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ABSTRACT

The interactive influence of student characteristics and eight measures of student-faculty relationships on the prediction of freshman year voluntary persistence/withdrawal decisions was studied. A questionnaire was sent to the total population of incoming freshmen at a large, independent, residential university in New York State. Usable responses from 1,457 students provided information on expectations of the college experience and selected background information. A second questionnaire on the reality of the college experience was sent to the students during the spring semester of the following year. Of the 1,457 students, usable responses were received from 773 freshmen. Student-faculty relationships were measured on eight scales; six of the scales were concerned with the frequency of student-faculty informal contact. The remaining two scales assessed students' perceptions of the quality and impact of their informal interactions with faculty and faculty concern for teaching and student development. Eight measures of student-faculty relationships explained a statistically significant additional 14.4 percent of the variance in persistence/withdrawal decisions, after 14 pre-enrollment characteristics and five measures of freshman year social and academic integration had been statistically controlled. (SW)

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INTERACTION OF STUDENT CHARACTERISTICS AND STUDENT-FACULTY RELATIONSHIPS IN THE PREDICTION OF FRESHMAN YEAR VOLUNTARY PERSISTENCE/WITHDRAWAL DECISIONS

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Abstract

This study sought to determine the interactive influence of student characteristics and eight measures of student-faculty relationships in the prediction of freshman year voluntary persistence/withdrawal decisions. After statistically controlling the influence of fourteen pre-enrollment/entering characteristics (e.g. academic aptitude, importance of graduating from college) and five other measures of freshman year social and academic integration, eight measures of student-faculty relationships (e.g. frequency of informal contacts of six types) explained a statistically significant ($p < .001$) additional 14.4% of the variance in persistence/withdrawal decisions. Moreover, an additional set of interaction terms explained a further 11.5% ($p < .001$) of the dependent variable variance and suggested that the quality and frequency of student-faculty relationships were most important in influencing the persistence/ withdrawal behavior of students initially low on certain pre-enrollment characteristics or other dimensions of social and academic integration.

In their sociological, explanatory models of the college drop-out process both Spady (1970, 1971) and Tinto (1975) have emphasized the processes of social and academic integration as critical influences on student persistence/withdrawal behavior. Each model views persistence/withdrawal decisions largely as the result of a longitudinal process of interactions between the student and the academic and social systems of the institution. The individual student comes to a particular institution with a range of background characteristics, aptitudes, and goal commitments. These preenrollment or entering characteristics, in turn, partially determine how the student will interact with an institution's social and academic systems. The nature and quality of these interactions "lead to varying levels of normative and structural integration in those collegiate systems" (Tinto, 1975, p. 103). Assuming that external influences are held constant, the higher the levels of integration into the social and academic systems of an institution the less likely the student is to withdraw voluntarily.

It is clear from the Spady and Tinto models that different types of collegiate experiences are conceptually associated with different types of integration (e.g. interactions with peers tend to influence social integration while grade performance essentially influences structural academic integration). One aspect of the student's experience however, his or her relationships with faculty, is seen

as an important influence on both social and academic integration. Based on the Spady-Tinto models it might, therefore, be hypothesized that the nature and quality of student-faculty relationships will be an important predictor of persistence/withdrawal behavior. Indeed, evidence from a number of studies (Gekoski and Schwartz, 1961; Pascarella and Terenzini, 1976, 1977; Spady, 1971) suggests that such aspects of student-faculty realtionships as the frequency of student-faculty informal interaction beyond the classroom are in fact positively associated with college persistence.

A number of methodological problems exist in the above investigations, however, such as the use of a global measure of student-faculty contact, or the inability to control for important pre-college characteristics and/or other measures of social and academic integration. Moreover, as suggested by Tinto (1975), little attention has been paid to what is perhaps an even more important question than simply asking whether there is a statistically reliable association between student-faculty relationships and college persistence. Specifically, do different kinds of students derive differential benefits, in terms of influence on levels of social and academic integration, from their non-classroom contacts or other interactions with faculty?

Some empirical justification for investigating such interactions between student characteristics and student-faculty relationships in the prediction on persistence/

withdrawal behavior is provided in two studies. Evidence reported by Wilson, Wood and Gaff (1974) suggests not only that the frequency and quality, but also the extent of impact of student-faculty informal contacts are dependent upon the characteristics of the students involved. Additional evidence by Spady (1971) suggests, somewhat indirectly, that social interaction with faculty may have greater influence on the peristence/withdrawal behavior of women than men.

The present study sought to extend this line of investigation and to this end had two basic purposes: 1) to determine the relative importance of student-faculty relationships in predicting voluntary freshman year persistence/withdrawal decisions with the influence of student pre-enrollment characteristics and other measures of social and academic integration taken into account; and 2) to determine the interactive influence of student-faculty relationships with various measures of student entering characteristics and levels of social and academic integration in the prediction of voluntary freshman persistence/withdrawal decisions.

METHOD

Design and Sample

The study was longitudinal and was conducted at a large, independent, residential university in New York State with a total undergraduate enrollment of approximatley 10,000 students. In July, 1976 a simple random sample of 1965 persons was drawn by computer from the total population of incoming freshmen. Sample members were sent a detailed questionnaire designed to assess their expectations of a variety of aspects of the college experience, as well as to collect selected background information. Useable responses were received from 1457 students (76.5%) who subsequently enrolled. During the spring semester of the following year (1977), a second questionnaire was mailed to these 1457 students seeking information on the reality of their college experience. After a mail follow-up, useable responses were received from 773 freshmen (53.1% response). Chi-square goodness of fit tests indicated that the 773 freshmen were representative of the freshman population from which they were drawn with respect to sex, racial/ethnic origin, college of enrollment, academic aptitude (SAT scores) and freshman year cumulative grade point average.

A review of each student's records in September, 1977, indicated that 10 of the 773 had been dismissed or advised

to withdraw because of unsatisfactory academic performance; and 90 had voluntarily withdrawn from the university at the end of their freshman year. Since the study focuses on voluntary withdrawal the 10 academic drops were excluded from all further analyses. (The voluntary withdrawal rate of 11.8% in the sample is similar to previous known freshman year voluntary withdrawal rates at this institution.)

While it might be argued that both the Tinto and Spady models are intended to explain attrition during the second, third or fourth years of college as well as in the first year, evidence from Iffert (1978), Eckland (1964), Marsh (1966), and Rootman (1972), strongly suggests that attrition is heaviest at the end of the freshman year. Based on this evidence it was judged that analyses using a freshman year sample would provide a reasonable estimate of those aspects of the models being investigated.

Variables and Instruments

Student-faculty relationships in this study were measured on eight scales. Six of the eight scales were concerned with the frequency of student-faculty informal contact. Students were asked to indicate on the follow-up questionnaire the number of times during each semester of their freshman year they had met informally, outside of class, with

a faculty member for the following purposes: "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 minutes or more were to be counted. This operational measure of student-faculty contact was drawn from an instrument employed by Wilson, Wood and Gaff (1974).

A preliminary examination of the distributions of the frequency of contact in each category indicated substantial positive skewness (i.e., a large proportion of the students had few or no contacts while a comparatively small number had many contacts). In correlational analyses such skewed distributions can lead to the inordinate impact of outlier cases and, quite possibly, specious results (Walberg and Rasher, 1976). To reduce the impact of such outlier cases and to reduce skewness in the distributions, the frequency of contact in each category was transformed to a natural logarithm prior to any statistical analysis (Walberg and Rasher, 1976). To avoid the indeterminacies of taking a natural log of 0.0 a constant of 1.0 was added to each measure.

A similar examination of the distributions of the pre-enrollment/entering characteristics also revealed substantial positive skewness in three variables: number of high

school extracurricular activities, expected informal contact with faculty and parents' combined annual income. Thus, log transformations of these variables were also carried out prio. to the main statistical analyses.

The remaining measures of student-faculty relationships were two scales which assessed students' perceptions of: 1) the quality and impact of their informal interactions with faculty and 2) faculty concern for teaching and student development.

These two scales were factorially derived along with three other scales, from a 34 Likert-item instrument (incorporated in the follow-up questionnaire) designed to measure various dimensions of social and academic integration suggested by the Tinto and Spady models. The five factor scales, their alpha (internal consistency) reliabilities and the two highest loading items on each scale are shown in Table 1. (The complete item sets and factor matrix are available on request.)

The following measures of pre-college or entering characteristics, suggested as potentially important correlates of voluntary persistence/withdrawal decisions by various critical reviews of college attrition research (e.g. Cope and Hannah, 1975; Pantages and Creedon, 1978; Spady, 1970; Tinto, 1975), were statistically controlled in the study:

TABLE 1

ALPHA RELIABILITIES AND THE TWO HIGHEST LOADING ITEMS

ON FIVE FACTORIALLY DERIVED MEASURES OF SOCIAL AND ACADEMIC INTEGRATION

SCALE/ITEMS	FACTOR LOADING	ALPHA RELIABILITY
PEER-GROUP INTERACTIONS (7 items)		.84
1. Since coming to this university I have developed close personal relationships with other students.	.82	
2. The student friendships I have developed at this university have been personally satisfying.	.82	
INTERACTIONS WITH FACULTY (5 items)		.83
1. My non-classroom interactions with faculty have had a positive influence on my personal growth, values and attitudes.	.86	
2. My non-classroom interactions with faculty have had a positive influence on my career goals and aspirations.	.83	
FACULTY CONCERN FOR TEACHING AND STUDENT DEVELOPMENT (5 items)		.82
1. Few of the faculty members I have had contact with are generally interested in students.[a]	-.77	
2. Few of the faculty members I have had contact with are generally outstanding or superior teachers.[a]	-.72	
ACADEMIC AND INTELLECTUAL DEVELOPMENT (7 items)		.74
1. I am satisfied with the extent of my intellectual development since enrolling in this university.	.68	
2. My academic experience has had a positive influence on my intellectual growth and interest in ideas.	.67	

TABLE 1 (continued)

SCALE/ITEMS	FACTOR LOADING	ALPHA RELIABILITY
INSTITUTIONAL/GOAL COMMITMENTS (6 items)		.71
1. It is important for me to graduate from college.	.69	
2. I am confident that I made the right decision in choosing to attend this university.	.63	

[a]Scores on negative items reversed. The complete item and factor matrix is available on request.

Sex

Racial/Ethnic Origin (non-minority or minority)

Intitial Program of Enrollment (liberal arts or professional, decided on prior to enrollment)

Academic Aptitude (combined Scholastic Aptitude Test-SAT - scores)

High School Achievement (percentile rank in high school class)

Number of High School Extracurricular Activities (of 2 hours or more per week on the average)

Expected Number of Informal Contacts with Faculty (per month of ten minutes or more outside of class)

Parents' Combined Annual Income (in thousands of dollars)

Father's Formal Education (seven categories from "some grammar school" to "graduate degree")

Mother's Formal Education (same categories as father's education)

Student's Highest Expected Academic Degree (Bachelors to Ph.d., Ed.D., M.D., J.D.)

Importance of Graduating from College ("extremely important" to "not at all important")

Rank of this University as a College Choice (1st Choice to 4th or lower choice)

Pre-enrollment Confidence that Choosing to Attend this University Was the Right Decision ("extremely confident" to "not at all confident")

Additionally, the study also controlled for five measures of social and academic integration other than students' relationships with faculty. These were: academic achievement (as measured by freshman year grade point average), extent of involvement in extracurricular activities during the freshman year (of two hours or more per week on the average), and scores on the "peer group interactions," "academic and intellectual development," and "institutional/goal commitment"[1] factor scales.

While a graphic display of the Tinto model appears to place institutional and goal commitment at the beginning and end, it seems reasonably clear from his discussion that it is an ongoing process which both influences and in turn is influenced by students' interactions with the social and academic systems of the institution. It was therefore decided to let actual voluntary freshman year persistence/withdrawal decisions represent outcome levels of institutional/goal commitment, and to treat the measure of institutional/goal commitment obtained early during the spring semester as an important control variable.

The dependent variable, freshman year voluntary persistence/withdrawal behavior was dummy coded 1 = persisters and 0 = withdrawals. Data on all variables were obtained either from the questionnaire instruments or from official university records.

Statistical Analysis

Two-group discriminant function analysis, which is essentially multiple regression analysis with a categorical dependent variable (Huberty, 1975), was the major statistical tool employed. The variables were entered in a setwise manner with the 14 pre-college/entering characteristics entered first, the 5 additional measures of freshman-year social and academic integration entered second, and the eight student-faculty relationship variables entered third.

In order to test whether the influence of the student-faculty relationship variables on voluntary persistence/withdrawal behavior was different for different kinds of students two sets of cross-product, interaction terms were formed. The first set crossed the eight student-faculty relationship variables with seven pre-college/entering characteristics: sex, race, initial college of enrollment, combined SAT scores, highest degree expected, importance of graduating from college and combined parents' formal education. The second set crossed the eight student-faculty relationship variables with each of the five additional measures of social and academic integration. Each set of interaction terms was then entered separately in the equation with all main effects controlled. Individual interactions in either set were investigated only if the entire set of terms was

associated with a significant increase in the explained variance (canonical R^2 or R_c^2) in persistence/ withdrawal decisions (Huberty, 1975).

Prior to any statistical analysis, the overall sample of 763 subjects was randomly divided into two samples of approximately 2/3 (n = 497) and 1/3 (n = 266). The larger of these two was used as a calibration sample for all statistical analyses, while the smaller was held out as a validation sample. The discriminant function derived on the calibration sample was used to classify subsequent persisters and withdrawals in that group and was then applied to the raw data of the validation sample in a similar, but independent, classification analysis (Huberty, 1975). (Prior probabilities for the classification analyses were set at .50 for each group.)

RESULTS

Two preliminary discriminant analyses were conducted to determine if the two sets of interaction vectors made significant contributions to the increase in R_c^2 with all main effects held constant. The R_c^2 increase for the set of interactions between the student-faculty relationship variables and pre-college/entering characteristics was .0952 ($F = 1.71$ with 40/429 df, $p < .01$), while the correspond-

ing R_c^2 increase for the set of interactions between the student-faculty relationship variables and the five additional measures of freshman year social and academic integration was .1263 ($F = 1.65$ with 56/413 df, $p < .01$). The results of these two analyses justified further investigation of individual interactions. In order to obtain the most parsimonious model, only those interaction terms making significant unique contributions to the increase in R_c^2 in each preliminary analysis (i.e. controlling for all main effects and all other interactions) were subsequently included in the last step in the main analysis.

Table 2 gives the means, standard deviations and univariate F-ratios for all main effects variables, while Table 3 summarizes the results of the setwise discriminant analysis. The overall model with all main effects and eight interactions (which made significant unique contributions in the preliminary analyses) had a canonical correlation of .641 ($p < .001$) and was associated with 41.9% of the variance in voluntary freshman year persistence/withdrawal decisions. As Table 3 further indicates, the set of eight student-faculty relationship variables made a significant contribution of 14.4% to the change in R_c^2. Four of the eight variables made significant unique contributions to the discrimination between persisters and withdrawals (controlling for all variables entered on steps 1 and 2 and all other student-faculty relationship variables) Persisters tended to have

TABLE 2

MEANS, STANDARD DEVIATIONS AND UNIVARIATE F-RATIOS
FOR ALL MAIN-EFFECTS VARIABLES (CALIBRATION SAMPLE)

VARIABLE	PERSISTERS (N=436) M	PERSISTERS (N=436) SD	WITHDRAWALS (N=61) M	WITHDRAWALS (N=61) SD	TOTAL (N=497) M	TOTAL (N=497) SD	F[c]
PRE-ENROLLMENT/ENTERING CHARACTERISTICS							
Sex	1.47	.50	1.33	.47	1.45	.50	4.32*
Racial/ethnic origin	.90	.30	.93	.25	.90	.30	.85
Initial program of enrollment	.40	.49	.38	.49	.40	.49	.11
Academic aptitude	1044.08	158.10	1029.02	190.11	1042.23	162.20	.46
High School rank in class	75.62	17.56	72.97	19.25	75.29	17.78	1.19
Number of high school extra-curricular activities[a]	1.10	.57	1.07	.66	1.09	.58	.23
Expected informal contact with faculty[a]	1.53	.89	1.37	.89	1.51	.89	1.65
Parents combined annual income[a]	2.38	1.43	2.40	1.22	2.38	1.41	.02
Father's formal education	4.66	1.72	4.10	1.45	4.59	1.70	5.79*
Mother's formal education	4.10	1.45	3.92	1.56	4.08	1.47	.81
Highest expected academic degree	1.98	.77	1.80	.85	1.96	.78	2.63
Importance of graduating from college[b]	1.35	.53	1.56	.65	1.37	.55	7.80**
Rank of this university as a college choice	1.45	.69	1.36	.63	1.44	.68	1.00
Confidence that choosing to attend this university was the right decision[b]	1.82	.67	1.85	.77	1.83	.68	.08
OTHER MEASURES OF SOCIAL AND ACADEMIC INTEGRATION							
Peer-group interactions	26.64	5.09	22.95	6.86	26.19	5.47	25.56**
Academic and intellectual development	22.97	4.88	20.59	4.41	22.68	4.55	15.20**
Institutional/goal commitment	24.17	3.67	19.89	4.83	23.64	4.08	60.83**
Freshman grade-point average	2.72	.70	2.60	.75	2.70	.70	1.45
Number of extracurricular activities[a]	.64	.55	.52	.60	.63	.56	2.55

TABLE 2 (continued)

VARIABLE	PERSISTERS (N=436) M	PERSISTERS (N=436) SD	WITHDRAWALS (N=61) M	WITHDRAWALS (N=61) SD	TOTAL (N=497) M	TOTAL (N=497) SD	F[c]
STUDENT-FACULTY RELATIONSHIP VARIABLES							
Interactions with faculty	14.48	4.20	9.81	3.70	13.91	4.41	67.76**
Faculty concern for teaching and student development	16.21	3.33	12.44	4.42	15.75	3.69	62.72**
Informal contacts with faculty to[a]:							
1. Obtain information about courses and academic programs	1.12	.80	1.01	.88	1.11	.81	.98
2. Discuss future career concerns	.87	.93	.28	.51	.80	.91	23.96**
3. Help resolve a personal problem	.14	.46	.21	.67	.15	.49	1.35
4. Discuss intellectual matters	1.23	1.03	.24	.58	1.11	1.05	58.23**
5. Discuss a campus issue	.23	.63	.01	.09	.20	.59	7.38**
6. Socialize informally	.49	.83	.16	.48	.45	.80	9.85**

[a]As naural logarithms

[b]Scored in reverse; 1 = highest or most positive, 4 = lowest or least positive

[c]Degrees of freedom = 1 and 495

*p < .05 **p < .01

TABLE 3

SETWISE DISCRIMINANT ANALYSIS SUMMARY

STEP/VARIABLES	R_c	R_c^2	R_c^2 Change	F FOR CONTRIBUTION TO GROUP DISCRIMINATION
1. PRE-COLLEGE/ENTERING CHARACTERISTICS (14 variables)[a]	.216	.046	.046	1.68
2. OTHER MEASURES OF SOCIAL AND ACADEMIC INTEGRATION (5 variables)[b]	.400	.160	.114	12.95**
3. STUDENT-FACULTY RELATIONSHIP VARIABLES[c]	.551	.304	.144	12.12**
Informal Relationships with faculty				15.33**
Faculty concern for teaching and student development				12.56**
Informal, non-classroom contacts with faculty:				
To obtain information about courses and academic programs				3.11
To discuss issues related to future career				0.41
To discuss a personal problem				2.74
To discuss intellectual matters				11.23**
To discuss a campus issue or problem				5.03*
To socialize informally				2.55

TABLE 3 (continued)

STEP/VARIABLES	R_c	R_c^2	R_c^2 Change	F FOP CONTRIBUTION TO GROUP DISCRIMINATION
4. INTERACTIONS[d]	.647	.417	.115	11.40**
Importance of graduating x Faculty concern for teaching and student development				5.13*
Importance of graduating x Contacts to obtain information about courses and academic programs				4.97*
Level of parents education x Contacts to discuss issues related to future career				6.95**
Level of parents education x Faculty concern for teaching and student development				12.41**
Institutional/Goal commitment x Contacts to discuss intellectual matters				13.23**
Freshman cumulative GPA x Contacts to obtain information about courses and academic programs				6.06*
Peer relationships x Contacts to discuss intellectual matters				4.35*
Academic/Intellectual development x Faculty concern for teaching and student development				7.12**

*p < .05 **p < .01

[a]Degrees of freedom = 14/482

[b]Controlling for all pre-college/entering characteristics; Degrees of freedom = 5/477

[c]Controlling for all pre-college/entering characteristics and 5 additional measures of social and academic integration; Degrees of freedom = 8/469 for overall contributions and 1/469 for contribution of individual variables.

[d]Controlling for all main effects; Degrees of freedom = 8/461 for overall contribution and 1/461 for contribution of individual variables.

significantly higher scores on both the "informal relationships with faculty" and the "faculty concern for teaching and student development" scale as well as a significantly higher frequency of non-class contacts to discuss intellectual matters and campus issues.

Step 4 in Table 3 shows that the additional contribution of the eight interaction terms to group discrimination was associated with an 11.5% increase in R_c^2 ($p < .01$). All eight of the interaction terms made significant unique contributions, controlling for all main effects and all other interactions.

Results of the classification analysis on the calibration sample indicated that 89.74% of the sample who subsequently either withdrew at the end of their freshman year or re-registered for their sophomore year were correctly identified. When the function was applied to the raw data of the hold-out, validation sample, the drop in correct identification of subsequent persisters and withdrawers was only 4.41%; correct classification = 85.33%. Both correct classification percentages were found to be significantly better than chance (i.e. 50%) at $p < .001$. Such results suggest that the function based on the variables in the analysis has both substantial discriminating power and reasonably high stability across samples (Huberty, 1975).

Table 4 provides the regression equations for plotting each of the eight significant interactions. As indicated by the signs of the unstandardized regression weights in each equation, there was a similar pattern in each of the eight interactions. Specifically, the nature and frequency of student-faculty relationships were most important in predicting the subsequent persistence/withdrawal behavior of students initially low on certain pre-enrollment characteristics or other measures of social and academic integration. As levels of pre-enrollment characteristics (e.g. importance of graduating, level of parents education) and other dimensions of freshman year social and academic integration (e.g., peer relationships, academic-intellectual development, institutional goal commitment) increased, the quality and frequency of a student's relationships with faculty had a decreasing influence on his or her persistence/withdrawal behavior. (Note that pre-enrollment importance of graduating was scored 1 = extremely important, to 4 = not at all important. Thus, the interactions between importance of graduating x "faculty concern for teaching and student development" and between importance of graduating x contacts with faculty to obtain information about courses and academic programs fit the overall pattern with a negative regression coefficient for importance of graduating.)[2]

TABLE 4

REGRESSION EQUATIONS FOR PLOTTING INTERACTIONS

INTERACTION	EQUATION
Importance of graduating (IG)[a] x Faculty concern for teaching and student development (FCTSD)	$y^{b} = -.301(IG)^{a} + .006(FCTSD) + .016(IG \times FCTSD) + .839$
Importance of graduating (IG)[a] x Contacts to obtain information about courses and academic programs (CCAP)	$y = -.132(IG)^{a} + .070(CCAP) + .060\ (IG \times CCAP) + .821$
Level of parents education (PE) x Contacts to discuss issues related to future career (CFC)	$y = .021(PE) + .175(CFC) - .011(PE \times CFC) - .643$
Level of parents education (PE) x Faculty concern for teaching and student development (FCTSD)	$y = .076(PE) + .066(FCTSD) - .004(PE \times FCTSD) - .220$
Institutional/Goal commitment (IGC) x Contacts to discuss intellectual matters (CIM)	$y = .030(IGC) + .442(CIM) - .015(IGC \times CIM) - .125$
Freshman cumulative GPA (GPA) x Contacts to obtain information about courses and academic programs (CCAP)	$y = .080(GPA) + .155\ (CCAP) - .052(GPA \times CCAP) + .648$
Peer relationships (PR) x Contacts to discuss intellectual matters (CIM)	$y = .020(PR) - .341(CIM) - .010(PR \times CIM) + .268$
Academic/Intellectual development (AID) x Faculty concern for teaching and student development (FCTSD)	$y = .038(AID) + .073(FCTSD) - .002(AID \times FCTSD) - .411$

[a] Importance of graduating scored 1 = extremely important to 4 = not at all important

[b] y = predicted persistence/voluntary withdrawal decisions

SUMMARY AND DISCUSSION

The findings tend to support the importance which both the Spady (1970) and Tinto (1975) models attach to student-faculty relationships as an influence on students' levels of social and academic integration in a particular institution. After statistically controlling for fourteen pre-enrollment/entering characteristics and five other measures of students, social and academic integration, eight measures of the quality and frequency of students' relationships with faculty explained an additional 11.1% of subsequent freshman year voluntary persistence/withdrawal decisions.

Only four of the eight student-faculty relationship measures made significant unique contributions to group discrimination, however. Freshman persisters had significantly more informal, non-classroom contacts with faculty for two of six possible purposes: to discuss intellectual matters, a finding consistent with previous evidence reported by Pascarella and Terenzini (1977), and to discuss campus issues. Moreover, freshman persisters also had significantly higher scores than voluntary withdrawals on two scales measuring their perceptions of: 1) the impact of their informal contacts with faculty, and 2) the concern of the institution's faculty for teaching and student development. Such evidence suggests that the quality as well as the frequency of students' informal, social interaction with faculty

needs to be taken into account to fully estimate the influence of such interaction on students' degree of social and academic integration, and thereby, their likelihood of persisting or withdrawing from a particular institution.

Perhaps the most important finding of this investigation, however, is evidence suggesting that the influence of various dimensions of students' relationships with faculty on freshman year persistence/withdrawal behavior may be different for students with different background characteristics and different levels of freshman year social and academic integration. The general pattern of these interactions suggested that the influence of various dimensions of student-faculty relationships on voluntary freshman year persistence/withdrawal decisions was most important for students with the lowest levels of certain background characteristics and other dimensions of social and academic integration.

Somewhat surprisingly, given the suggestions of previous research (Spady, 1970; Tinto, 1975), pre-enrollment/entering characteristics such as sex, academic aptitude, or initial college of enrollment failed to interact with any of the student-faculty relationship measures in predicting subsequent persistence/withdrawal behavior. Rather, the two pre-enrollment characteristics which did interact with student-faculty relationship measures (i.e., importance of graduating from college and parents' combined level of formal education) appeared to tap either directly or as an indirect

influence, two dimensions of initial educational aspiration. For students who were initially low on graduation aspirations, or who came from families where parents themselves had completed relatively little formal education beyond high school, the frequency of their informal contact with faculty focusing on academic or career counseling, or the extent to which they found faculty concerned about teaching and students, had significant, positive influence on their likelihood of persisting into the sophomore year.

The nature of such interactions suggests that the above dimensions of student-faculty relationships may function in a compensatory manner in terms of their influence on college persistence during the freshman year. That is, they may provide interpersonal links with important adults in the institution which compensate for a initially low commitment to the goal of graduation or the relative absence of parental role models who themselves have substantial levels of formal post-secondary education.

A strikingly similar pattern of interactions was found between various dimensions of student-faculty relationships and other measures of freshman year social and academic integration. For students with relatively low levels of social and academic integration with respect to peer relationships, academic achievement, intellectual development and institutional/goal commitment, the frequency of their informal contact with faculty focusing on intellectual matters

and academic counseling or the extent to which they find faculty interested in teaching and students, had a significant positive influence on their probability of persisting. Here too, the influence of various dimensions of student-faculty relationships appears to be compensatory; i.e., being most important in positively influencing persistence for students who are relatively low in one or more of the other measures of social and academic integration.

Limitations

As this investigation is limited to a single institution, sample a degree of caution should be observed in generalizing the findings to other institutional settings. Similarly, the study deals only with non-required or voluntary withdrawal. Thus, the salient variables in this study may have questionable predictive validity with regard to academic failure or other forms of non-voluntary withdrawal.

Clearly a replication of the investigation on samples of students in different kinds of institutional settings would be valuable. Such investigations might pay particular attention to the importance of student-faculty relationships in influencing persistence/withdrawal behavior in commuter as well as residential institutions. While this investigation found significant two-way interactions between student

student characteristic and student-faculty relationships in predicting persistence, perhaps there is an important three-way interaction between student characteristics x student-faculty relationship variables x institutional type. This and other approaches which focus on interactions between student characteristics and different college experiences may add important knowledge to our understanding of the persistence/withdrawal process and the nature of faculty members' influence on other student behaviors.

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FOOTNOTES

1. While it was initially expected that items measuring primarily goal commitment and those measuring primarily institutional commitment might form two separate factors, the rotation of different numbers of factors as well as the use of different selection techniques for rotation (e.g. eigenvalues = 1.00 or greater versus the scree test) failed to support this expectation. It was therefor decided to proceed on the evidence of the factor analysis even though it differed slightly from Tinto's theoretical expectations.

2. The characteristics of each interaction may be verified by using the equation provided in Table 4, in coordination with the descriptive statistics of Table 2, to plot the regression surface (Amick and Walberg, 1975). A somewhat quicker way of discerning the nature of the interactions, however, can be achieved by using the equations provided to plot the association between each student-faculty relationship variable and persistence/withdrawal status (i.e. 1 or 0) for "high" and "low" values on each pre-enrollment variable or other measure of social and academic integration (e.g. ± 1.00 or 1.50 standard deviations).