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ABSTRACT

Investigated are the multidimensional differences in freshman perceptions and experience of the academic and nonacademic aspects of college associated with varying amounts of informal contact with faculty. Discriminant analysis indicated that factor dimensions, termed Interest Value and Practical Appeal, best distinguished between groups of freshman categorized as high, moderate, and low interactors. High and moderate interactors were characterized by more positive ratings of their academic program on both dimensions and by more positive ratings of their nonacademic life on Interest Value than were low interactors. Academic achievement, as measured by cumulative freshman grade-point average, contributed little to discrimination among the three groups. Analysis of supplementary data also indicated that high interactors ranked faculty members significantly higher as a source of positive influence on both their intellecutal and personal development than did low interactors. Moreover, in a follow-up analysis of the same subjects conducted during the subsequent academic year, amount of informal contact with faculty was found to be significantly associated with persistence at the institution. No statistically reliable differences were noted between high, moderate, and low interactors with respect to academic aptitude, personality, dimensions, or initial expectations of the college climate. (Author)

OUTCOMES OF THE ACADEMIC AND NON-ACADEMIC EXPERIENCE OF COLLEGE RELATED TO FREQUENCY OF STUDENTS' INFORMAL INTERACTION WITH FACULTY

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A considerable body of literature in higher education has hypothesized the importance of informal interaction between faculty and students beyond the classroom as a significant factor in the impact of college on student development (e.g., Chickering, 1969; Clark, 1968; Feldman and Newcomb, 1969). However, the empirical evidence substantiating differences in the experience or outcomes of college for students associated with their engaging in such interactions with faculty is far from abundant.

One outcome which has been suggested by the research is increased faculty influence on student career choices and aspirations for graduate education (Greeley, 1962; Grigg, 1966). More recent research by Wilson, Wood and Gaff (1974) and by Wilson, et al. (1975) found that students engaging in a "high" frequency of informal interaction with faculty differed from their classmates who seldom engaged in such interactions across a range of characteristics. "High interactors" not only had more intellectual, artistic and cultural interests in common with faculty to begin with, but also reported having changed more during college than "low interactors." Similarly, "high interactors" also expressed greater satisfaction with their total college experience than "low interactors."

The purpose of this study was to extend the work of Wilson, Wood and Gaff (1974) and Wilson, et al. (1975) by means of a more focused investigation of the multidimensional differences in student perceptions and experience of college associated with varying amounts of informal contact with faculty. Specifically, the study sought to determine the extent to which students who frequently engage in informal interaction with faculty beyond the classroom differ from those who do not, in: ratings of the academic program, ratings of non-academic life, academic achievement, sources of satisfaction and influence, and attrition rate.

METHODOLOGY

Sample

The setting for the study was Syracuse University, a large private university with a total undergraduate enrollment of approximately 10,000 students, located in Central New York State. A simple random sample of 500 freshmen was drawn by computer from the population of freshmen enrolled in the College of Arts and Sciences at that institution. The Arts and Sciences population from which the sample was drawn was approximately 54% male and 46% female.

Instrument

As a measure of their ratings of their academic program and their non-academic life, students were asked to rate the statements "I HAVE FOUND MY ACADEMIC PROGRAM AT S.U. TO BE:" and "I HAVE FOUND MY NON-ACADEMIC LIFE AT S.U. TO BE:" on the Adjective Rating Scale (ARS) (Kelly and Greco, 1975). The ARS consists of twenty-four adjectives against which the respondent rates certain statements using a four point scale: 1 = extremely, 2 = very, 3 = somewhat, 4 = not at all. Previous factor analysis of the ARS has yielded a stable underlying structure of five factors. The internal consistency reliability of the scale scores derived from those factors ranged from .71 to .85, while the test-retest reliabilities over a seven-week period ranged from .66 to .98. A validational analysis indicated substantial correlations ($r = .58$ to .93 in magnitude) among the ARS factors and the evaluation, potency and activity dimensions of the Semantic Differential (Kelly and Greco, 1975).

Additional items on the instrument asked students to estimate both the number of times during the semester they had met informally with faculty members, outside of class, for ten minutes or more and the number of organized extra-curricular activities in which they had participated during the year. The

questionnaire also asked students to indicate expected major, residence arrangement and Clark-Trow subcultural orientation toward college; and to rank-order four possible educational goals, four sources of influence on personal and intellectual growth, and six possible areas of personal satisfaction.

Response

The questionnaire was distributed by mail to the entire sample in late March, 1975 (approximately 2/3 of the way through the spring semester). Subsequent to a mailed follow-up, usable responses were obtained from 379 subjects yielding a response rate of 75.8%. The high rate of response, plus a chi-square analysis indicating non-significant differences between the sample and the population with respect to sex distribution, suggested the representativeness of the sample.

In order to obtain comparison groups for the study, the distribution of the number of informal interactions with faculty reported by respondents was stratified at the 33rd and 67th percentiles into categories termed "low," "moderate" and "high interactors." One hundred and forty respondents were classified as low interactors, 131 as moderate interactors and 106 as high interactors. (The responses of two respondents could not be categorized and were dropped from the analysis.) The range of informal faculty contact for the three comparison groups were the following: low interactors = 0-1; moderate interactors = 2-4; high interactors = 5-40 with the median number being eight.

Statistical Analysis

Although the factor structure of the Adjective Rating Scale was previously developed on a sample of 769 subjects, the stimulus statement to which the subjects responded pertained to specific courses. In the present study respondents were being asked to rate broader experiences, i.e., the academic

program and their non-academic life. It was therefore judged necessary to determine empirically the factor structure which held for this variation in the use of the ARS.

Principal components factor analysis with varimax rotation of components having eignevalues ≥ 1.0 (Kaiser, 1959) was used to identify the underlying dimensions of students' ARS ratings of their Academic Program and their Non-Academic Life. A separate analysis was done for each statement. Factor scale scores, using variables with rotated loadings ≥ .40, were computed for each student. The reason for using characteristic loadings rather than a complete estimation method (in which all variables, regardless of their factor loadings, are used) was to increase the internal consistency (alpha) reliability of the individual factor scales (Armor, 1974). These scale scores were then combined with each student's reported participation in extracurricular activities and their cumulative freshman grade point average. (Grade point average was obtained from the official records of the College of Arts and Sciences.) A preliminary multivariate analysis of variance was conducted on these variables to determine the presence of overall significant differences among group mean vectors. Following this analysis, the variables were employed as predictor variables in a three-group stepwise discriminant analysis to determine which variables best distinguished among the groups identified as low, moderate and high interactors while controlling for the variable intercorrelations. The criterion for controlling the stepwise selection of variables for inclusion in the analysis was the minimization of Wilk's Lambda. The minimum F-ratio to enter the analysis was set at 1.0.

RESULTS

Factor analysis of students' ARS ratings of their academic program and their non-academic life yielded five and four factors, respectively, with

eigenvalues ≥ 1.0. The composition of these two sets of factors is shown in Table 1. Each factor has been given a tentative name which was felt to represent the underlying psychological construct tapped. The reader is cautioned, however, against attributing surplus meaning to the factors beyond the scales which characterize them.

Table 1 also shows the alpha or internal consistency reliability coefficients computed for each set of factor scales. As shown in Table 1, scales for Factor V, Uniqueness, had a computed alpha reliability of only .27. This dimension was therefore not included in further analysis. Similarly, Factor IV, unnamed in Table 1, was not included in further analysis because it was judged to be uninterpretable within the context of the statement rated.

Table 2 displays the means, standard deviations and univariate F-ratios for the nine predictor variables. The multivariate analysis of variance F-ratio for the difference among group mean vectors was 1.72 with 18 and 732 degrees of freedom ($p<.05$). Significant univariate F-ratios were found on the Interest Value and Practical Appeal factors for students' ARS ratings of both their academic program and their non-academic life. Because of the intercorrelations among the nine variables, however, the univariate tests of significance are not independent and therefore the probability statements associated with them are difficult to interpret. Since the discriminant analysis controls for the degree of association among the variables, the information it provides is more meaningful.

Table 2 also shows the results of the stepwise discriminant analysis. As indicated, six variables entered the analysis with an F-ratio to enter ≥ 1.0. Of the two possible discriminant functions (one less than the number of groups), only the first was statistically significant at $p<.05$ and will be discussed further. The first discriminant function had a canonical correlation

TABLE 1

VARIMAX ROTATED FACTOR LOADINGS FOR STUDENTS' ADJECTIVE RATING SCALE RESPONSES (N=379)*

I HAVE FOUND MY ACADEMIC PROGRAM AT S.U. TO BE:		I HAVE FOUND MY NON-ACADEMIC LIFE AT S.U. TO BE:	
FACTOR	LOADING	FACTOR	LOADING
INTEREST VALUE		INTEREST VALUE	
Enjoyable	.78	Exciting	.84
Exciting	.76	Enjoyable	.81
Stimulating	.74	Good	.78
Enlightening	.71	Interesting	.72
Interesting	.67	Stimulating	.71
Rewarding	.66	Rewarding	.71
Good	.62	Enlightening	.67
Provocative	.58	Boring	-.63
Informative	.54	Worthwhile	.61
Alpha Reliability = .90		Dull	-.60
% Variance = 23.1%		Valuable	.59
DULLNESS APATHY		Provocative	.57
Irrelevant	.75	Alpha Reliability = .94	
Dull	.71	% Variance = 27.7%	
Boring	.66	PRACTICAL APPEAL	
Useless	.65	Irrelevant	-.72
A Waste	.62	Useless	-.71
Alpha Reliability = .85		A Waste	-.70
% Variance = 14.1%		Relevant	.63
PRACTICAL APPEAL		Practical	.54
Necessary	.74	Informative	.54
Practical	.60	Necessary	.49
Valuable	.58	Alpha Reliability = .84	
Worthwhile	.51	% Variance = 17.7%	
Relevant	.44	DEMAND/CHALLENGE	
Alpha Reliability = .82		Demanding	.78
% Variance = 11.0%		Challenging	.75
DIFFICULTY/CHALLENGE		Difficult	.74
Demanding	.86	Different	.42
Difficult	.85	Alpha Reliability = .69	
Challenging	.69	% Variance = 9.6%	
Alpha Reliability = .78		UNNAMED	
% Variance = 9.3%		General	.70
UNIQUENESS		% Variance = 5.5%	
General	-.70		
Different	.55		
Alpha Reliability = .27			
% Variance = 4.7%			
Total Variance Explained = 62.2%		Total Variance Explained = 60.5%	

*The complete factor matrix and related information are available upon request.

TABLE 2

MEANS, STANDARD DEVIATIONS, UNIVARIATE F-RATIOS AND STANDARDIZED DISCRIMINANT WEIGHTS FOR NINE PREDICTOR VARIABLES[a]

STEP	VARIABLE	LOW INTERACTORS (N=140) Mean	LOW INTERACTORS (N=140) SD	MODERATE INTERACTORS (N=131) Mean	MODERATE INTERACTORS (N=131) SD	HIGH INTERACTORS (N=106) Mean	HIGH INTERACTORS (N=106) SD	UNIVARIATE F-RATIO[b]	STANDARDIZED DISCRIMINANT WEIGHT[c]
	VARIABLES IN THE ANALYSIS (F TO ENTER > 1.0)								
1	INTEREST VALUE (ACADEMIC PROGRAM)	2.71	.51	2.58	.49	2.47	.59	6.71**	-.41
2	INTEREST VALUE (NON-ACADEMIC LIFE)	2.24	.60	2.04	.64	2.06	.57	4.58*	-.46
3	NUMBER OF EXTRACURRICULAR ACTIVITIES	1.56	1.80	3.54	11.90	2.63	5.31	2.30	.25
4	DULLNESS/APATHY (ACADEMIC PROGRAM)	3.30	.57	3.40	.45	3.41	.46	2.25	-.27
5	CUMULATIVE FRESHMAN GRADE POINT AVERAGE	2.48	.73	2.48	.67	2.62	.72	1.62	.15
6	PRACTICAL APPEAL (ACADEMIC PROGRAM)	2.57	.55	2.41	.53	2.35	.60	5.54**	-.47
	VARIABLES NOT IN THE ANALYSIS (F TO ENTER < 1.0)								
	PRACTICAL APPEAL (NON-ACADEMIC LIFE)	1.92	.54	1.80	.54	1.76	.46	3.41*	
	DIFFICULTY CHALLENGE (ACADEMIC PROGRAM)	2.53	.56	2.45	.63	2.36	.64	2.54	
	DEMAND/CHALLENGE (NON-ACADEMIC LIFE)	2.89	.61	2.88	.56	2.79	.64	1.28	

[a]Multivariate F for the 9 predictor variables = 1.72 with 18 and 732 degrees of freedom ($p<.05$)

[b]Univariate degrees of freedom = 2 and 374

[c]Centroid for High Interactors = .235; Centroid for Moderate Interactors = .111; Centroid for Low Interactors = -.282

*$p<.05$

**$p<.01$

of .23 with group membership and yielded an approximate chi-square value of 19.51 with 7 degrees of freedom ($p<.01$). Inspection of the standardized discriminant function weights for the first function shown in Table 2 indicates that students' ratings of their academic program on the Interest Value and Practical Appeal factors and their ratings of their non-academic life on Interest Value best discriminated between the three groups. The number of extracurricular activities participated in and ratings of the academic program on Dullness/Apathy contributed somewhat less to the discrimination, and cumulative freshman grade point average contributed the least of all six variables.

As further shown in Table 2, high and moderate interactors tended to be characterized by more positive mean ratings of the academic program on Interest Value and Practical Appeal, and by more positive mean ratings of their non-academic life on Interest Value than were low interactors. Recall that the ARS is scored 1 = extremely, 2 = very, 3 = somewhat, 4 = not at all. Thus, lower scores on these three factors indicate more positive ratings.

While the centroid value for the moderate interactors on the discriminating variables (.111) placed them between the high (.235) and low interactors (-.282), their clear tendency was to cluster with the former rather than with the latter. This tendency is indicated by the multivariate F-ratios for the observed differences between the individual pairs of group centroids (degrees of freedom for each comparison = 6 and 369). The respective centroid differences between the low and moderate interactors ($F=2.29$, $p<.05$) and between the low and high interactors ($F=2.91$, $p<.01$) were both statistically significant. However, the difference in centroids between the moderate and high interactor groups was not ($F=1.14$, $p>.05$).

Although the six variables in the discriminant function significantly discriminate the three comparison groups, the modest canonical correlation (.23)

between the predictor variables and group membership suggests that there is also considerable overlap. This is further indicated by a classification analysis using the pooled covariance matirx and individual discriminant scores. Approximately 42% of the 377 subjects were correctly classified as low, moderate and high interactors. Since one could expect 33.3% correct classification by chance, the classification based on the discriminant analysis represented a 26% improvement over chance.

Additional Analysis

Additional analysis indicated non-significant differences between the low, moderate and high interactors on: 1) the group distributions of respondents by sex, expected major, and Clark-Trow subcultural orientation toward college; 2) the rank-ordering of four educational goals; and 3) the means of available Quantitative and Verbal scores on the Scholastic Aptitude Test (in the latter analysis, SAT scores were available for 97 of the low interactors, 94 of the moderate interactors and 76 of the high interactors). Moreover, a series of post hoc multivariate analyses of pre-enrollment scores on the Activities Index (Stern, 1970), a 12-dimension measure of personality needs, and the College Characteristics Index (Stern, 1970), an 11-dimension measure of the college environment, indicated non-significant overall differences between the mean vectors of the three comparison groups. Pre-enrollment scores on the Activities Index and the College Characteristics Index were available for 92 low interactors, 78 moderate interactors and 72 high interactors.

Significant differences between low, moderate and high interactors were indicated in three areas: 1) their rank ordering of interaction with faculty as a source of personal satisfaction during the freshman year (mean ranking for high interactors = 3.72, mean ranking for moderate interactors = 4.22, mean ranking for low interactors = 4.66, Kruskal-Wallace Chi-square = 30.95 with 2

degrees of freedom, p<.001); 2) their rank ordering of faculty as a source of positive influence on their intellectual development (mean ranking for high interactors = 2.40, mean ranking for moderate interactors = 2.76, mean ranking for low interactors = 2.85, Kruskal-Wallace Chi-square = 18.22 with 2 degrees of freedom, p<.001); and 3) their rank ordering of faculty as a positive influence on their personal development (mean ranking for high interactors = 3.04, mean ranking for moderate interactors = 3.38, mean ranking for low interactors = 3.45, Kruskal-Wallace Chi-square = 14.31 with 2 degrees of freedom. p<.001). The largest differences in mean rankings in all three areas were between high and low interactors with moderate interactors generally falling between the two extreme groups.

Follow-up Analysis

The subjects initially participating in the study were followed-up during the fall, 1975, semester to determine if differences in rate of attrition were associated with membership in the low, moderate or high interactor groups. A subject was considered a leaver if he or she did not register for the fall, 1975, semester (i.e., his or her sophomore year). Sixty-six students fell into that category, six of whom were not allowed to re-register because of low academic performance. These six subjects were dropped from the analysis and the final comparison was made between "voluntary leavers" and "persisters." Table 3 shows the distribution of "voluntary leavers" and "persisters" among the low, moderate and high interactors. The chi-square value for the test of independence was significant at p<.001. The percentage of "voluntary leavers" among low interactors was more than twice as high as the percentage among moderate interactors and more than three times as high as the percentage among high interactors.

TABLE 3

DISTRIBUTION OF PERSISTERS AND VOLUNTARY LEAVERS AMONG LOW, MODERATE, AND HIGH INTERACTOR GROUPS

GROUP	LOW INTERACTORS	MODERATE INTERACTORS	HIGH INTERACTORS	ROW TOTALS
PERSISTERS	102 (73.9%)	113 (87.6%)	96 (92.3%)	311
VOLUNTARY LEAVERS	36 (26.1%)	16 (12.4%)	8 (7.7%)	60
COLUMN TOTALS	138	129	104	371

CHI-SQUARE VALUE = 16.86 with 2 degrees of freedom ($p<.001$)

CONCLUSIONS

While no causal claim can be made, the results of this investigation support the hypothesis of a positive relationship between the amount of informal interaction freshman students have with faculty members and their perceptions of both their academic and non-academic experiences of college. High and moderate interactor groups in the study were best differentiated from low interactors on the basis of their more positive ratings of the academic program on Interest Value and Practical Appeal factors and their more positive ratings of their non-academic life on the Interest Value dimension.

The fact that high and moderate interactors were characterized by more positive perceptions of both their academic program and non-academic life on Interest Value than were low interactors suggests that informal faculty-student contacts beyond the classroom may be an important factor in enhancing--and perhaps integrating--the impact of the academic and non-academic experiences of college during the critical freshman year.

Moreover, high interacting freshmen also tended to rank faculty higher

than did low interactors as a source of positive influence on their intellectual and personal development, and to rank interaction with faculty members higher than low interactors as a source of personal satisfaction. These findings suggest that extra-classroom contact with faculty members may serve to amplify the positive effects faculty have on students through their more direct, instruction-related contact. The results suggest, further, that the salutary consequences of students' informal contact with faculty are multidimensional--there appear to be both cognitive and affective outcomes. It would appear that the conception of the faculty member as a role model for students has both conceptual validity and educational usefulness for those institutions whose educational goals are more broadly conceived than simply the inculcation of knowledge or career preparation.

Perhaps equally important, the field of influence which appears to be associated with informal faculty contact is not narrowly restricted to any particular sub group of freshman students. No statistically significant differences among the three groups of subjects are indicated with respect to sex, expected major course of study, or level of academic aptitude (as measured by SAT scores). Nor are there observable, significant differences among the groups with respect to their orientations toward college (as indicated by the Clark-Trow subcultural types), their educational goals, their personality needs or their pre-enrollment expectations of college. This evidence suggests not only that frequent informal contact with faculty members has measurable, positive effects on freshmen, but also that the benefits may accrue to a wide range of individuals. Furthermore, it may also suggest that individual student characteristics are a less important determinant of the frequency with which freshmen seek interaction with faculty beyond the classroom than are the characteristics and personal orientations of the particular faculty members to

whom they are exposed early in their academic career. As suggested by Wilson, et al. (1975), faculty who enjoy and actively seek interaction with students outside of class may give clear cues as to their accessibility for such interaction through their in-class teaching styles and attitudes.

Support for the positive institutional outcomes of informal student-faculty interaction is suggested by the significant association found between amount of informal contact with faculty and students' persistence at the institution from freshman to sophomore year. It might be hypothesized that students who are able to establish satisfying informal relationships with their teachers develop a higher level of integration into the institution's social and academic systems than their classmates who fail to establish such relationships (Tinto, 1975). Thus, the former may have stronger personal commitment to the institution than the latter and, consequently, be more likely to persist--even though they may not be achieving at a significantly higher level academically.

Given the ex post facto nature of this research, however, a degree of caution should be exercised in attributing causality to informal interaction in the results of the study. Indeed, several alternative explanations for the findings may be advanced.

Many students who engage in an extensive amount of informal contact with faculty beyond the classroom may do so in large measure because they are more positively disposed to the content of their formal, in-class academic experience to begin with than are low interactors. Being more intellectually and personally stimulated by what transpires in their formal academic program, they may be more likely to seek interaction with faculty members outside of class as a means of further enhancing the personal satisfaction or stimulation they derive in the classroom. In this sense, informal interaction with

faculty might act to accentuate already positive attitudes toward the academic program.

Another alternative explanation is the possibility that the comparison groups do, in fact, differ significantly in personality structure. The findings of this study do not support such an explanation. Nevertheless, it may be the case that low and high interactors differ along personality dimensions related to their propensity to seek interaction with faculty which are largely untapped by the Activities Index or the Clark-Trow model. Such an hypothesis, however, seems more appropriate to explaining why students may choose to interact with faculty, rather than to elucidating the outcomes associated with that contact.

Quite apart from the issue of which hypothesis is the most persuasive, however, the evidence of this study has several clear implications for institutions of higher education. The positive influence of students' informal contact with faculty members supports the efforts of those institutions seeking to provide occasions for students and faculty members to interact outside the classroom. Not only may the consequences of that contact be generally quite positive, the influence which faculty members apparently exert on students through such contact may have both cognitive and affective results. Moreover, that influence is apparently felt by students from a wide range of academic aptitudes, educational goals, and orientations toward college. More frequent contact between students and faculty members appears likely not only to induce more positive attitudes toward an institution in general, but also to result in positive personal and educational gains by the students exposed to such contact.

Furthermore, students who. by virtue of their personality make-up or for other reasons, are drawn to faculty members and enjoy that contact may be frustrated or disenchanted with an institution if that contact is denied

or obstructed--whether by the personal inclinations of faculty members or because of a faculty reward system which does not recognize the educational value of faculty contact with students outside the classroom.

Much of this is speculative, and the caveat concerning causal attributions based on the findings of this research has been stated. What is less arguable, however, is the observed, progressively more positive association between the amount of informal contact students have with faculty members and their attitudes toward both their academic programs and non-academic lives, and their tendency to persist at the institution.

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