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Student-Faculty Informal Relationships and Freshman Year Educational Outcomes¹

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ABSTRACT

This study investigated the relationship between student-faculty informal relationships and three freshman year educational outcomes. After controlling for the influence of 14 student pre-enrollment characteristics, such as high school academic performance, academic aptitude, personality needs, and expectations of certain aspects of college, eight measures of the frequency and strength of student-faculty informal relationships accounted for statistically significant increases in the variance in freshman year academic performance and self-perceived intellectual and personal development. Partial correlations, controlling for the influence of all pre-enrollment characteristics and all other student-faculty relationship variables, indicated that frequency of student-faculty informal interactions focusing on intellectual or course-related matters had the strongest positive association with academic performance and intellectual development. Interactions for the purpose of discussing students' career concerns had the strongest association with self-perceived personal growth.

ONE OF THE MOST persistent and least assailable assumptions in higher education has been that of the educational/developmental importance of informal student-faculty relationships beyond the classroom. A number of prominent educators and researchers have emphasized the importance of college impacts other than the transmission of facts and knowledge (e.g., acculturation to the world of ideas, interpersonal skills, critical thinking ability, a sense of self and career identity, values clarification) and have argued, further, that close student-faculty interactions were a principal determinant of the extent to which such impacts occurred (1, 2, 3, 8, 13).

The earliest systematic research on the impact of college on students would appear to provide strong warrant for investigating the educational gains associated with students' informal contact with faculty. Jacob (6) studied a national sample of 22 institutions in order to determine their impact on student values. Those institutions having a "peculiar potency" with regard to their impact on student values tended to be characterized by such factors as a high degree of value homogeneity between the faculty and the students admitted, high expectations of students' intellectual interests and related academic performance, and frequent student-faculty informal contact. Jacob concludes that "faculty influence appears more pronounced at institutions where associations between faculty and students are normal and frequent, and students find teachers receptive to unhurried and relaxed conversations out of class" (6: 8). Strikingly similar conclusions have been reported by Eddy (4) in a study of 20 institutions.

More recent research has focused on some of the specific educational outcomes associated with student-faculty interaction beyond the classroom. Evidence from a number of studies, for example, suggests that frequency of student informal contact with faculty outside of class is positively associated with persistence (versus voluntary withdrawal) at a particular institution (11, 12, 15, 17). As posited in a sociological, explanatory model of attrition conceptualized by Tinto (18), such evidence would suggest that student-faculty informal interaction increases a student's degree of academic and social integration in an institution, thereby improving his or her likelihood of remaining.

Evidence from other investigations suggests that frequency of student-faculty informal interaction may also be positively associated with more traditionally defined educational benefits. Perhaps the most comprehensive investigation of the educational correlates of faculty-student non-classroom interaction has been conducted by Wilson and colleagues (19, 20) at eight colleges and universities. Dividing students into categories of "high," "medium," and "low" interactors, based on their frequency of informal, non-classroom interaction with faculty, they found significant differences in the proportions of high and low interactors who as seniors reported having made "much progress" in the following academic skills and competencies: "knowledge of the specifics of a field of study"; "knowledge of universals and abstractions in a field"; "ability to comprehend, interpret, or extrapolate"; "ability to apply abstractions or principles." In all areas, the proportion of

high interactors reporting "much progress" was significantly higher than the corresponding proportion of low interactors. Moreover, high interactors also reported significantly greater change in "intellectual disposition," a clearer sense of career identity, and more positive attitudes toward their total college experience than did low interactors. Similar findings with respect to students' attitudes are reported by Pascarella and Terenzini (11).

Two important weaknesses exist in the above investigations. First, the analyses are based on the total frequency of student-faculty contacts. No attempt was made to examine how different educational outcomes were associated with different types of student-faculty interactions. Second, in their examination of the relationships between student-faculty interaction and educational outcomes, the above studies do not control for the potentially confounding influence of the characteristics which students bring to college. As suggested by Wilson, et al. (19), the nature and frequency of student-faculty interactions are, in large measure, a function of the characteristics of those individuals involved in the interaction. They further report evidence suggesting that students with a relatively high frequency of informal contact with faculty had entering characteristics and orientations significantly more similar to those of their institution's faculty than did those students reporting little or no contact. Thus, the statistically significant relationships reported between frequency of student-faculty contact and educational outcomes might disappear when student characteristics such as prior academic achievement, academic aptitude, and personality orientations are held constant.

Spady (14), in developing a theoretical explanatory model of the college "drop-out" process, has suggested that students' patterns of interpersonal relationships and interactions with faculty will have an independent and direct influence not only on the development of intellectual interests and concerns, but also on more objectively assessed indicators of their academic achievement, e.g., grade performance. In a sense, Spady's conceptual model argues that students' informal relationships with faculty will positively influence both extrinsic academic performance criteria and the more intrinsic rewards of personal intellectual growth.

In a subsequent investigation Spady (15) used a stepwise regression model to control for such variables as family background, value orientations, high school experiences, personality dispositions, academic potential, and subcultural orientations. He found that students' structural relationships within an institution, which included a single index of student-faculty contact, were more strongly associated with a measure of intellectual development than with actual academic achievement. Unfortunately, Spady's study does not detail the nature of the index of student-faculty contact used, nor does it attempt to disaggregate the influence of different types of student-faculty informal interaction. The latter omission may have masked substantial relationships between academic achievement and certain types of student-faculty contact.

The purpose of the present investigation was to extend the work of Wilson and colleagues (19, 20) and Spady (14, 15) through a further test of Spady's conceptual

model. In an attempt to avoid the methodological weaknesses of previous research, the study investigated relationships between specific freshman year educational outcomes and different kinds of student-faculty informal interaction, while controlling for student pre-enrollment characteristics. The freshman year educational outcomes studied were cumulative freshman year grade point average, a measure of self-perceived intellectual development during the freshman year, and a measure of self-perceived personal development as a freshman.

Method

The design of the study was longitudinal, with data collections conducted prior to, during, and subsequent to the 1975-76 academic year. The study setting was Syracuse University, a large, private university in central New York with a total undergraduate enrollment of approximately 10,000 students (2,400 of whom were freshmen at the time of the study). In July 1975, a random sample of 1,008 students was drawn by computer from the total population of incoming freshmen. The population from which the sample was drawn was approximately 53.5 percent male and 46.5 percent female, estimated at the beginning of the fall 1975 semester. Prior to their enrollment the entire sample was sent a detailed questionnaire designed to assess certain expectations of college and background characteristics. Usable responses were received from 766 subjects who subsequently enrolled (response rate = 76.0 percent). At approximately the same time, the entire incoming freshman class was asked to complete the Activities Index (AI), a 12-dimension personality inventory (16). Available verbal and quantitative scores on the Scholastic Aptitude Test (SAT) as well as secondary school class size and rank in class were acquired from official university records. In March of the following year (approximately mid-way through these students' second semester), a second instrument was mailed to the 766 students who had participated in the first data collection. After a mail and telephone follow-up, usable responses were received from 528 freshmen (response rate = 68.9 percent). Statistical tests indicated that the 528 respondents were representative of the Syracuse freshman population with respect to sex, college of enrollment, and academic aptitude as measured by combined SAT scores.

A third data collection was conducted during the summer of 1976. At this time, freshman year cumulative grade point averages were collected for all subjects in the sample.

Variables and Instruments

There were three dependent or criterion variables in the study: cumulative freshman year grade point average (on a scale of 0-4, where 4 = A) and individual measures of self-perceived intellectual and personal growth during the freshman year. Cumulative freshman GPA was chosen as an essentially objective and extrinsic reward tied to academic performance, while the two measures of intellectual and personal growth were designed to measure educational benefits of a more intrinsic and personal nature.

Table 1.—Varimax Rotated Factor Loadings for Students' Developmental Progress Scales

Factor Items	Loading	Alpha Reliability	% Variance Explained (Rotated)
II. Personal Development		.80	28.4%
Clearer/Better understanding of self	.78		
Developing interpersonal skills	.74		
Interest/Openness to new ideas	.66		
Sense of self-reliance/discipline	.63		
Clearer idea of career goals and plans	.63		
Learning how to learn	.58		
Developing oral/written skills	.54		
II. Intellectual Development		.74	22.9%
Apply abstractions/principles in problem solving	.77		
Critical evaluation of ideas	.74		
Gaining factual knowledge	.73		
Learning fundamental principles, generalizations, theories	.66		
Total Variance Explained			51.3%

The intellectual and personal development scales are based on principal components analysis dimensions extracted from students' self-reported progress in 11 areas and rotated to the varimax criterion (7). Students reported their progress in these areas on the follow-up instrument using a four-point scale where 4 = "a great deal of progress" through 1 = "no progress at all." Table 1 displays the structure of the two rotated factors with eigenvalues greater than 1.0 that emerged from principal components analysis of the 11 "self-perceived progress" items. The table also reports the alpha-reliability coefficients and the percentage of variance explained by each factor after rotation.

The independent variables in the study were frequency of student-faculty informal interaction for six different purposes and rankings of faculty as sources of influence on students' intellectual and personal development. In order to measure the frequency of students' informal interaction with faculty beyond the classroom, the second (follow-up) instrument asked students to indicate the number of times during each semester of their freshman year they had met informally with a faculty member outside of class for each of the following six reasons: "to get basic information and advice about my academic program"; "to discuss matters related to my future career"; to help resolve a disturbing personal problem"; "to discuss intellectual or course-related matters"; "to discuss a campus issue or problem"; and "to socialize informally." Only contacts of 10-15 minutes or more were counted. This opera-

tional measure of student-faculty contact was drawn from an instrument employed by Wilson, et al. (19). Total frequency of interaction in each category was the sum of both semesters.

An additional section of the follow-up instrument asked students to rank-order faculty members and a number of other possible sources of college impact (e.g., academic work, extra curricular activities, peer interactions) with respect to degree of positive influence on their intellectual development and on their personal development. While the six interaction categories provided a measure of the frequency of student-faculty informal contact, the two rankings provided additional indicators of perceived faculty influence. Taken together, it was assumed that the eight variables were a measure of the strength of students' informal relationships with faculty.

The pre-enrollment variables controlled in the study were the following: sex; major program of study (liberal arts or professional); racial/ethnic origin (minority—black, Oriental, Chicano, Indian— or non-minority); academic aptitude (combined SAT scores); secondary school achievement (rank in secondary school class divided by class size); mother's and father's level of formal education (six ordinal categories for each); expected frequency of informal contacts of 10-15 minutes or more with faculty per month; ranking of faculty as a source of expected influence on intellectual development and on personal development; four second-order personality factor scores from the Activities Index (16).

The AI is a multi-dimensional measure of personality needs sent to all incoming Syracuse freshmen during the summer prior to their enrollment (August 1975 in the present instance). This study used the AI area scores (Achievement Orientation, Dependency Needs, Emotional Expression, and Educability), which are second-order factors derived from the 12 first-order AI dimensions. Kuder-Richardson formula-20 reliabilities of the four area scores are .96, 1.00, .96 and .96, respectively (16).

Scores on all pre-enrollment variables were obtained either from the pre-enrollment instrument or from official university records. Where a subject in the sample had a missing data element, the mean value for that variable was assigned. Assignment of means to missing data was limited almost exclusively to SAT or AI scores.

Hypotheses

It was generally hypothesized that the eight independent variables, measuring students' frequency of informal contacts with faculty and their rankings of faculty as sources of intellectual and personal influence, would account for a significant proportion of variance in the three criterion variables after controlling for student pre-enrollment characteristics. It was further hypothesized, however, that not all types of interactions would contribute equally to variance explanation in the criterion variable set. Rather, it was expected that interactions focusing on intellectual or course-related matters would contribute most to the explanation of variance in academic performance and intellectual growth.

This expectation was based on the assumption that faculty members, as "representatives" and "guardians" of

the academic culture, would have the greatest non-classroom influence on students' academic performance and perceived intellectual progress through contacts focusing on intellectual concerns. Less influence on these areas, it is assumed, would result from student-faculty contacts having as their primary purpose the maintenance of institutional functioning (e.g., academic advising and course selection), the resolution of personal problems (e.g., personal counseling), or informal socializing (e.g., "light" conversation).

In the prediction of the personal development criterion it was hypothesized that the strongest associations would be found with interactions focusing on career concerns and the resolution of personal problems. Finally, it was also hypothesized that students' rankings of faculty as a source of positive influence on their intellectual growth would be most strongly associated with the academic performance and intellectual development criterion, while rankings of faculty as an influence on personal growth would be associated with the measure of self-perceived personal development.

Statistical Analyses

Initially, individual multiple regression analyses were conducted for each of the three criterion variables to determine the presence of interactions between sex, major program of study, racial/ethnic origin, and each of the eight independent variables. In each analysis the interaction vectors accounted for a nonsignificant increase in R^2 , the proportion of variance explained ($p > .20$, for all three analyses), indicating an absence of systematic interactions among those variables in the prediction of each criterion.

Setwise multiple regression and partial correlational analysis were the major modes of statistical analysis used to test the hypotheses of the study. The setwise regression analysis was employed to determine whether the set of student-faculty relationship variables explained a significant increase in the variance of each of the three educational outcome variables while controlling for the pre-enrollment variables. A series of partial correlations was then computed between each student-faculty relationship variable and each criterion variable while partialing out the influence of all student pre-enrollment characteristics and all other student-faculty relationship variables. The resultant partial correlation indicated the strength of association between two particular variables, with the influence of all pre-enrollment characteristics and all other student-faculty relationship variables held constant.

Prior to analyzing the data from the entire sample of 528 subjects, a preliminary double cross-validation was conducted (9). The sample was randomly divided into two equal halves (A and B), and three regression analyses with all predictor variables included were conducted on each random half. The unstandardized regression weights from sample A were then applied to the raw data from sample B and used to predict each criterion variable. The correlation between the predicted and actual criterion variable can be interpreted as a measure of the stability of the regression model. The procedure was then reversed, weights from sample B being used to predict each criterion variable on sample A data. Based on satisfactory results in the cross-validation, to be reported in the results section, random samples A and B were subsequently combined and the analysis was run on the entire sample (10).

Results

Since it was expected that there would be at least modest correlations between the three dependent variables, a canonical variate analysis was performed to determine if a more parsimonious predictive model could be obtained. The results of the canonical analysis yielded three significant canonical correlations ($p > .01$). Inspection of the standardized canonical weights (analogous to beta weights in multiple regression) indicated that each of the three dependent variables loaded strongly on a separate canonical variate, but failed to load strongly on either of the other two. Thus, little conceptual parsimony would appear to have been gained by using canonical variate analysis rather than simple multiple regression on each criterion variable.

The results of the cross-validation analyses are shown in Table 2. This evidence was judged to indicate reasonable stability in the overall correlation matrix and to warrant proceeding with multiple regression analyses of the entire sample.

Table 3 displays the means and standard deviations for each variable as well as the zero-order correlations with each criterion measure. The negative correlations found between the two measures of perceived faculty influence and the educational outcome measures are to be expected, since students ranked faculty as a source of influence with 1 as the relatively strongest source. Results of the setwise multiple regression analyses are shown in Table 4. As the table indicates, the student-faculty relationship variables, taken as a set, accounted for statistically significant increases in the explained variance of each criterion measure after the variance explained by the pre-enrollment variables had been

Table 2.—Results of Double Cross-Validation

Criterion Variable	Random Sample A ($N = 264$)		Random Sample B ($N = 264$)	
	Observed R^2	Cross-Validation R^2	Observed R^2	Cross-Validation R^2
Academic Performance	.4532	.4086	.3892	.3544
Personal Development	.2619	.2130	.1837	.1504
Intellectual Development	.1635	.1432	.2207	.1848

Table 3.—Means, Standard Deviations, and Zero-Order Correlations of all Variables with the Criterion Set ($N=528$)

Variable	\bar{X}	SD	Criterion Variables		
			Academic Performance	Personal Development	Intellectual Development
<i>Pre-Enrollment Variables</i>					
Sex	1.51	.50	-.08	-.19	.01
Major Area of Study	.55	.50	.09	.03	.09
Racial/Ethnic Origin	.08	.28	-.10	.02	-.07
Combined SAT Score	1038.55	132.99	.35	-.13	.01
H.S. Rank/Class Size	.25	.17	-.39	-.02	-.10
Expected Faculty Contact per Month	4.83	6.03	.07	-.01	.06
Mother's Level of Education	4.10	1.22	-.04	-.02	.08
Father's Level of Education	4.54	1.38	.00	.00	.05
Achievement Orientation	24.43	8.50	.13	.03	.14
Dependency Needs	38.74	6.14	.09	.12	.10
Emotional Expression	31.89	9.40	-.04	.17	.01
Educability	27.60	7.44	.09	.14	.17
Expected Faculty Influence					
Intellectual Development	2.16	.91	-.02	.00	-.08
Personal Development	2.93	.93	-.03	.09	-.01
<i>Student-Faculty Relationship Variables</i>					
Types of Informal Contact with Faculty					
Academic or Course Information	3.24	3.33	.07	.01	.08
Discuss Career Concerns	1.34	2.38	.20	.24	.17
Resolve a Personal Problem	.42	2.49	-.04	.13	.02
Discuss Intellectual Matters	2.74	4.12	.22	.19	.26
Discuss a Campus Issue	.54	2.74	.11	.06	.06
Socialize Informally	1.35	3.81	.04	.01	.05
Perceived Faculty Influence					
On Intellectual Development	2.49	1.03	-.12	-.04	-.18
On Personal Development	3.22	1.01	-.04	-.16	-.10
<i>Criterion Variables</i>					
Academic Performance	2.74	.67	1.00	.06	.17
Personal Development	3.08	.59		1.00	.46
Intellectual Development	3.03	.57			1.00

extracted. Thus, while the additional variance increments accounted for by the student-faculty relationship variables were modest (9.27 percent of academic performance, 11.72 percent of personal development, and 10.51 percent of intellectual development), the general hypothesis of the study was supported.

The partial correlations shown in Table 5 represent correlations between each student-faculty relationship variable and each educational outcome measure independent of the influence of student pre-enrollment characteristics and all other student-faculty relationship variables. As hypothesized, student-faculty interactions focusing on intellectual or course-related matters had the strongest partial correlation with both academic performance and self-perceived intellectual development. Interactions to discuss career matters also had a statistically significant association with academic performance.

Similarly, as hypothesized, interactions for the purpose of discussing students' career concerns had the largest partial correlation with self-perceived personal development, followed by perceived faculty influence on personal development and informal interactions focusing on intellectual matters. However, the hypothesized association between personal development and interactions for the purpose of

helping students solve disturbing personal problems was nonsignificant when all other predictor variables were controlled. Finally, the hypothesized significant relationship between perceived faculty influence on intellectual development and self-perceived intellectual development was also supported.

Discussion

The findings lend support to the general hypothesis of the study, and thus to that part of Spady's (14) model concerning the influence of student-faculty relationships on educational outcomes. After controlling the influence of 14 student pre-enrollment variables, eight measures of the frequency and strength of student-faculty informal relationships accounted for modest but statistically significant proportions of the variance in both extrinsic (academic performance) and intrinsic (self-perceived intellectual and personal development) freshman year educational outcomes. Furthermore, a series of partial correlations indicated statistically reliable associations between certain student-faculty relationship variables and each educational outcome measure, with the influence of all student pre-enrollment characteristics and all other student-faculty relationship variables held constant.

The results of the study thus suggest that the positive associations found between student-faculty informal relationships and educational outcome measures are not merely a function of entering student characteristics. That is, the associations are not totally explainable by the fact that students whose initial intellectual abilities and personal dispositions lead them to seek actively non-classroom interaction with faculty, also tend to achieve at the highest levels academically and to benefit the most from college intellectually and personally. Rather it would appear from the present findings that the frequency and strength of student-faculty informal relationships may make a significant contribution to variations in extrinsic and intrinsic freshman year educational outcomes, independent of the particular aptitudes, personality dispositions, and expectations which the student brings to college. To the extent that these findings are valid, they suggest that colleges and universities may be able to influence positively the frequency of student-faculty interaction and, thereby, faculty impact on educational outcomes in ways other than through the kinds of students they enroll. Findings by Wilson, et al. (19), for example, suggest that faculty who are frequently sought out by students outside the classroom appear to provide clear cues to their accessibility for such interaction through their in-class teaching styles and behaviors. Thus, it may well be that the particular personal characteristics and orientations of the faculty to whom students are exposed early in their academic experience may have a significant influence on students' subsequent willingness to seek non-classroom contact with other faculty. In a sense, students' inclinations to interact with faculty beyond the classroom may be influenced in large measure by whether they perceive their initial attempts at such contact as personally rewarding to both themselves and the faculty member.

Colleges may also be able to influence positively the fre-

Table 4.—Multiple Regression Summary

	Criterion Variables		
	Academic Performance	Personal Development	Intellectual Development
R^2 Due to Student Pre-Enrollment Variables ^a	.3290**	.0974**	.0760*
R^2 Due to Student Pre-Enrollment Variables + Student-Faculty Relationship Variables ^b	.4217**	.2146**	.1811**
R^2 Increase Due to Student-Faculty Relationship Variables ^c	.0927**	.1172**	.1051**

^a $df = 14$ and 513

* $p < .01$

** $p < .001$

^b $df = 22$ and 505

^c $df = 8$ and 505

quency and quality of student-faculty informal interaction through administrative policies which touch on the institution's social or interpersonal climate. Developing programs which increase faculty participation in freshman orientation and student residence life, for example, may provide clear cues to new freshmen that such informal contact with faculty is a natural and accepted norm in the institution.

As further hypothesized in the study, not all types of student-faculty informal interactions were significantly associated with the three educational outcomes. Rather,

Table 5.—Partial Correlations between Each Criterion Variable and Each Student-Faculty Relationship Variable^a

Student-Faculty Relationship Variable	Criterion Variables		
	Academic Performance	Personal Development	Intellectual Development
<i>Types of Informal Contact with Faculty</i>			
Academic or Course Information	.036	.043	.023
Discuss Career Concerns	.164***	.233***	.104**
Resolve a Personal Problem	-.080	.055	.026
Discuss Intellectual Matters	.228***	.085*	.247***
Discuss a Campus Issue	.063	.069	-.028
Socialize Informally	-.051	.048	.047
<i>Perceived Faculty Influence</i>			
On Intellectual Development	-.081	-.037	-.130**
On Personal Development	.020	-.151***	-.038

^a Controlling for all student pre-enrollment characteristics and all other student-faculty relationship variables; $df = 505$.

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

only two categories of interactions appeared to be consistently important. Clearly, frequency of interactions focusing on intellectual or course-related matters had the strongest partial correlations with both freshman year academic performance (GPA) and self-perceived intellectual growth. Similarly, interactions focusing on students' career concerns had the strongest partial correlation with perceived personal development. Moreover, both categories of interactions had significant partial correlations with all three educational outcome measures, further underscoring their importance. This finding is consistent with evidence synthesized by Feldman and Newcomb (5) which suggests that faculty may have their most significant impact on students in the areas of intellectual and career development.

Clearly, the findings of the study are limited by the fact that it was done at a single institution and by the rather modest relationships found when student characteristics were held constant by the setwise regression and partial correlation procedures. Reliable associations appear to be present. However, the increase in explained variance due to these associations was only 9.27 percent of academic performance, 11.72 percent of perceived personal development, and 10.51 percent of perceived intellectual development. Clearly, a replication of the study at a different institution or on a different sample would substantially increase the validity of the findings.

A further limitation of the study rests on the very nature of correlational investigations, i.e., the problem of ambiguous causal linkages and directionality of influence. The theoretical model tested in part by this investigation posits a uni-directional and causal influence of student-faculty interpersonal relationships on academic performance and intellectual development. However, it is also conceivable that students who interact frequently with faculty beyond the classroom tend to do so *because* they are performing well academically and perceive they are deriving substantial personal benefits from college. Thus it is not entirely clear from these findings whether student informal interaction with faculty influences extrinsic and intrinsic educational outcomes, or whether student academic performance and perceived intellectual and personal growth during college influence the frequency and pattern of student interaction with faculty. The most valid hypothesis, perhaps, is that student-faculty informal relationships and student educational outcomes mutually reinforce each other.

Although the results of the present study must be tempered by the limitations discussed above, they would nevertheless appear to extend the findings of Pascarella and Terenzini (11), Spady (14, 15) and Wilson and colleagues (19, 20). While previous research has indicated significant positive associations between student-faculty informal interaction and various educational outcomes, the present research suggests that these associations are not merely a function of student characteristics but rather exist even after student personality dispositions, academic aptitude, prior achievement, and other characteristics are held constant.

If student characteristics alone do not totally account for the association between student-faculty informal relationships and educational outcomes, future research might

hold student entering characteristics constant and then attempt to determine the types of freshman year experiences which differentiate students who interact frequently with faculty beyond the classroom and those who do not. Such research might assist institutions in determining those policies and practices which facilitate or inhibit student-faculty informal contact.

NOTE

1. An earlier version of this paper was presented at the annual conference of the American Educational Research Association at Toronto in March 1978.

REFERENCES

1. Axelrod, J., et al. *Search for Relevance: The Campus in Crisis*. San Francisco: Jossey-Bass, Inc., 1969.
2. Chickering, A. *Education and Identity*. San Francisco: Jossey-Bass, Inc., 1969.
3. Clark, B. R. "The College as Determinant." *The College Student and His Culture: An Analysis*, edited by K. Yamamoto, pp. 255-270. Boston: Houghton Mifflin Company, 1968.
4. Eddy, E. D. *The College Influence on Student Character*. Washington, D.C.: American Council on Education, 1959.
5. Feldman, K., and Newcomb, T. *The Impact of College on Students*. San Francisco: Jossey-Bass, Inc., 1969.
6. Jacob, P. E. *Changing Values in College: An Exploratory Study of the Impact of College Teaching*. New York: Harper, 1957.
7. Kaiser, H. F. "Computer Program for Varimax Rotation in Factor Analysis." *Educational and Psychological Measurement* 19 (1959): 413-420.
8. Katz, Jr., et al. *No Time for Youth: Growth and Constraint College Students*. San Francisco: Jossey-Bass, Inc., 1968.
9. Kerlinger, F. N. *Multiple Regression in Behavioral Research*. New York: Holt, Rinehart and Winston, Inc., 1973.
10. Mosier, C. I. "Problems and Designs of Cross-Validation." *Educational and Psychological Measurement* 11 (1951): 5-11.
11. Pascarella, E. T., and Terenzini, P. T. "Informal Interaction with Faculty and Freshman Ratings of the Academic and Non-Academic Experience of College." *Journal of Educational Research* 70 (1976): 35-41.
12. Pascarella, E. T., and Terenzini, P. T. "Patterns of Student-Faculty Informal Interaction beyond the Classroom and Voluntary Freshman Attrition." *Journal of Higher Education* 48 (1977): 540-552.
13. Sanford, N. *Where Colleges Fail*. San Francisco: Jossey-Bass, Inc. 1967.
14. Spady, W. "Dropouts from Higher Education: An Interdisciplinary Review and Synthesis." *Interchange* 1 (1970): 64-85.
15. Spady, W. "Dropouts from Higher Education: Toward an Empirical Model." *Interchange* 2 (1971): 38-62.
16. Stern, G. *People in Context: Measuring Person-Environment Congruence in Education and Industry*. New York: Wiley, 1970.
17. Terenzini, P. T., and Pascarella, E. T. "Voluntary Freshman Attrition and Patterns of Social and Academic Integration in a University: A Test of a Conceptual Model." *Research in Higher Education* 6 (1977): 25-43.
18. Tinto, V. "Dropout from Higher Education: A Theoretical Synthesis of Recent Research." *Review of Educational Research* 45 (1975): 89-125.
19. Wilson, R.; Gaff, J.; Dienst, E.; Wood, L.; and Bavry, J. *College Professors and Their Impact on Students*. New York: Wiley, 1975.
20. Wilson, R.; Wood, L.; and Gaff, J. "Social-Psychological Accessibility and Faculty-Student Interactions beyond the Classroom." *Sociology of Education* 47 (1974): 74-92.