

THE RECIPROCITY BETWEEN STUDENT-FACULTY INFORMAL CONTACT AND ACADEMIC PERFORMANCE OF UNIVERSITY UNDERGRADUATE STUDENTS

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A nonrecursive theoretical model was developed through a review of the literature to assess the degree of reciprocity between faculty contact and academic performance. Data was gathered from 1,096 freshmen and sophomores at a single research university. Contrary to expectations, GPA and faculty contact did not strongly affect one another. GPA was most strongly affected by high school performance and academic integration, and faculty contact was most influenced by advisor contact, talking in class, and memberships in campus organizations. The findings suggest that men and women and freshmen and sophomores were affected by faculty contact in different ways.
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Informal out-of-class contact between faculty and students has been empirically linked with improved persistence (Astin, 1975; Lenning, Sauer, and Beal, 1980), satisfaction with college (Newcomb et al. 1970; Wood and Wilson, 1972), and academic achievement (Centra and Rock, 1971; Pascarella, Terenzini, and Hibel, 1978; Terenzini and Pascarella, 1980). Theoretical models of student attrition also predict that increased contact between students and professors will result in increased levels of persistence, satisfaction, and achievement (Pascarella, 1980; Spady, 1970; Tinto, 1975).

Small residential liberal arts colleges are thought to be more conducive to informal student-faculty contact than large universities where faculty are rewarded for research productivity and spend more time with graduate than undergraduate students (Chickering, 1969; Kuh, 1981). As a result, the amount

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of informal contact and, hence, the influence of these contacts on undergraduate students may be negligible at larger institutions. Indeed, only bright and assertive undergraduates may successfully attract the attention of research-oriented faculty, so the supposed positive effect of faculty contact on student achievement might be reversed. That is, if a positive correlation exists, it is because students with high GPAs and faculty members seek each other's company.

The purpose of this paper is to assess the degree of reciprocity between informal faculty contact and undergraduate grades. A nonrecursive model will be developed from a review of the literature and estimated empirically. Because student behavior may be related to gender (Bean, 1980; Spady, 1971) and year in school (Bean, in press); Kohen, Nestle, and Karmas, 1978), freshman and sophomore men and women will be analyzed separately.

THEORETICAL PERSPECTIVE

Socialization is the process through which students acquire the values, norms, knowledge, and skills needed to perform successfully in the college environment (Bragg, 1976; Merton, Reader, and Kendall, 1957). Unlike acculturation, in which the values of one group dominate the values of others (Oleson and Whittaker, 1970), socialization requires reciprocal interaction between the socializing agent, such as a faculty member, and the person being socialized, such as a student (Mortimer and Simmons, 1978).

The thesis that more faculty-student contact leads to higher grades is derived from the following assumptions: (1) faculty members value their disciplines; (2) faculty members reward selected student behaviors (e.g., achievement) that indicate an acceptance of faculty values, the reward often taking the form of high grades; (3) faculty have the greatest socializing influence on students with whom they have informal, out-of-class interaction as well as in-class interaction; (4) increased student-faculty contact should lead to increased socialization of students to faculty values and conformance to institutional norms, including excellence in academic performance, hence, good grades.

An alternative explanation of the relationship between faculty contact and academic performance also is grounded in socialization theory. In this interpretation, however, students are active participants in the socialization process (Mortimer and Simmons, 1978). Some students may select less demanding courses and try to influence professors through informal means (flattery, flirtation, etc.) to improve their grades. Other students may visit faculty members during office hours or after class and appear interested in the material covered in class. The faculty members may perceive that these students are sincerely interested in the course material and increase a stu-

dents' grades because of "enthusiasm," rather than performance. Each situation represents students' attempts to manipulate faculty members by informal means with the purpose of raising their grades.

Motivation to succeed may lead not only to high GPAs, probably due to good study habits, but also to more contact with faculty because of a student's interest in doing well. It is difficult to determine whether these students are initially motivated to achieve high grades or are stimulated to work hard by contact with faculty. Some students may be both highly motivated and stimulated by faculty to attain good grades, and the effect of each stimulates the other. It is also probable that faculty gravitate toward students who appear bright, inquisitive, and having interests similar to those of the faculty member. In this situation, informal interaction may be initiated by the faculty member. Thus, the student's personality—particularly intellectual ability—may lead to contact, rather than being derived from contact.

The seven exogenous variables expected to influence the two endogenous variables in the model are academic integration, academic difficulty, intent to transfer, memberships in campus organizations, contact with one's advisor, talking in class, and academic performance in high school (i.e., before matriculation). The endogenous variables are faculty contact, defined operationally as the total number of informal visits with faculty members for 10 minutes or more, and GPA, defined as the cumulative GPA at the end of the freshman year for freshmen and sophomore year for sophomores. The theoretical relationships between the variables affecting faculty contact and GPA are presented in Figure 1. A synopsis of the literature and arguments supporting the linkages in the model follow.

Academic Integration

Academic integration is defined as interest, motivation, and confidence in the student role, and perceiving that one "thinks like faculty." In Tinto's conceptual schema of dropout (1975, Figure 1), GPA is the precursor and not the result of academic integration. In his article Tinto writes that academic integration contains two elements—grade performance and intellectual development—but provides no precise definition of the term. We do not question the existence of the relationship between grades and academic integration, but specify the direction of the effects differently. As argued elsewhere (Bean, 1985), it is probable that being motivated to study increases GPA. Also, academic integration should increase faculty contact. Being motivated to study and confident of success should make it easier for a student to seek faculty contact, whereas lacking confidence and ability would likely inhibit such contact.

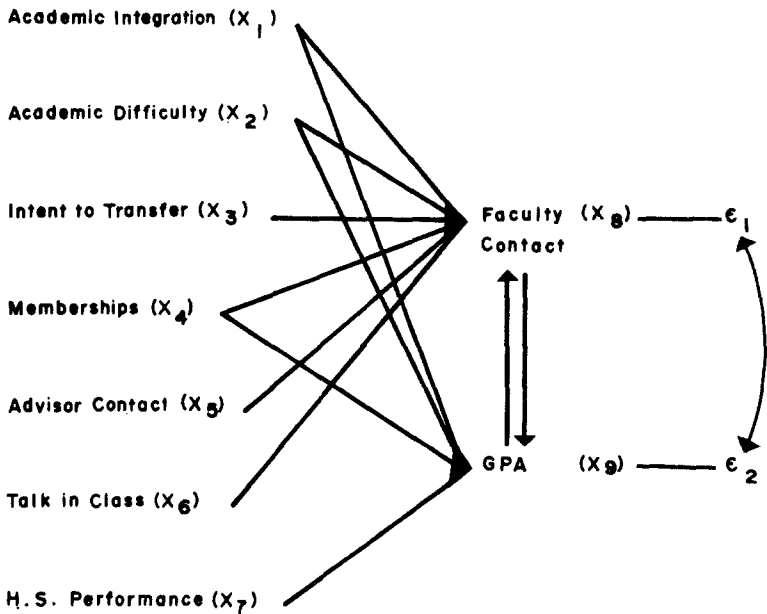


FIG. 1. A nonrecursive model of factors affecting faculty contact and GPA.

Academic Difficulty

Academic difficulty is defined as perceiving one's academic program as difficult and too competitive. Ayres and Bennett (1983) found that students produce better quality work and earn higher grades when faculty impose rigorous standards and establish high expectations for student performance. Some students perceive their academic program to be difficult because, in fact, it *is* difficult for them. Hence, they may earn low grades. Because such students do not do well academically, they avoid faculty, which reduces informal faculty contact. On the other hand, a student who has difficulty competing academically might seek help from a faculty member, thereby increasing contact. Under some circumstances, academic difficulty may lead to increased faculty-student contact and, subsequently, to high grades. The effect of such contact probably depends on the reason for the contact.

Intent to Transfer

Intent to transfer, defined as expecting to leave one institution to attend another, has not received much study as a variable related to achievement. Intent to transfer is highly correlated with intent to leave (because all those

who intend to transfer intend to leave), and intent to leave has been found to be the best predictor of student attrition (Bean, in press; Johnson, 1980). Nevertheless, no evidence exists to suggest that students who intend to transfer always have low grades. For example, some excellent students transfer in order to enroll in programs not available at the schools they presently attend. Therefore, the relationship between intent to transfer and GPA is set to zero in the model. Students who intend to transfer often need letters of recommendation and advice about other educational options and thus might be expected to seek counsel from faculty, increasing faculty contact. The variable was included to control for a confounding influence; students who intend to transfer have not been socialized into the values of the target institution (e.g., they lack loyalty), but still might have contact with faculty.

Memberships

Whether the influence of memberships on academic achievement is positive or negative depends on the values of the organization joined (Gamson, 1967, cited in Feldman and Newcomb, 1970). Nonetheless, memberships in campus organizations are generally positively related to students' integration into the out-of-class social and intellectual life of the institution (Tinto, 1975; Pantages and Creedon, 1978). Harnett (1965) reported that students actively involved in cocurricular activities earn higher grades than those less involved. Bean and Creswell (1980) found that memberships lead to a sense of self-development. Students actively involved in campus organizations are likely to be more extroverted and confident ("joiners") which may also increase the likelihood of contact with faculty who are the advisors for cocurricular activities. Thus, memberships should positively influence both endogenous variables.

Advisor Contact

The evidence concerning the influence of contact with a nonfaculty (staff) advisor on student behavior is inconsistent. For example, some authors concluded that advisor contact reduces attrition (Pantages and Creedon, 1978), while others have reported no significant effects (Kowalski, 1977; Johnson, 1980). Although anecdotal evidence usually indicates that such contacts are beneficial (Grites, 1979), the empirical studies cited above are equivocal. In any event, it is likely that a freshman or sophomore student who has regular contact with a nonfaculty advisor is also likely to seek out faculty members. This interpretation is supported by the symbolic interactionist perspective (Cottrell, 1969); i.e., students who actively interact with their social environments do so with more than one person. Thus, advisor contact is expected

to have a strong positive influence on faculty contact, but not on GPA.

Talking in Class

There is little direct evidence that talking in class should lead to increased contact with faculty. However, it is assumed that students who talk in class are more likely to be assertive than those who do not and, thus, that they would also be assertive in other situations, including seeking out faculty. Some informal contact may be a continuation of a discussion begun in class, and those "seeking clarification" would be most likely to continue the discussion informally. The increased assertiveness may or may not lead to a higher GPA, so no relationship between these variables is hypothesized.

High School Academic Performance

Prematriculation academic performance has been consistently linked to college grades (Astin and Panos, 1969; Pascarella, 1980; Lavin, 1965; Pantages and Creedon, 1978; Bean, 1985; Tinto, 1975). Thus, high school achievement is expected to have a strong influence on the grades of freshman and sophomore students. High school performance is not expected to have direct effects on faculty contact, although there may be correlated indirect effects through academic difficulty and academic integration.

METHODOLOGY

Sample

This study was conducted at a midwestern research-oriented university enrolling about 24,000 undergraduate students, of whom more than 60% live in campus-owned housing. Six-thousand names were drawn randomly from undergraduate registration records. A questionnaire containing items shown in previous studies (Bean, 1980, 1982, 1985) to be reliable and valid was mailed to 5,235 students who met the following criteria: white, U.S. citizens, 23 years old or younger, not married, and registered for 10 or more credit hours. Two-thousand juniors were excluded from this analysis, because they are assigned faculty advisors, whereas freshmen and sophomores have professional staff advisors. Sample heterogeneity was reduced in order to eliminate potentially confounding variables (Kerlinger, 1973). After two follow-ups, the rate of return was 34%. Listwise deletion was used to treat the missing data, and the analysis was conducted using 1,096 cases.

Registration records indicate that the sample is biased by questionnaire refusal. Using one-way analysis of variance, statistically significant differences

($p = .01$) in rates of return were found for several measures of academic performance (high school rank, SAT verbal and math scores, college GPA, and academic probation) (Bean, 1985). Students who performed well returned questionnaires at higher rates than students who performed poorly. Although this bias attenuates the variance in college grades, the independent variables in the study accounted for 40% of the variance in GPA, so this attenuation is not perceived to be a problem. The sample, while adequate for the statistical procedures, is biased, and the findings apply primarily to university students with a 2.0 GPA or higher, dormitory residents, and women.

Measurement

Two endogenous and seven exogenous variables were used to estimate the model. The means and standard deviations for these variables appear in Table 1. Data for college grades and high school performance came from the registrar's office, and other data came from questionnaire responses. Scales were formed from a series of exploratory and confirmatory factor analyses. Each construct was found to form a single factor with loadings of .4 or higher (except for absenteeism in the academic integration scale). Consistency of responses was assessed using the coefficient alpha which averaged .75, near the .80 recommended by Nunnally (1967) for basic research.

In all cases when two or more variables were summed, they had the same range and similar variances. Although alternative methods for scaling exist, such as standard scores weighted by factor score coefficients, intercorrelation between the two scaling procedures produces results which would be interpreted identically (Bean, 1985). The 15 questionnaire items related to attitudes were Likert scales ranging from 1 (to a very small extent) to 5 (to a very great extent). The frequency scale for memberships represent the number of memberships in campus organizations except that 4 equals "four or more." The frequencies for faculty and advisor contact were scored (0) = 0, (1) = 1, (2) = 2-3, (3) = 4-6, and (4) = 7 or more. For academic integration, the average frequencies was used. The range of performance was from 1 to 5, with high school rank and total SAT scores each contributing up to 2.5 units to the scale.

Data Analysis

The model (Figure 1) is not recursive, and generalized two-stage least-squares regression (Duncan, 1975; Heise, 1975; Kenny, 1979; Asher, 1976) was used because it allows for the simultaneous estimation of reciprocal effects. The model is overidentified, satisfying the conditions of both order and rank (Asher, 1976). Two equations represent the model:

TABLE 1. Measurement of the Variables ($N=1,096$)

Variable	No. of Items	Alpha	Sample Items
Academic integration	11	.81	To what extent: Do you feel you think the same way as faculty members here? Is your academic program here exciting? Are you confident in your ability to be a successful student in your elective courses? Are you motivated to study despite other things going on in your life? ($\bar{X} = 3.16$; $SD = .53$)
Academic difficulty	3	.79	To what extent is your academic program at this university more difficult than you like? More competitive than you like? To what extent are you motivated to study despite other things going on in your life? ($\bar{X} = 7.32$; $SD = 2.75$)
Intent to transfer	1		Do you expect to transfer to another school next year? ($\bar{X} = 1.79$; $SD = 1.32$)
Memberships	1		How many campus organizations do you belong to (including athletics)? ($\bar{X} = 1.03$; $SD = 1.11$)
Advisor contact	3	.72	About how many times this academic year have you met with a departmental counselor or university division advisor and spoken to him/her (for 10 minutes or more): About academic Advising? To discuss your career plans? To discuss intellectual or course matters? ($\bar{X} = 5.91$; $SD = 2.08$)
Talk in class	1		To what extent have you asked questions in class when you needed clarification? ($\bar{X} = 3.18$; $SD = 1.00$)
High school performance	3	.73	Percentile rank in high school class; SAT Math and SAT Verbal scores. ($\bar{X} = 3.54$; $SD = .59$)
Faculty contact	6	.69	About how many times per semester have you met with faculty members outside the classroom and spoken to them (for 10 minutes or more): To discuss your career plans? To discuss a campus prob-

TABLE 1. (Continued)

Variable	No. of Items	Alpha	Sample Items
GPA	1		lem or issue? To socialize informally? To discuss intellectual or course matters? About academic advising? To help with a personal problem? (See Pascarella and Terenzini, 1979). ($\bar{X} = 4.09$; $SD = 3.17$) Cumulative GPA at the end of the freshman or sophomore year. ($\bar{X} = 2.85$; $SD = .61$)

$$X_8 = p_{81}X_1 + p_{82}X_2 + p_{83}X_3 + p_{84}X_4 + p_{85}X_5 + p_{86}X_6 + p_{89}X_9 + p_{8E_1}$$

$$X_9 = p_{91}X_1 + p_{92}X_2 + p_{94}X_4 + p_{97}X_7 + p_{98}X_8 + p_{9E_2}$$

Here, for example, p_{81} is the path coefficient between faculty contact (X_8) and academic integration (X_1) represented by the arrow from X_1 to X_8 . The path coefficients between faculty contact and GPA cannot be estimated by ordinary least squares regression because faculty contact cannot be regressed on GPA and X_1 through X_6 because faculty contact will be correlated with E_2 (through E_1). Similarly, GPA will be correlated with E_1 through E_2 . This violates the assumption of independent error terms. Thus, in the first stage, faculty contact and GPA are regressed (using OLS) on all seven exogenous variables creating two new variables, \hat{X}_8 and \hat{X}_9 . These variables are linear combinations of the seven exogenous variables and are uncorrelated with the residual disturbance terms, E_1 and E_2 . Estimates of the path coefficients for the model come from a second regression where faculty contact is regressed on \hat{X}_9 and X_1 through X_6 , and GPA is regressed on \hat{X}_8 and $X_1, X_2, X_4,$ and X_7 .

FINDINGS AND DISCUSSION

Findings for the Model

Although the exogenous variables usually influenced the endogenous variables in a statistically significant fashion, the reciprocal relationship between GPA and faculty contact was neither consistent nor strong for any group of students (see Table 2). For the entire sample, each exogenous variable had a statistically significant relationship with the endogenous variables in the expected direction, but the reciprocal relationship between GPA and faculty

TABLE 2. A Two-stage Least Squares Estimation of a Nonrecursive Model of Faculty Contact and GPA

<i>Freshmen and Sophomores (N=1,096)</i>				
Criterion Variable: Faculty Contact ($\bar{X}=4.095$; $SD=3.187$)				
	<i>b</i>	σ_x	beta	<i>t</i>
GPA	.026	.607	.005	.106
<i>Exogenous variables</i>				
Academic integration	.853	.530	.142	4.090***
Academic difficulty	.102	2.747	.088	3.624***
Intent to transfer	.133	1.322	.055	2.105*
Memberships	.426	1.110	.148	4.942***
Advisor contact	.533	2.078	.348	12.756***
Talk in class	.722	1.003	.227	8.319***
Criterion Variable: GPA ($\bar{X}=2.853$; $SD=.607$)				
Faculty Contact	.009	3.187	.047	.920
<i>Exogenous variables</i>				
Academic integration	.312	.530	.272	11.076***
HS performance	.488	.595	.478	24.283***
Academic difficulty	-.018	2.747	-.081	-3.459***
Memberships	.084	1.110	.154	5.869***
Correlation of residuals for Faculty Contact and GPA = .044				
<i>Freshmen Women (N=386)</i>				
Criterion Variable: Faculty Contact ($\bar{X}=3.767$; $SD=2.814$)				
	<i>b</i>	σ_x	beta	<i>t</i>
GPA	.536	.623	.119	1.265
<i>Exogenous variables</i>				
Academic integration	.309	.530	.058	.937
Academic difficulty	.131	2.816	.131	3.075**
Intent to transfer	.362	1.226	.158	3.538***
Memberships	.337	1.026	.123	2.388*
Advisor contact	.466	1.999	.331	6.677***
Talk in class	.675	.981	.235	5.060***
Criterion Variable: GPA ($\bar{X}=2.84$; $SD=.623$)				
Faculty Contact	.040	2.814	.181	1.900
<i>Exogenous variables</i>				
Academic integration	.304	.530	.259	5.739***
HS performance	.433	.552	.384	10.231***
Academic difficulty	-.028	2.816	-.127	-2.701**
Memberships	.086	1.026	.142	2.930**
Correlation of residuals for Faculty Contact and GPA = -.326				

TABLE 2. (Continued)

<i>Sophomore Women (N=328)</i>				
Criterion Variable: Faculty Contact ($\bar{X}=4.271$; $SD=3.340$)				
	<i>b</i>	σ_x	beta	<i>t</i>
GPA	-.268	.538	-.043	-.591
<i>Exogenous variables</i>				
Academic integration	1.182	.491	.174	3.010**
Academic difficulty	.071	2.824	.060	1.304
Intent to transfer	.031	1.553	.014	.286
Memberships	.458	1.135	.156	2.723*
Advisor contact	.593	2.072	.368	7.280***
Talk in class	.689	1.030	.212	4.114***
Criterion Variable: GPA ($\bar{X}=2.897$; $SD=.538$)				
Faculty Contact	.007	3.340	.047	.492
<i>Exogenous variables</i>				
Academic integration	.275	.491	.274	5.875***
HS performance	.543	.568	.627	17.321***
Academic difficulty	-.022	2.824	-.126	-2.823**
Memberships	.082	1.135	.189	3.822***
Correlation of residuals for Faculty Contact and GPA = -.028				
<i>Freshmen Men (N=186)</i>				
Criterion Variable: Faculty Contact ($\bar{X}=4.161$; $SD=3.434$)				
	<i>b</i>	σ_x	beta	<i>t</i>
GPA	-.378	.693	-.076	-.694
<i>Exogenous variables</i>				
Academic integration	1.019	.571	.169	2.025*
Academic difficulty	.068	2.517	.050	.894
Intent to transfer	.174	1.273	.065	1.047
Memberships	.585	1.138	.194	2.625**
Advisor contact	.611	2.195	.391	5.950***
Talk in class	.713	1.051	.218	3.215**
Criterion Variable: GPA ($\bar{X}=2.856$; $SD=.693$)				
Faculty Contact	-.032	3.434	-.159	-1.383
<i>Exogenous variables</i>				
Academic integration	.339	.571	.279	4.580***
HS performance	.523	.602	.454	10.484***
Academic difficulty	-.012	2.517	-.044	-.876
Memberships	.157	1.138	.258	4.145***
Correlation of residuals for Faculty Contact and GPA = .281				

TABLE 2. (Continued)

<i>Sophomore Men (N=196)</i>				
Criterion Variable: Faculty Contact (\bar{X} = 4.383; SD = 3.338)				
	<i>b</i>	σ_x	beta	<i>t</i>
GPA	.430	.598	.077	.697
<i>Exogenous variables</i>				
Academic integration	.847	.551	.140	1.628
Academic difficulty	.088	2.605	.069	1.260
Intent to transfer	-.159	1.082	-.052	-.867
Memberships	.144	1.167	.051	.746
Advisor contact	.700	1.942	.407	6.466***
Talk in class	.675	.959	.194	3.046***
Criterion Variable: GPA (\bar{X} = 2.797; SD = .598)				
Faculty Contact	.002	3.338	.011	.080
<i>Exogenous variables</i>				
Academic integration	.367	.551	.338	6.109***
HS performance	.449	.702	.527	10.839***
Academic difficulty	-.000	2.605	.000	-.027
Memberships	.003	1.167	.006	1.047
Correlation of residuals for Faculty Contact and GPA = .130				

* $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$.

contact was neither consistent nor large. In fact, for no group was effect of faculty contact on GPA (or vice-versa) statistically significant at $p < .05$. Thus, the hypothesis that faculty contact has a powerful effect on one college outcome, GPA, was not supported by the current study.

The reciprocal effects differed by class and by sex. For *freshman women*, the effect of contact on GPA approached statistical significance ($t = 1.90$, where $t = 1.96$ is the critical value at $p < .05$), and was the highest for any group. The effect of GPA on faculty contact from freshman women was again the largest for any group, but was not significant ($t = 1.27$).

For *sophomore women*, the effect of GPA on faculty contact was negative but not significant; e.g., sophomore women with good grades were *less* likely to seek contact with faculty members ($t = -.591$, *n.s.*). The effect of faculty contact on grades, however, was positive but extremely small ($b = .007$, $t = .492$).

For *freshman men*, the effect of GPA on faculty contact was negative but not significant ($t = -.694$). Likewise, the effect of faculty contact on GPA was negative and small. This finding, although not usually considered statistically significant ($p < .2$), is certainly contrary to expectations. It might

be explained in part by a higher degree of rebelliousness in 18-year-old males, rejecting parental figures and their demands (e.g. homework, studying, etc.) (Parsons and Platt, 1973).

For *sophomore men*, GPA was more likely to lead to faculty contact than the reverse, but neither relationship approached significance. In fact, the influence of faculty contact on GPA was practically zero. An overall assessment indicates that the relationships in the model are more likely to approach statistically significant for women than for men, and for freshmen than for sophomores. The results, however, provide little evidence that a strong relationship exists in either direction between faculty contact and GPA.

Some caution should be taken in assessing these results, because of the sensitivity of the *t* test to sample size. By examining the *b* weights of the regressions for the sample partitioned by class and sex, it is clear that the high level of statistical significance for the entire sample was due in part to its comparatively large size ($N=1,096$). For example, the effect of academic integration on faculty contact for sophomore men was virtually the same size as for the entire sample (*b* weights = .847 and .853, respectively), but the coefficient was significant at $p < .001$ for the entire sample and not significant at $p < .05$ for sophomore men.

For each group, advisor contact had the greatest, and talking in class the next greatest, influence on faculty contact. Memberships had a statistically significant relationship with faculty contact for all groups except sophomore men. For GPA, high school performance had the most important, and academic integration the next most important, effect for each group. Again, memberships had a significant influence on GPA for all groups except sophomore men.

Findings for the Exogenous Variables

Academic Integration. After high school performance, academic integration consistently had the second most important influence on GPA. That confident, motivated students achieve higher grades should not be surprising. The effects of academic integration on faculty contact were mixed. For sophomore women and freshman men, the effects were positive and statistically significant. For sophomore men, the effect was similar but smaller ($b = .847$ for sophomore men and 1.019 for freshman men). For freshman women, however, the effect was quite small ($b = .309$), perhaps because freshman women are least likely to have informal contact with faculty members. In general, academic integration has powerful effects on GPA, but inconsistent although positive effects on faculty contact.

Academic Difficulty. Women who found their academic programs difficult were significantly less likely to achieve high GPAs than otherwise. For

men, this effect was negative but not significant. Academic difficulty was positively associated with faculty contact for each group, but the effect was statistically significant only for freshman women. Perhaps women respondents' perceptions of being in academic difficulty were more accurate, hence the negative association between difficulty and their cumulative GPA. Among the four groups, only freshman women who perceived that their academic programs were difficult were likely to talk informally with faculty members, ostensibly for help.

Intent to Transfer. Students who intended to transfer might contact faculty for assistance in transferring. Transfers might also intend to change schools because of poor academic performance. This variable was added to the model in an attempt to reduce the size of the correlated residual between the error terms for the endogenous variables. For freshman women, the addition of this variable improved the specification of the model and reduced the correlation of the residuals from $-.56$ to $-.32$. Only for freshman women did intent to transfer have a statistically significant effect, positively influencing faculty contact.

Memberships. Except for sophomore men, students involved in campus organizations were significantly more likely to have contact with faculty members and achieve higher GPAs. It was argued above that students who joined campus organizations were more likely to be outgoing, socially assertive, academically competent, and interested in their own personal development. The finding for memberships suggests that students with these characteristics are likely to have high GPAs and high levels of faculty contact. Such students are probably high achievers both socially and academically. This finding lends indirect support to the contention that student socialization depends on the student's selecting his or her own role models, actively negotiating with the environment, and trading participation in the group for self-development (*cf.*, exchange theory, Homans, 1961).

Advisor Contact. The best predictor of faculty contact was the extent to which a student has met with a staff advisor. Again, the outgoing student who actively seeks advice and counsel on how to function in a complex social environment (e.g. can work within the system) seeks this support from more than one source. An alternative explanation is that staff advisors encourage students to get help or advice from particular faculty members; thus, the contact with one leads to contact with the other. A staff advising system that works may do so in part by increasing the informal contact between students and faculty members.

CONCLUSIONS AND LIMITATIONS

The model described in this paper was developed to identify the degree

to which the relationship between student GPA and informal student-faculty contact was reciprocal. Contrary to the expectations based on the literature (Tinto, 1975; Pascarella, 1980), the results provide little evidence that a strong, consistent relationship exists between faculty contact and GPA. As Feldman and Newcomb (1970) suggested, faculty contact may have more to do with career and intellectual development than with GPA (which in the strict sense represents performance and not cognitive maturity). Conversely, GPA seems to have little effect on faculty-student contact. Thus, these findings suggest that informal faculty contact with freshmen and sophomores at a major research university has little effect on a student's GPA.

Students most likely to meet informally with faculty members also are in contact with their advisors, talk in class, and join campus organizations. These socially confident and intellectually extroverted students are probably active participants in their own socialization and may select mentors and negotiate for an advantageous position in their academic roles. Theories which emphasize a person's active participation better describe the socialization of many college students than the role-theorist perspectives that suggest that students are passive recipients of socializing influences.

Several authors found that after controlling for high school academic performance, few other variables can be shown to directly affect a student's GPA (Pantages and Creedon, 1978; Pascarella, 1980). Although it does not directly affect GPA, informal faculty contact is probably important to students in other ways, especially where there is a higher level of student-faculty contact than at a research university. For example, students can debate with faculty members about social issues that students find intrinsically interesting (e.g., redistribution of wealth). These debates may contribute to the disequilibrium considered necessary for cognitive development (Perry, 1970).

Replicating this study with upperclassmen may result in different conclusions. Upperclassmen are likely to be more confident both socially and emotionally, feel secure in the student role, are probably at higher levels of cognitive development, and have a clearer sense of vocational and educational purpose. Compared with most first-year students, upperclassmen are more likely to benefit from being intellectually and socially engaged with faculty, and the effects of such contact should be more pronounced.

A single study with a sample drawn from one institution cannot provide conclusive evidence on which to accept or reject hypotheses. A replication of this study using similar techniques at other research universities would be useful. Furthermore, because the findings between groups were inconsistent, it is probable that different students respond to faculty contact in different ways. For some students, such contact may be vital in providing stimulation and direction. For others, peers, rather than faculty members, might have the greatest effect on their behavior and the outcome of their college experience.

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