THE RELATION BETWEEN NONCLASSROOM CONTACT WITH FACULTY AND STUDENTS' PERCEPTIONS OF INSTRUCTIONAL QUALITY

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This study assessed the relationship between the frequency of college students' informal nonclassroom contact with faculty for each of six purposes and their generalized perceptions of instructional quality. Two factorially derived components of instructional quality (based on a 14-item instrument) were used as the dependent variables in two regressions on the six types of contact. The frequency of contacts for discussing intellectual or course-related matters and for discussing a campus issue or problem made statistically significant and unique contributions in predicting students' perceptions of instructor concern and ability.

With student evaluations of instructor effectiveness playing an increasingly important role in administrative decisions, instructional improvement, course selection, and institutional evaluation, there is an increasingly urgent interest in identifying and understanding the sources of variance in students' ratings of the instruction they receive. The research concerning student ratings of instructional quality has, by and large, focused on the nature and/or occupants of the formal classroom setting. Some researchers have dealt with instructors' traits (e.g., Isaacson, McKeachie & Milholland, 1963; Sorey, 1968), while others have assessed the relation between student characteristics and their ratings of instruction (e.g., Rezler, 1965; Yonge & Sassenrath, 1968). Still other researchers have

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looked at the relationship between course characteristics and ratings of instructional quality (e.g., Miller, 1972; Wood, Linsky & Straus, 1974).

The accumulated research suggests that certain instructor characteristics are significantly related to student evaluations. McKeachie (1969) and Crawford and Bradshaw (1968), for example, concluded that teachers rated higher than their colleagues were distinguished in students' minds for their friendly, permissive, flexible attitude toward students. Similarly, Hart and Driver (1978) found that teachers scoring higher than their colleagues in extraversion, intuitiveness, and feeling also received higher student ratings. Sherman and Blackburn (1975) concluded that highly rated teachers were perceived by students to be dynamic, amicable, and highly intellectual, and Murray (1975) found that approximately two-thirds of the between-teacher variance in student ratings could be explained by four personality traits: leadership, extraversion, objectivity, and lack of anxiety. The influence of other instructor traits has also been extensively assessed, including such considerations as the faculty member's sex, academic rank, teaching experience, and research productivity (see literature reviews of Centra, 1979; Costin, Greenough & Menges, 1971; McKeachie, 1969, 1979; Kulik & McKeachie, 1975). Feldman (1976), finally, reviewed the literature to determine the attributes, behaviors, and pedagogical practices of instructors perceived by students to be characteristic of superior college teaching; he concluded that stimulation of interest, clarity, the instructor's preparation for the class, and the instructor's enthusiasm for the subject matter were salient features of superior teaching.

Numerous investigators have tried to identify specific student characteristics which influence their instructional ratings. The most frequently studied student characteristics have been sex, major field, course grade, and college class. In a study of 5,000 college students and 87 instructors, Rayder (1968) found that student sex, age, college class, and major field could account collectively for only 2 percent of the total variance in students' ratings of their teachers. In their review of the relevant literature, Costin, Greenough, and Menges (1971) cited studies which concluded that there were no significant differences in the overall ratings of teaching made by men and women. Similarly, Feldman (1977), McKeachie (1969, 1979), and Kulik and McKeachie (1975) concluded that sex, major field, and college class were not strong predictors of students' ratings of their instructors. Student attributes and experiences found to be more strongly and more consistently related to instructor ratings were anticipated grade in the course, achievement in the content of course, interest and motivation, and prior and initial impressions of the particular teachers to be rated (see literature review of Feldman, 1977).

Although the associations between course characteristics and ratings of

instructional quality do not appear to be particularly strong, rather clear-cut patterns emerge. Thus, teacher ratings tend to be somewhat higher for upper-division courses and required courses. Also, humanities, fine arts, and language instructors tend to receive somewhat higher ratings than social science teachers or physical science, mathematics, and engineering instructors. Finally, class size appears to be a contingent variable; while in certain studies a negative relationship was found between class size and ratings of instructional quality, in others a U-shaped, curvilinear relationship was present (see literature review of Feldman, 1978).

Despite the widespread attention given to the relation between student and/or instructor characteristics and instructional ratings, interaction effects have been surprisingly neglected in studies of college teaching evaluation. McKeachie (1979) observed that "teachers may be differentially effective for different students" (p. 390). Palmer, Carliner, and Romer (1978), in generalizing the results of their study, drew attention to the fact that "the results might be different for a different department, for students taking an upper-level course, for different types of students, or for instructors at different universities" (p. 862). Thus, it seems reasonable to ask whether various teaching styles may have differential effects on different groups of students.

Moreover, with all the attention directed to the occupants of the formal instructional setting, the potential influence of informal student-faculty contact outside the classroom has been virtually ignored. Clearly, a variety of definitional and methodological problems can be cited to explain this neglected area of instructional evaluation, but even when these constraints are taken into account, the oversight is still striking. Considerable evidence exists, for example, to suggest that nonclassroom contact with faculty is a significant determinant of a student's college experience. Feldman and Newcomb (1969) have concluded that student-faculty informal contact has influence on a wide variety of both academic and personal student outcomes. Chickering (1969) and Spady (1970) have also suggested that student-faculty informal interaction has a direct influence on academic performance. Pascarella and Terenzini (1976, 1978) and Terenzini and Pascarella (1979) found evidence to suggest that both the frequency and quality of students' nonclassroom contact with faculty was positively associated with students' grade performance and perceptions of both intellectual and personal growth. Given the positive relationship between academic performance in a course and students' ratings of the instructor (Cohen & Berger, 1970; Murray, 1975; McKeachie, 1969), a positive relationship may also be hypothesized to exist between student-faculty nonclassroom interaction and students' perceptions of instructional quality.

The present study was designed to test this hypothesis. At the time of this

investigation, however, an institution-wide instructional rating form was not available at the institution at which the study took place. It was also clear that collecting data for the present study at the instructor level was not feasible. Nonetheless, the available literature suggested that the research question was worth pursuing. Is there a reliable relation between the frequency of students' nonclassroom contact with faculty members and the students' generalized evaluation of the quality of instruction they have received over the course of an academic year? An affirmative answer to this question would raise a number of issues relating not only to the source, nature, and direction of the influence of such contact, but also to the degree to which such influence may be present in student ratings of individual instructors. The question also clearly raises definitional problems: What, in the minds of students, constitutes the "instruction" they are asked to evaluate? Secondarily, this study also sought to discover whether the influence (if any) of nonclassroom student-faculty contact on instructional ratings was different for different kinds of students.

METHODOLOGY

Population and Sample

The study was conducted in a large, public, residential university in New York State; the school is highly selective in its undergraduate admissions. The population of the study was all full-time undergraduate students enrolled during the 1979 spring semester (N = 8,954). A stratified (by class) random sample of 500 students was drawn in April 1979. Sample members were sent a questionnaire designed to assess their general perceptions of the quality of teaching they had received at this institution, as well as to elicit information about the frequency of student-faculty nonclassroom contact. Usable responses were received from 205 students (41.0% of the original sample). Chi-square goodness-of-fit tests indicated that respondents were representative of the population from which they had been drawn with respect to sex and class.

Variables and Instruments

One portion of the questionnaire asked sample members to rate (as a group) the instructors they had had during the 1978–1979 academic year. Teaching assistants were to be excluded from the group being rated. Instructors were evaluated on 14 items using a five-point scale where 5 = excellent and 1 = terrible. These items were selected after a review of the instructional evaluation literature and both commercially available and

uncopyrighted instructional rating forms. The items were believed by the authors to be a reasonably representative sample of what the literature suggests are the components of good teaching as seen by students. These items were subsequently used (employing procedures described below) to construct two scales which became the dependent measures in this inquiry.

Four covariates and six independent variables were employed in this study. The covariates were sex (1 = male; 2 = female), class, major field of study (1 = arts and sciences; 0 = professional), and entry status (1 = transfer student; 2 = first-time student). The six independent variables were students' estimates of the number of times during the 1978-1979 academic year they had met with a faculty member outside the classroom for each of six different purposes: (1) to get basic information and advice about my academic program; (2) to discuss matters related to my future career; (3) to help resolve a disturbing personal problem; (4) to discuss intellectual or course-related matters; (5) to discuss a campus issue or problem; (6) to socialize informally. Only conversations of 10 to 15 minutes or more were to be counted.

Statistical Procedures

Analysis began with a principal components analysis of the 14 instructional rating items. Components with eigenvalues of 1.0 or greater were rotated to the varimax criterion. Mean factor scale scores were then computed for each respondent by summing the raw scores on items with rotated factor loadings of .40 and above on the particular factor and then dividing by the number of items (Armor, 1974). The purpose of computing factor scale scores by using characteristic items (rather than a complete estimation method in which all variables were used, regardless of loadings) was to increase the internal consistency (coefficient alpha) reliability of the individual factor scales (Armor, 1974). While the procedure may result in the loss of orthogonality across scale scores, the authors believed it was preferable to maximize the scales' reliability, since the intercorrelation of the scales could be handled using multivariate procedures such as multiple regression analysis.

Hierarchical, setwise multiple regression analysis was the primary analytical procedure in this study. Two such multiple regressions were performed, one for each factor used as the dependent variable. With Factor I as the dependent measure, Factor II was entered first (to control for the correlation between the two scales), followed in order by the four covariates as a set and then the set of six types of student-faculty contact. After all covariates and main effects variables had been entered, and to test whether different kinds of students' nonclassroom contact with faculty had

a differential influence on their ratings, a set of 24 interaction terms was entered. The interaction vectors were created by cross-multiplying a student's sex, class, major field, and entry status with each of the six types of student-faculty nonclassroom contact. In the second regression, with Factor II as the dependent variable, Factor I was entered first, followed by the other sets in the same order given above.

The statistics of primary interpretive interest were R^2 change and the beta weights. The R^2 change statistic indicates the variance explained by the newly entered set of variables after the variance due to sets entered earlier has been taken into account. The beta weights indicate the unique contribution of the independent variables and interaction terms. The beta weights were examined only if the R^2 change for a given set of variables as a whole made a significant contribution to the explanation of variance in a criterion measure.

RESULTS

The principal components analysis and varimax rotation of students' ratings of the 14 quality-of-teaching items yielded two factors with eigenvalues ≥ 1.0. The composition of these factors is presented in Table 1.

The first factor is characterized by items describing instructors' interest in students' progress in the course and the faculty members' ability to stimulate thought or facilitate learning; for this reason, the factor has been labeled "Instructor Concern and Ability" (ICA). This factor accounts for 30.9 percent of the total variance. The factor scale based on this component contains nine items and has an internal consistency (alpha) reliability of .89.

The second factor, labeled "Instructor Preparation" (IP), appears to focus on organizational features of instruction—the faculty members' organization and preparation—and has been named accordingly. This factor explains 23.0 percent of the total variance. The scale contains four items with an alpha reliability of .78.

Although all items exceeded the loading criterion of .40 on a particular factor, one item (ability to assign readings or other tasks that increase my learning) failed to load on the two factors in an interpretable manner and was thus dropped from further analyses. Table 1 also indicates that together the two scales account for 53.9 percent of the total variance.

Previous factor analytic studies of the dimensionality of students' instructional ratings have, in the main, indicated the presence of two to five meaningful factors. Kulik and Kulik (1974), however, conclude that almost all analyses of student instructional ratings have indicated that two factors, Skill and Rapport, account for a major portion of the total variance. The

TABLE 1. Varimax Rotated Factor Loadings.

Variable	Factor		
	Instructor Concern and Ability	Instructor Preparation	h^2
Concern for my progress in their courses	.75[a]	.05	.57
Willingness to help when I was having difficulty in their courses	.69[a]	.23	.54
Ability to relate course material to my concerns or interests	.69[a]	.23	.52
Ability to make course material intellectually stimulating	.68[a]	.37	.60
Encouragement to express my views, even if different from the instructor's	.68[a]	.12	.47
Contributions to my learning beyond what I gained from readings or other assignments	.67[a]	.32	.55
Ability to provoke thought and stimulate critical thinking	.66[a]	.39	.60
Ability to get ideas across in ways I can understand	.63[a]	.35	.52
Enjoyment of teaching	.58[a]	.38	.49
Organization of class presentations	.14	.87[a]	.79
Preparation for class periods	.23	.79[a]	.69
Organization of course	.27	.75[a]	.64
Knowledge of subject area	.16	.48[a]	.26
Ability to assign readings or other tasks that increase my learning	.30	.45	.30
Eigenvalues (rotated)	4.331	3.212	
Percent variance explained	30.9	23.0	
Cumulative percent variance explained	30.9	53.9	
Scale alpha reliability	.89	.78	

[a] Variables used for the computation of mean factor scale scores.

first dimension in this study (ICA) appears to describe an amalgam of both the Skill and Rapport dimensions. The second dimension (IP) appears to be reasonably similar in content to the Course Structure/Organization dimension found by others. The two-factor solution produced by this study is not inconsistent with Frey's (1978) recent finding that Skill and Rapport appear

TABLE 2. Means, Standard Deviations, and Zero-Order Correlations of All Variables with Criterion Measures. (N = 205)

Variable	$\bar{X}$	SD	Zero-Order Correlations with Criterion Variables: Instructor Concern and Ability	Zero-Order Correlations with Criterion Variables: Instructor Preparation
Personal characteristics				
Class	2.60	1.10	.078	.071
Sex	1.55	.50	.017	−.002
Major field	.62	.48	.095	.062
Transfer or not	1.69	.46	−.041	.038
Frequency of contact for:				
Academic or course information	1.90	2.78	.133	.005
Career concerns	1.21	2.25	.074	.008
Personal problem	.29	.99	.011	−.087
Intellectual discussion	2.28	2.94	.098	−.081
Campus issue	.26	.84	.141	.004
Informal socializing	1.82	7.50	.116	.105

to be the two major dimensions of instructional quality. Similar findings have also been reported earlier from the analysis of the 10-item Purdue Rating Scale (see, for example, Bendig, 1954).

Table 2 displays the means and standard deviations for each of the variables in the present study, as well as the zero-order correlations of all variables with each criterion measure.

Table 3 describes the results of the multiple regression analysis and indicates that with the ICA scale as the dependent measure, the full-model multiple regression produced an R^2 of .484 (multiple R = .696), with an associated F ratio of 4.53 (df = 35/169, $p < .01$). Further examination of Table 3 reveals, however, that the variance explained by the full model is due primarily to two sources: the IP scale and the frequency of student-faculty contact variable set. Upon entry, the IP scale produced an R^2 of .353 (multiple R = .594), a statistically significant amount (F = 110.91, df = 1/203, $p < .001$). When the covariates entered as a set, they produced an R^2 increase of only .005, a nonsignificant increment. When the student-faculty contact variables were entered, this set explained an additional 4.4 percent of the variance, an increment statistically significant

TABLE 3. Multiple Regression Summary.

Variance Source	Criterion Measures: Instructor Concern and Ability	Criterion Measures: Instructor Preparation	Degrees of Freedom
R^2 due to the presence of the other scale	.353***	.353***	1/203
R^2 increase due to covariates[a]	.005	.001	4/199
R^2 increase due to student-faculty nonclassroom contact variables[b]	.044*	.033	6/193
R^2 increase due to interaction of covariates and student-faculty non-classroom contact[c]	.082	.064	24/169
Total R^2 for all variables and interactions	.484**	.452**	35/169

[a] Controlling for either the ICA or the IP scale.
[b] Controlling for the other scale and the covariates.
[c] Controlling for the other scale, the covariates, and all main effects variables.
*$p < .05$.
**$p < .01$.
***$p < .001$.

at the .05 level, after controlling for the IP scale and the covariates. Finally, the entry of the set of 24 interaction vectors produced an R^2 increase of 8.2 percent, a nonsignificant amount.

With IP as the dependent measure, the overall multiple regression produced an R^2 of .452, having an associated F ratio of 3.98 ($df = 35/169$, $p < .01$). A closer look at Table 3 reveals, however, that the major source of the variance explained is the presence of the ICA scale. The entry of the set of covariates produced an R^2 increase of less than 1 percent. Each of the two remaining sets of variables also failed to produce a significant increase in R^2. The student-faculty contact variables produced an R^2 change of only 3.3 percent, while the 24 interaction terms increased the amount of variance explained by 6.4 percent. Thus, with the IP scale as the dependent measure, the significance of the overall model appears to be due entirely to the presence of the ICA scale as a control variable.

Table 4 arrays the beta weights for all variables on each of the two

TABLE 4. Beta Weights for All Covariates and Independent Variables.

Covariates and Independent Variables	Criterion Measures: Instructor Concern and Ability	Criterion Measures: Instructor Preparation
Other scale[a]	.588**	.592**
Personal characteristics[a]		
Sex	.013	−.012
Field of study	.057	.007
Class	.033	.022
Transfer or nontransfer	−.008	−.005
Frequency of contact to:[b]		
Get academic program information	.090	−.046
Discuss future career	−.033	.016
Discuss personal problem	−.001	−.053
Discuss intellectual or course-related matter	.124*	−.135*
Discuss campus issue	.116*	−.056
Socialize informally	−.003	.078

[a] Controlling for either the ICA or the IP scale and all other covariates.
[b] Controlling for either the ICA or the IP scale, the four covariates, and all other types of contact.
*$p < .05$.
**$p < .001$.

criterion measures. Beta weights are standardized partial regression coefficients, reflecting the degree of association between each variable and criterion measure after all other variables have been controlled. The relative sizes of the weights and their signs offer some understanding of the comparative influence on each criterion measure. The magnitudes of the weights, however, have meaning only for *within-analysis* comparisons of variables; they are *not* comparable across analyses.

Examination of the beta weights indicates that each of two types of student-faculty contact made statistically significant and unique contributions ($p < .05$) in predicting students' rating of their teachers on the ICA scale. Contacts for discussing intellectual or course-related matters appear to make the largest contribution, followed closely by contacts for discussing a campus issue or problem.

As mentioned earlier, the analytical plan called for the examination of individual independent variables only when the set as a whole made a significant incremental contribution to the explanation of variance in the

criterion measure. It should be noted, however, that in the regression on the IP scale, the beta weight for intellectual or course-related matters (–.135) was significant. No explanation for the negative sign is immediately apparent.

Limitations

This study is limited in several respects. First, the results are based on data collected from students at a single institution. To the degree that the students who enroll at this university and their educational experiences differ from those of students at other institutions, results may not be generalizable beyond the population from which the respondents in this study were drawn.

Second, data are based on a cross-sectional design, with its inherent constraints for controlling potentially confounding variables. As Feldman (1977) points out, "A procedure in ratings of instructional quality which pools students and data across classes may mask useful information" (p. 257). In this research, uncontrolled variables include students' academic aptitude and achievement levels, personality traits, and intellectual and educational commitments. It is conceivable, of course, that had these variables been controlled, the observed main effects might disappear.

Third, respondents were asked to make a global rating of the instruction they had received over an academic year, a rating likely to be confounded by considerations of varying class size, course content, the mix of required and elective courses and multiple instructors.

Fourth, the fact that students were asked to report nonclassroom contact with faculty and to rate the quality of the instruction they had had over the course of an academic year at the same time and on the same questionnaire may have led to a halo effect. However, the questionnaire also asked for information other than that used in the present analyses, some of which appeared on the instrument between the items of interest in this study, perhaps at least reducing any halo effect that may be present.

Finally, the results of the study are not unambiguous. Of 12 first-order regression coefficients computed between the six independent variables and the two criterion measures only 2 are statistically significant; one might be expected by chance. Moreover, while nonclassroom contacts with faculty for discussing intellectual or course-related matters and for discussing a campus issue have a positive effect on the ICA scale, at the same time they appear to have a slight, if nonsignificant, negative effect on the IP scale. Given the signs of the zero-order correlations (see Table 2), the negative weight for the campus issue variable may be attributed to a suppression effect. The negative weight for the intellectual discussion variable is not so easily explained.

DISCUSSION

The purpose of this study was to determine whether a relation existed between the frequency of students' nonclassroom contact with faculty members and these students' generalized ratings of the quality of the instruction they had received over the course of an academic year. The study also sought to discover whether such a relation might be different for different kinds of students.

The hypothesized relation between the frequency of student-faculty nonclassroom contact and students' generalized ratings of instruction appeared to be present only with the ICA scale as the criterion measure. The set of six types of student-faculty nonclassroom contact produced a modest but significant increase in the amount of variance explained in the ICA scale after controlling for the IP scale and a student's sex, academic major, class, and entry status (freshman or transfer).

Not all types of student-faculty contact appeared to be equally important in predicting students' ratings of teaching, however. The beta weights revealed that only two types of contacts made unique and statistically significant increments in the explained variance of the ICA scale: contacts for discussing intellectual or course-related matters made the largest contribution, followed closely by contacts for discussing a campus issue or problem.

Results of a similar analysis with the Instructor Preparation scale as the criterion measure were statistically nonsignificant. The entry of 24 interaction terms failed to produce a reliable increment in the variance explained in either regression.

So far as students' ratings of their instructors' concern for their progress, willingness to help them when in difficulty, and ability to provoke thought and transmit ideas are concerned, these findings suggest instructional ratings may not be independent of students' nonclassroom contact with faculty for discussing intellectual or course-related matters or for discussing a campus issue or problem.

The significance of frequency of student-faculty contact to discuss intellectual or course-related matters may (and probably does) reflect a view by students of the instructional process as extending beyond the formal teacher-student classroom relationship to informal settings. Such a perception is consistent with the conventional belief that a sound undergraduate liberal arts education is gained in a holistic academic context, one grounded in student-faculty interaction not confined by the physical boundaries of the formal classroom.

Given such a belief, however, the finding in this study that students' global evaluations of instructional quality are also related to the frequency

of informal student-faculty contact *to discuss a campus problem or issue* is more troublesome. This finding raises the possibility that instructional ratings may be dependent—if only to a rather small extent—on the noninstructional interactions of students and faculty members.

If students' out-of-class contacts with faculty (for whatever purpose) are considered to be one subset of the experiences and conditions which contribute to students' perceptions of their academic environment, then these results are not inconsistent with research indicating that the classroom environment exerts an influence on students' ratings of instruction and learning. Holzemer (1975), for example, using classrooms as the unit of analysis, found a significant relation between students' instructional ratings and their perceptions of the classroom environment. Anderson (1970) found that learning was related to intelligence, instruction, and environment, and to certain interaction terms as well.

Thus, the results of this study might be viewed as something of a macrolevel extension of the individual classroom environment. If classroom ambience influences students' ratings of an individual instructor, then students' perceptions of a more broadly conceived academic environment (one partially defined by their nonclassroom contact with faculty) might reasonably be expected to influence their overall ratings of the instruction they have received over an academic year.

The results of this study raise other issues. It has been assumed here that contact with faculty members is positively related to students' global ratings of the instruction received. It may well be, however, that exposure to faculty members whom the student regards as good teachers induces or encourages contact with these instructors at higher rates than with faculty members considered to be less capable instructors. Wilson, Wood, and Gaff (1974), for example, have found that certain faculty members give clues about their "social-psychological accessibility" to students. Thus, it is unclear in precisely which direction the influence identified operates. Indeed, the relation may well be reciprocal, analogous to a self-reinforcing loop.

A second issue raised by this study and alluded to above concerns the definition of what, for students, constitutes the instruction they are asked to (and do) evaluate. The question is germane to individual course ratings. The majority of student instructional rating forms appear to assume that the teaching being rated is that which occurs in the classroom. This study suggests that such an assumption may not be supportable and that a broader conception may be needed. What, in the students' minds, are the boundaries of the instructional setting? Does it include the instructor's office? A campus coffee shop? Indeed, might it include *any* setting, formal or informal, in which students and faculty members come into contact? The

results of this study suggest that instructor ratings by students may be tapping some residual effect of students' nonclassroom, noninstructional contacts.

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