instrument was designed to measure climate, where climate is defined as a property of the organization (the shared perceptions of participants) which affects the satisfaction of students. Viewing the entire sample as the unit for analysis, Spearman rank-order correlations (ρ) were computed for the sample means on each of the climate scales and for satisfaction (see Table 2). The resulting ρ s were as follows: Grading Process, .77; Task Relationships with Faculty, .54; Physical Environment, .94; Social Relationships with Faculty, .71; and Course Material Presentation, .60. Since the sample size is small ($N = 6$ samples), only the ρ for Physical Environment is significant ($p = .01$, one-tailed). However, all of the associations are relatively sizable and positive. Moreover, when mean ranks of school scores on the climate dimensions were rank-ordered and correlated with the satisfaction ranks, the resulting ρ was .99 ($p < .01$). As shown in Table 3, students from two schools (IC and II) expressed significantly less concern with most dimensions of the learning environment, while the students of NBPS 1 voiced more concern on every dimension. Sheffe's test for multiple comparisons for the six satisfaction means showed the following ordering ($p < .01$): IC and II are more satisfied than IB, III, and NBPS 3, which, in turn, are more satisfied than NBPS 1. Hence the ρ of .99 appears to

TABLE 3
SUMMARY OF SIGNIFICANT COMPARISONS
BETWEEN SAMPLES

Samples less concerned	Samples more concerned	p
I—Grading Process		
Business Schools IB, IC, II, III	Business School IA and NBPS 1, NBPS 3	.01
II—Task Relationships with Faculty		
Business School IC	All others	.01
Business School II and NBPS 3	Business Schools IA, III, and NBPS 1	.05
III—Physical Environment		
Business Schools IC, II, III	Business Schools IA, IB, and NBPS 1, NBPS 3	.01
IV—Social Relationships with Faculty		
Business Schools IC, II, and NBPS 3	Business Schools IA, III, and NBPS 1	.01
V—Course Material Presentation		
Business Schools IC, II, III	Business Schools IA, IB, and NBPS 1	.01

Note. Scheffé tests for multiple comparisons (Glass & Stanley, 1970) were used.

reflect substantial differences between samples on both the climate and satisfaction scales.

TABLE 4
CORRELATIONS OF INDIVIDUAL SCORES ON LEARNING CLIMATE QUESTIONNAIRE MEASETS
AND THE OVERALL SATISFACTION INDEX

Sample	I—Grading Process	II—Task Relationships	III—Physical Environment	IV—Social Relationships	V—Course Material Presentation
IB ($n = 34$)	.25	.33*	.24	.46**	.41*
IC ($n = 23$)	-.06	.24	.12	.30	-.13
II ($n = 55$)	.19	.66***	-.02	.28*	.47***
III ($n = 42$)	.22	.34*	.01	.20	.45**
NBPS 1 ($n = 77$)	.32**	.50***	.27*	.45***	.41***
NBPS 3 ($n = 84$)	.19	.38***	.13	.07	.28**
Total ($n = 315$)	.26***	.46***	.23***	.33***	.39***

* $p < .05$.
** $p < .01$.
*** $p < .001$.

DISCUSSION

Briefly summarized, the factor analyses and measure reliabilities provide evidence for the substantive and structural validity of the LCQ measures. Support for the external validity of the instrument was demonstrated in the correlations between measure and satisfaction scores on both an individual and sample basis. More importantly, the discriminative capacity of the LCQ measures was noted in their ability to discriminate between relevant known properties of the various school samples.

Given the correlational nature of the analysis, any attempt to interpret the directions of causal effects must be regarded as highly speculative. Nevertheless, parallel findings in the literature of organizational behavior suggest that the patterns found in the professional schools may represent instances of frequently observed organizational phenomena. This gives additional support to the validity of the instrument.

For example, it is generally accepted that features of the physical environment tend to condition the quality and patterns of social interaction that develop in human groups (see Shaw, 1971, pp. 87-89, for a review of these findings). Hence the quality of faculty-student relationships, particularly of the social variety, may well be linked to whether the physical facilities foster contact and interaction. Based on individual responses ($N = 455$), the correlation between Physical Environment and Social Relationships ($r = +.45$, $p < .01$) supports this interpretation.

It is instructive to examine the items comprising the Social Relationships with Faculty scale (see Table 1). In addition to the frequency of social activities, three of the questions deal with the use of names—Do faculty know students' names? Do students address faculty formally or informally? The common denominator for such questions seems to be the amount of *social distance* between teachers and students.

If social relationships are conducted on a formal and distant basis, task relationships may be characterized by an impersonal lack of mutual concern, trust, and interest—rather than a climate of mutual regard, support, and

openness. The content of the items composing the Task Relationships with Faculty measure seems consistent with this expectation (see Table 1). Also, the correlation between Social Relationships and Task Relationships is .54 ($N = 455$, $p < .01$).

Numerous contemporary critics argue that the impact of educational processes depends heavily upon the interpersonal climate among faculty and students (Committee on the Student in Higher Education, 1968; Mann, Arnold, Binder, Cytrynbaum, Neuman, Ringwald, Ringwald, & Rosenswein, 1970; Rogers, 1969). A parallel hypothesis runs through many behavioral science theories of organizations. For example, Argyris (1962) reported declining task effectiveness in organizations as a result of deteriorating interpersonal relationships (i.e., those marked by decreasing trust, openness, risk taking, authenticity, helping, etc., and increasing conformity, evaluations, defensiveness, etc.). In short, there is ample precedent for expecting that overall satisfaction with the educational process should be heavily dependent upon the quality of faculty-student relationships, as noted in the correlations reported here.

Looking ahead, it has been hypothesized that changes in organizational climate precede changes in outcome variables (e.g., Marrow, Bowers, & Seashore, 1967). Regarding any organizational development program to enhance student learning and satisfactions, does the LCQ provide a valid indicator and monitor of how specific organizational changes result in these outcomes? More specifically, can changes indicated by the LCQ over time suggest the strategy or the modification of a given organizational development program? Longitudinal action research assessments in professional schools would be necessary to explore these issues.

Furthermore, while the present study has focused primarily on graduate schools of business, does the validity of the instrument generalize to a broader range of professional schools, and would the LCQ be equally helpful in guiding educational changes in these systems? Research along these lines is currently underway.

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