

DETERMINANTS OF WITHDRAWAL BEHAVIOR: AN EXPLORATORY STUDY

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Research on college persistence has typically classified nonreturnees as dropouts. Recently, this practice has been criticized by Tinto (1987) who argues that such a practice merges together different types of withdrawal behavior whose determinants may vary as a function of the particular departure behavior under consideration. This paper empirically examines whether the determinants of decisions to withdraw from the institution are similar to those affecting decisions to transfer to other institutions of higher education for the 1984 entering freshman class at a large southern institution. Results provide support for Tinto's proposition of differentiating between different types of voluntary withdrawal behavior. While institutional commitment, academic performance, finance attitudes, and student perceptions of faculty concern for student development and teaching discriminated between persisters and dropouts, only final institutional commitment and final goal commitment discriminated between persisters and transfers.

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Tinto's (1975, 1987) seminal work on college departure has motivated the growth of an extensive body of research on college students' persistence at 4-year institutions. Research findings, however, have often conflicted when explaining why students persist or withdraw. Mixed results could be attributed to several factors, among them, the practice of classifying as a dropout all students who failed to continue at the institution under analysis. Tinto (1987) has suggested that the practice of classifying nonreturnees as dropouts merges together different types of withdrawal behavior whose determinants may vary as a function of the particular departure behavior under consideration. The purpose of this paper is to empirically examine whether the determinants to reenroll at the same institution (institutional persistence), dropout of the higher education system (dropout), or transfer to another institution (institutional with-

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drawal) are different. These decisions are examined within the context of Tinto's student integration model of college attrition (1975, 1987).

LITERATURE REVIEW

Building on Spady's work (1970, 1971) and Durkheim's theory of suicide (1951), Tinto (1975, 1982, 1987) developed a theory explaining the process that motivates students to leave colleges and universities before graduating. Tinto argues that Spady's theoretical foundation of the social integration aspects of suicide as stated by Durkheim (1951) could be applied in understanding student attrition from higher education. Tinto (1975) compared the lack of integration into the fabric of society as a factor leading to suicide to be analogous to withdrawal decisions in a college environment.

Tinto's theory argues that personal attributes and background characteristics (i.e., gender, socioeconomic status, ethnicity, and precollege ability) produce varying levels of initial commitments to educational goals and to specific institutions. These initial goal and institutional commitments are presumed to influence a student's choice of institutions. Once the subject enrolls in a particular institution, these initial commitments interact with the academic and social components of the institution, resulting in different levels of academic and social integration. According to Tinto (1987), academic integration stems not only from the student's academic performance but also from his interactions with faculty and staff, while social integration reflects the student's participation in and satisfaction with extracurricular activities and peer-group relations. In this context, the theory asserts that, other factors being equal, the match between an individual student's characteristics and the institution's academic and social components determines the student's commitment to college completion and the subject's commitment to his institution. These two final commitments together with different levels of academic and social integration have a direct effect on decisions to persist in or withdraw from the institution.

In a reexamination of his theory and supporting research, Tinto (1982) concluded that four important issues had not been adequately explored: (1) determinants of persistence in the two-year sector, (2) the role of finances in persistence, (3) group-specific (i.e., gender, race, and social status backgrounds) differences in institutional persistence vs. voluntary institutional departure, and (4) determinants of different voluntary withdrawal behaviors (Tinto, 1987). Although recent research has addressed some of these issues by examining the determinants of persistence in community colleges (Bers and Smith, 1989; Nora, 1987; Pascarella, Smart, and Ethington, 1986; Voorhees, 1987), analyzing the determinants of predispositions to transfer to 4-year institutions among community college students (Nora and Rendon, 1988), exploring the role of finances in persistence in the 4-year sector (Braxton, Brier, and Hossler, 1988; Cabrera, Stampen, and Hansen, 1990; Metzner and Bean, 1987), and studying the effects of gender and ethnicity for both the 2-year sector (Nora, 1987; Nora,

Attinasi, and Matonak, 1990) and the 4-year sector (Pascarella and Terenzini, 1983; Stage, 1988, 1989), no research has compared determinants of different withdrawal behaviors in the 4-year sector.

Most, if not all, studies on the student integration model (Tinto, 1975, 1987) have found that precollege ability and background factors exert no significant direct effects on retention (Pascarella and Terenzini, 1979; Terenzini, Lorang, and Pascarella, 1981; Pascarella and Terenzini, 1983; Nora, Attinasi, and Matonak, 1990; Cabrera, Stampen, and Hansen, 1990; Stage, 1988, 1989). Research, however, has found background characteristics to influence, at most, initial goal and initial institutional commitments and, to some extent, academic and social integration (Nora, Attinasi, and Matonak, 1990; Stage, 1988, 1989).

Contradictory results are reported for the role of those variables that the theory presumes to directly affect institutional persistence; namely, academic integration, social integration, final goal commitment, and final institutional commitment. For example, Pascarella, Terenzini, and associates, employing an instrument based on Tinto's (1975) constructs of academic and social integration, found that academic integration, social integration, and goal and institutional commitments were consistent predictors of withdrawal behavior (Pascarella and Terenzini, 1980; Terenzini, Lorang, and Pascarella, 1981). Similarly, Getzlaf, Gordon, Kearney, and Blackwell (1984) reported that academic integration, academic performance, final goal, and final institutional commitments discriminated between dropouts and persisters among undergraduate students who attended Washington State University during 1978. Anderson (1981), based on a sample drawn from the National Longitudinal Study of the High School Class of 1972, found that academic experiences and peer influences affected the odds of persistence among students who entered 2-year community and junior colleges.

On the other hand, Munro (1981) reported that path analysis yielded results largely consistent with the student integration model for all but one construct. Final institutional commitment was not found to affect persistence on a sample drawn from the National Longitudinal Study of the High School Class of 1972. Pascarella and Terenzini (1983) reported that path analysis, conducted on a sample of freshmen in a private residential university, produced results entirely consistent with the theory when the whole sample was analyzed. However, they found no connection between final goal commitment and persistence when the model was applied only to females. Pascarella, Duby, and Iverson (1983) reported that neither final goal commitment nor final institutional commitment affected persistence. Moreover, neither of these commitments was found to be affected by academic integration or social integration among a sample of students attending a nonresidential university. Further, in contradiction to the student integration model, they found that the effect of social integration on persistence was negative. Pascarella and Chapman (1983), using a sample of freshmen from 11 postsecondary institutions, found that path analysis yielded

results consistent with the theory. However, inconsistencies were reported when the data were desegregated by type of institution. More recently, Nora (1987) found that neither academic integration nor social integration had significant effects on retention among Chicano students attending three community colleges in southwest Texas.

Although explanations for the conflicting findings have stressed the type of institution under study, the gender, and the ethnic composition of the enrollment, mixed results could also be ascribed to the practice of classifying as dropouts all those students who failed to reenroll at the institution under analysis. By implication, these studies presume that the determinants of transferring and dropping out are the same. Recently, this assumption has been rejected by Tinto (1987). Instead, Tinto asserts that departure behavior is a complex construct in which different types of behaviors can be distinguished, for example, transfer behavior, stopout, and system withdrawal.

Tinto (1987) provides evidence indicating that college participation is a complex phenomenon. When Tinto examined the movements of college entrants among the high school class of 1972, he found that estimates of college departure among 4-year college entrants changed when student departure was broken down by transfers and system dropouts. When a simple definition of dropout was applied, that is, students who discontinue registration at the institution of original enrollment, Tinto found that 27.8% of the 4-year college entrants would have been classified as dropouts. When transfers were excluded and the definition of dropout was narrowed to include students who left the 4-year sector, Tinto reported that the proportion of students who drop out amounted to only 16.5%.

Trend analysis of 4-year college entrants for the 1980 High School Senior Cohort (Jones et al., 1986) corresponding to the fall 1980–Spring 1982 period reveals similar patterns (see Tables 1a and 1b). The proportion of dropouts declines from 35.2% (see Table 1a) to 13.1% (see Table 1b) when transfers and stopouts are not included as dropouts.

Based on these patterns, Tinto (1987) suggests that the effects of academic integration, social integration, final institutional commitment, and final goal

TABLE 1A. Students Movements from Fall 1980 to Spring 1982

	Enrollment Distribution October 1980		Persisters		Dropouts	
	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%
4-yr Public	1,890	66.55	1,202	64.00	688	36.00
4-yr Private	950	33.45	638	67.00	312	33.00
Total	2,840	100.00	1,840	64.79	1,000	35.21

TABLE 1B. Students Movements from Fall 1980 to Spring 1982

	Enrollment Distribution October 1980		Persisters		Transfers		Stopouts		Dropouts	
	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%
4-yr Public	1,890	66.55	1,202	64.00	381	20.00	31	2.00	276	15.00
4-yr Private	950	33.45	638	67.00	210	22.00	5	1.00	97	10.00
Total	2,840	100.00	1,840	64.79	591	20.81	36	1.27	373	13.13

commitment may vary as a function of the type of departure behavior under consideration. This proposition has received empirical support by recent research. After excluding transfers, Williams and Stage (1989) found that social integration and final institutional commitment were significant predictors of persistence to graduation for a national sample of college students. Both final goal commitment and academic integration failed to explain persistence to graduation.

The purpose of this study was twofold: (1) to examine the effect of those variables that the student integration model (Tinto, 1987) presumes to have a direct effect on persistence decisions while the student is enrolled, and (2) to explore whether finance attitudes discriminated between institutional persisters, dropouts, and transfers. Consequently, this study focused on the effects of academic integration, social integration, final goal commitment, final institutional commitment, and finance attitudes on persistence decisions.

METHOD

The Sample

The study population was drawn from the fall 1984 entering freshman class at North Carolina State University. Only first-time freshmen who were still registered at this institution as of April 1985, who were United States citizens under 20 years of age and not married, were selected. These selection criteria were employed on the basis that Tinto's (1987) student integration model deals only with "traditional students." The number of freshmen meeting these criteria was 2,954 of the original freshman class of 3,414.

All 30 items from the institutional integration scale (Pascarella and Terenzini, 1980) and five finance attitude items derived from Nettles, Gosman, Thoeny, and Danridge (1985) were combined into a single instrument and named the Freshman Experience Survey. The survey was administered during April 1985, five weeks before the end of the spring semester. An initial survey and a follow-up yielded 953 surveys (32.3%). These respondents' academic records were reviewed in fall 1985 to identify those who had continued their

education into the sophomore year (institutional persisters, $n = 860$ or 91.2%), those who had voluntarily withdrawn or transferred to another institution (withdrawals, $n = 33$ or 3.5%), or those who had been dismissed for unsatisfactory academic performance (academic dismissals, $n = 50$ or 5.3%). The overall dropout rate for the sample (including voluntary withdrawals and academic dismissals) was comparable to the spring semester attrition rate at the institution (8.8% vs. 9.2%), and similar to attrition rates reported by the extant literature (Stage, 1988: 10%; Terenzini, Lorang, and Pascarella, 1981: 6.2%).

A mail survey and a telephone follow-up conducted at the beginning of fall 1985 was used to determine which of the voluntary withdrawals had transferred to other institutions and which of the voluntary withdrawals were not currently attending any institution of higher education. Of the 903 subjects, 95.2% ($n = 860$) were classified as institutional persisters, 1.6% ($n = 14$) were classified as dropouts, and 3.2% ($n = 29$) were classified as transfers. Because both the student integration model (Tinto, 1987), and allied research (Terenzini, Lorang, and Pascarella, 1981) focus on factors that affect voluntary withdrawal behaviors, students who were dismissed by the institution ($n = 50$) were not included in this study.

A comparison of academic background variables for respondents and nonrespondents was made to determine if the respondent group was representative of the initial population. The comparisons indicated that respondents had slightly higher mean scores on SAT-math (562 vs. 553), SAT-verbal (485 vs. 480), SAT-total (1047 vs. 1033), and high school GPAs (3.39 vs. 3.28). The sample was 10.0% minority and 43.2% female compared to 11.51% and 34.9% respectively, for nonrespondents.

Measurement and Variables

Thirty items developed by Pascarella and Terenzini (1980) were employed to measure the constructs of academic integration, social integration, final goal commitment, and final institutional commitment. Finance attitudes were also included as another predictor of withdrawal decisions. Metzner and Bean (1987) found that finance attitudes had a small but significant effect on intent to persist among nontraditional students attending a midwestern urban institution. Cabrera, Stampen, and Hansen (1990) reported that satisfaction with cost of attendance positively moderated the effects of final goal commitment on persistence decisions for a national sample of college students attending public 4-year institutions. The instrument developed by Nettles, Gosman, Thoeny, and Danridge (1985), comprised of 5 finance items, was used to measure finance attitudes. The 35 items were measured via a Likert scale ranging from (1) strongly disagree to (5) strongly agree.

A series of exploratory and confirmatory factor analyses was conducted to

establish the factor structure among 30 items measuring academic integration, social integration, final goal commitment, and final institutional commitment and among the 5 items presumed to measure finance attitudes. In contrast to previous research (Pascarella and Terenzini, 1980; Terenzini, Lorang, and Pascarella, 1981), factors were extracted via promax rotation (SAS, 1985) in order to explore for the presence of oblique factors. Eigenvalue specification and the scree-test were used as the criteria to determine how many factors should be retained. This approach was consistent with Tinto's (1987) argument that compensatory relationships may exist between academic and social integration and between final goal and institutional commitments.

In addition, the present factor analysis approach permitted a statistical opportunity to replicate Pascarella and Terenzini's (1980) earlier findings without forcing the data analysis to create a specified number of factors. The factor analyses indicated that seven factors should be retained. These factors accounted for 49.52% of the variance observed in the correlation matrix. Six of these factors were similar in structure and item composition to those reported by Pascarella and associates (Pascarella and Terenzini, 1980; Terenzini, Lorang, and Pascarella, 1981) with few exceptions: Three items failed to load in any factor,¹ three items loaded in factors other than the original ones,² and indicators of final goal commitment and indicators of final institutional commitment loaded into two separate factors. The seventh factor grouped together all finance attitude items. Table 2 reports sample items, range of loadings, and reliabilities for the variables employed to measure each construct.

Factor scores, derived from linear combinations among factor loadings, were produced for each scale and subsequently standardized to provide for a common metric across all the scales.³ One variable, peer-group interactions, was employed to measure social integration. Three variables were employed to measure the construct of academic integration: (1) interactions with faculty, (2) faculty concern for student development and teaching, and (3) end of spring GPA, which was extracted from institutional records. The final goal commitment scale and the final institutional commitment were employed to measure the respective constructs (see Table 2). The finance attitudes construct was measured via the finance attitudes. Finance attitudes was subsequently dichotomized; all students whose factor standardized scores were below the mean were classified as dissatisfied (coded 1); otherwise, students were classified as satisfied (coded 2). This reclassification was done to maintain consistency with the procedure employed by Cabrera, Stampen, and Hansen (1990). It was also assumed that by dichotomizing this variable, we would be able to better capture that group of students who were at the highest risk of transferring and dropping out. Further, such a classification facilitates comparisons within the logistic regression model.

TABLE 2. Factor Loadings and Alpha Reliabilities for the Scales

Construct	Variable	Number of Items	Sample Item	Range of Loadings	Cronbach's Alpha
Academic integration	Interactions with faculty	7	My nonclassroom interactions with faculty have had a positive influence on my intellectual growth and interest in ideas.	.48 to .82	0.82
		4	Few of the faculty members I have contact with are generally outstanding or superior teachers.	-.51 to -.80	0.72
Social integration	Peer-group relations	6	The student friendships I have developed at NCSU have been personally satisfying.	-.50 to .83	0.81
		3	I am confident I made the right decision in choosing to attend NCSU.	-.65 to .82	0.63
Ending goal commitment	Goal commitment	2	It is important for me to graduate from college.	-.57 to .88	0.36
		5	I have not experienced financial difficulty while at NCSU.	-.59 to .83	0.71

Data Analysis

Two logistic regression equations were developed to test the effects of academic integration, social integration, final institutional commitment, final goal commitment, and finance attitudes on decisions to dropout vs. persist and on decisions to transfer vs. persist. Maximum likelihood algorithms for microdata were used to estimate the parameters (Backer and Nedler, 1988). This technique employs maximum likelihood estimation, produces asymptotically efficient and unbiased estimators of parameters, and allows the researcher to explore the effects of discrete and continuous variables on dichotomous dependent variables such as the ones in this study (the probability of a student either persisting, dropping out, or transferring).

As pointed out by Tinto (1975), Weiler (1987), Stage (1988), and Cabrera, Stampen, and Hansen (1990), logistic regression analysis not only captures the probabilistic distribution embedded in dichotomized distributions but it avoids violations to the assumption of homogeneity of variance and functional specification that the direct application of OLS regressions on dichotomous-dependent variables are likely to impose (Hanusheck and Jackson, 1977). Since logistic analysis is a nonparametric technique, it is less sensitive to violations of the assumption of multivariate normal distribution as compared to discriminant analysis, and has been found to be a better procedure than discriminant analysis for both prediction and classification purposes (see Press and Wilson 1978).

The significance of each model was assessed via the statistical significance of the model's parameters and the scaled deviance (G^2). Similar to chi-square tests for LISREL models (see Stage, 1989), the G^2 provides an indicator of how well the model fits the data; in general, a good fit is evidenced whenever the ratio between the G^2 and the degrees of freedom is less than one. To assess the contribution of each independent variable on the respective two comparison groups, dropout vs. persister and transfer vs. persister, tests were also conducted by comparing the scaled deviance G^2 statistic of each model with the G^2 of the alternative model (Fienberg, 1983).

RESULTS

Table 3 displays the maximum likelihood estimates for the dropout vs. persister model and the transfer vs. persister model. The corresponding scaled deviance (G^2) statistic, an indication of the goodness of fit (Fienberg, 1983), is also presented for each model. Overall, the models fit the data well. For each model, the G^2 was substantially smaller than the corresponding degrees of freedom. With the exception of institutional commitment, dropout behavior and transfer behavior were explained by different determinants.

TABLE 3. Logistic Regression Results

Factor	Dropout vs. Persister		Transfer vs. Persister	
	Beta	S.E.	Beta	S.E.
Interactions with faculty	-0.026	(0.309)	-0.416	(0.283)
Faculty concern	0.828	(0.362)*	0.358	(0.285)
Academic performance	1.575	(0.474)**	0.266	(0.385)
Peer-group relations	0.145	(0.293)	0.196	(0.226)
Institutional commitment	0.907	(0.244)**	1.764	(0.219)**
Goal commitment	0.056	(0.270)	1.044	(0.321)**
Finance attitudes (1 vs. 2)	1.494	(0.755)*	1.034	(0.562)
Constant	-0.685	(1.404)	2.994	(1.350)*
	$G^2 = 95.1$		$G^2 = 120.0$	
	$df = 846$		$df = 860$	

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

Dropout vs. Persister Model

Faculty concern, academic performance, final institutional commitment, and finance attitudes were statistically significant in explaining the difference between persisters and dropouts. The results indicated that persisters were more satisfied with their ability to finance their college expenditures and were more likely to perceive that faculty were concerned with teaching and student development. Their academic performance, as well as their commitment to the institution, were significantly higher than those exhibited by dropouts. The dropout vs. persister model indicated no significant differences in perceptions about interactions with faculty, satisfaction with peer-group relations, or final goal commitments. Table 4 displays the effects on the fit of the model in deleting significant variables. Results of the hierarchical exclusion of variables indicated that final institutional commitments contributed the most to the model's fit followed by academic performance and finance attitudes. Although faculty concern was found to discriminate between persisters and dropouts, the results of the hierarchical deletion of variables indicated that this academic integration indicator made a small and nonsignificant contribution to the fit of the model.

Transfer vs. Persister Model

Only two variables were statistically significant in discriminating between persisters and transfers (see Table 3). Results indicated that persisters were more committed to the institution and had significantly higher goal aspirations

TABLE 4. Effects of Deleting Significant Variables on the Fit of the Dropout vs. Persistence Model

Model	<i>df</i>	G^2	Change in G^2	Improvement of Fit <i>p</i> -value
1. Saturated model	846	95.1		
2. Deleting institutional commitment	847	108.6	$G^2_2 - G^2_1 = 13.50$	0.0002
3. Deleting GPA	847	108.1	$G^2_3 - G^2_1 = 13.00$	0.0003
4. Deleting finance attitudes	847	99.8	$G^2_4 - G^2_1 = 4.70$	0.0285
5. Deleting faculty concern	847	95.3	$G^2_5 - G^2_1 = 0.20$	0.6547

TABLE 5. Effects of Deleting Significant Variables on the Fit of the Transfer vs. Persistence Model

Model	<i>df</i>	G^2	Change in G^2	Improvement of Fit <i>p</i> -value
1. Saturated model	860	120.0	—	—
2. Deleting institutional commitment	861	232.9	$G^2_2 - G^2_1 = 112.90$	0.0000
3. Deleting goal commitment	861	134.2	$G^2_3 - G^2_1 = 14.20$	0.0002

than transfers. Neither academic performance nor finance attitudes explained decisions to transfer to other institutions. The presence of a significant intercept coupled with a large G^2 in relation to that exhibited by the dropout vs. persister model suggested that other relevant variables in the transfer vs. persister model may not have been captured. As shown in Table 5, both variables significantly contributed to improvements on the fit of the model, but results indicated that final institutional commitment contributed the most.

LIMITATIONS

This study is limited in several ways. First, the results apply to a large public, urban and land-grant university; findings, consequently, may vary as a function of type of control, size, and setting. Second, results are likely to underestimate the effect of final goal commitment in the persist vs. dropout model given potential restriction of range associated with the small number of dropouts and the low alpha reliability associated with the scale. As pointed out by Cabrera, Stampen, and Hansen (1990), the organizational literature defines goal commitment in terms of the intensity of the importance of the goal, the effort the subject is willing to invest in securing such a goal, and the difficulty of the goal itself. The scale employed reflected only goal importance. However, the goal commitment scale used in this study was consistent with the final goal commitment scale employed by research on the student integration model.

Third, inferences as to how the models under consideration apply to gender and ethnicity are beyond the scope of this study. In the logistic regression configuration, appropriate analyses would require the testing of several models across different ethnic-gender combinations. This would warrant considerable large numbers of dropouts and transfers. Stampen and Cabrera (1986), for instance, were limited in exploring such effects when comparing persistence behavior between student aid recipients and nonrecipients even though they had a random sample five times larger than the sample in this.

Fourth, the results on the effect of financial attitudes cannot be extrapolated to other cohorts. Federal financial aid has experienced major changes in both availability of funds and eligibility since the period in which the data were collected (Lewis, 1989). Finally, the results are likely to be affected slightly by self-selection. Although respondents mirror the freshman class in most factors, they showed slightly higher precollege academic ability than nonrespondents. Because of the above reasons, this study should be regarded as an exploratory analysis of the different determinants of decisions to withdraw voluntarily.

CONCLUSIONS AND IMPLICATIONS

Overall, findings lend support to Tinto's proposition about the importance of distinguishing between different types of withdrawal behavior. Results indicate that voluntary withdrawal behavior is a multidimensional construct whereby voluntary dropout behavior and transfer behavior appear to be shaped by different determinants. The results of this study also suggest that contradictory findings reported by the literature on the roles of academic integration, social integration, and commitments reported may be explained, in part, by the type of students exhibiting the various voluntary withdrawal behavior (i.e., dropout vs. transfer) in the particular study under consideration.

The possibility that results can vary as a function of the type of student

leaving the institution has been addressed by Tinto (1975) and supported by research (Pascarella and Terenzini, 1979). Tinto, while relying on cost-benefit theories, has argued that students may be less likely to be committed to an institution when the costs of attending, and/or the perceived benefits associated with another institution make alternatives like a full-time job or transferring to other schools more appealing. Pascarella and Terenzini (1979) observed that GPA, an indicator of academic integration, did not significantly discriminate between persisters and voluntary dropouts among a sample of men attending a residential 4-year private university. Pascarella and Terenzini even suggested that voluntary dropouts may have been made up of transfers seeking enrollment in more prestigious and academically demanding universities. In this study, academic performance was important in discriminating between persisters and dropouts, but failed to do so in the case of transfers and persisters. This finding supports Pascarella and Terenzini's hypothesis and stresses the importance of formulating and including constructs in the student integration model that can illuminate and capture the process affecting transfer decisions.

Bean (1980, 1982a, 1982b) has developed alternative models of college persistence that build on factors that may be relevant for transfer decisions. Bean has argued that understanding student attrition can be enhanced when a student's perceptions are taken into account of the quality of the institution, of the extent to which she perceives an education from a given institution leads to future and rewarding employment, and of the opportunity to transfer to other institutions, along with organizational and personal factors. Overall, research by Bean and associates (Metzner and Bean, 1987; Bean and Vesper, 1990) has been largely supportive of the role that perceptions of institutional quality, institutional fit, and opportunity to transfer have on the persistence criterion. Future research on the student integration model may profit by exploring the extent to which adding these constructs increases the understanding of transfer decisions within the student integration framework.

From a practical perspective, results provide important criteria for developing student retention programs. Findings indicate that programs that focus on academic ability, interactions with faculty, institutional commitment, and a student's finances are likely to reduce propensity to drop out. Programs that emphasize institutional and goal commitments, on the other hand, are likely to reduce propensities to transfer to other institutions. Specific studies are required, however, to validate whether these findings are applicable to the specific institution before being translated into organizational practices. The study also underscores the need to develop longitudinal data bases that follow not only students that persist in the institution but also those who transfer to other institutions. A careful study of the institutions students transfer to can help the institution identify its competitive market (Rowse, 1987), and assess the extent to which academic programs meet the needs of the student.

NOTES

1. These items are (1) "I have no idea what I want to major in," (2) "I am more likely to attend a cultural event (for example, a concert, lecture, or art show) now than I was before coming to NCSU," and (3) "Most students at NCSU have values and attitudes different from my own."
2. Two items from the original factor "faculty concern" loaded in the factor "interactions with faculty": (1) "Most of the faculty members I have had contact with are genuinely interested in teaching" and (2) "Most of the faculty members I have had contact with are interested in helping students grow in more than just academic areas." An item from the original factor "academic and intellectual development" loaded in the factor "faculty concern." This item was "Few of my courses this year have been intellectually stimulating."
3. Bentler and Speckart (1981) recommend standardization to facilitate the comparison among parameter estimates.

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