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The Role of Student Involvement and Perceptions of Integration in a Causal Model of Student Persistence

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THE ROLE OF STUDENT INVOLVEMENT AND PERCEPTIONS OF INTEGRATION IN A CAUSAL MODEL OF STUDENT PERSISTENCE

Joseph B. Berger and Jeffrey F. Milem

This study uses a revised integrated model of undergraduate persistence to examine first-year retention at a private, highly selective research university. Findings from the study provide strong support for use of the model in future studies.

OBJECTIVES AND PERSPECTIVE

Recent work has demonstrated that Astin's (1984) Theory of Involvement provides a means for explaining the process of integration in the first year of college (Milem and Berger, 1997). Prior to this study, the relationship between Astin's (1984) theory of involvement and Tinto's (1975, 1993) interactionist theory of individual student departure had not been explicitly tested in a model of student persistence. Astin's (1984) concepts of "involvement" and Tinto's (1975, 1993) definitions of "integration" are the key conceptual underpinnings in this integrated model of college student persistence (Milem and Berger, 1997).

Astin's theory of involvement is rooted in a longitudinal study of college student persistence (Astin, 1975). The findings of this study suggested to Astin that factors contributing to students' persistence indicated their involvement in college. Further, those factors contributing to students' departure from college suggested a lack of involvement. "Quite simply, student involvement refers to the amount of physical and psychological energy that the student devotes to the academic experience" (Astin, 1984, p. 297). Astin clearly intends for involvement to be behavioral in meaning. "It is not so much what the individual thinks

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or feels, but what the individual does, how he or she behaves, that defines and identifies involvement" (p. 298).

In his Interactionist Model of Student Departure, Vincent Tinto (1993) also supports the role of student involvement in promoting positive educational outcomes for college students. Moreover, he emphasizes the need to better understand the relationship between student involvement and the impact that involvement has on student persistence. Tinto's (1993) revision of his initial conceptual model (Tinto, 1975) includes a more detailed discussion of the interaction between behavior and perception by students as they move toward greater integration with their social and academic environments. Most of the existing empirical literature testing the Tinto model (e.g., Pascarella and Terenzini, 1980; Braxton and Brier, 1989; Halpin, 1990) has focused on the perceptual component of academic and social integration, while ignoring measures of actual behaviors.

While the study by Milem and Berger (1997) extends our knowledge of the persistence process through the use of an integrated model in which student behaviors and perceptions interact to influence the development of academic and social integration, there are three major ways in which this model can be improved. First, the authors examine only the direct effects among variables. Pascarella and Terenzini (1991) note that it is important to examine indirect effects among variables in a causal model. Specification of both direct and indirect effects provides a more complete picture of how different constructs within a model affect each other. Second, the initial model was developed in an exploratory manner and a more parsimonious version of the model may provide a clearer picture of the ways in which these processes work. Third, the initial model used a proxy measure of persistence (students' intent to return) rather than an actual measure of first-year persistence.

Building upon this earlier work, this paper seeks to further our understanding of the relationship between behavioral involvement and perceptual integration in the college persistence process. Path analytic techniques are used to examine the direct and indirect effects of variables in this longitudinal study of student persistence at a highly selective, private, research university. This study improves upon the earlier work of Milem and Berger (1997) by addressing the three concerns raised above: (1) direct and indirect variable effects are calculated, (2) a more parsimonious version of the earlier model is used, and (3) an actual measure of persistence is used in this model.

LITERATURE REVIEW

Although Vincent Tinto's interactionist theory of individual student departure has become near-paradigmatic in the study of undergraduate retention, a recent review of empirical studies testing Tinto's theory indicates that revisions

are needed in order to make this theoretical model more logically internally consistent (Braxton et al., 1997). Braxton et al. (1997) suggest that we look for helper theories or perspectives that can be used to buffer existing constructs in Tinto's model. More specifically, the authors indicate that we need to identify potential sources of academic and social integration.

Scholars have elaborated on Tinto's theory from a number of different perspectives (Braxton et al., 1997), including psychological (e.g., Stage, 1989; Brower, 1992; Peterson, 1993), environmental (e.g., Anderson, 1988), economic (e.g., Cabrera et al., 1990, 1992b), and organizational (e.g., Braxton and Brier, 1989; Cabrera et al., 1992a; Berger and Braxton, 1998). These attempts at theory elaboration provide evidence that Tinto's model, as initially conceptualized, can benefit from the addition of constructs from other theoretical perspectives that can help to improve the explanatory power of the model and to provide information about sources of social and academic integration for undergraduate students.

Bean (1980, 1983) includes two behavioral measures in his model of undergraduate student persistence: (1) student contact with faculty and (2) time spent working away from campus. Bean's (1980, 1983) studies provide evidence that student interaction with faculty and lack of student involvement on campus (due to time spent working away from campus) play important roles in the persistence process. Given the importance that contact with faculty plays in Bean's work, it is surprising that other types of interactions have not been included in attempts to modify Tinto's model. Tinto (1975, 1993) emphasizes the importance of interaction with both faculty and student peers. This model (Tinto, 1975, 1993) suggests a socialization process whereby students who become successfully socialized into the campus academic and social systems are more likely to persist. Additionally, Weidman (1989) argues that formal and informal interactions with faculty and peers play a significant role in the undergraduate socialization process.

It should be noted that other studies of the Tinto model (e.g., Pascarella and Terenzini, 1980; Pascarella and Chapman, 1983; Nora and Rendon, 1990) have included some behavioral measures with perceptual measures in the social and academic integration variables. However, Astin (1977, 1996) warns that researchers should be careful about clearly distinguishing between behavioral and perceptual measures because each measures a different type of datum. A failure to properly distinguish between distinct types of measures makes interpretation of the role that behaviors and perceptions play in the persistence process difficult.

Another new theoretical model recognizes that persistence at a given institution is ultimately the product of ongoing behavioral and perceptual interactions between the student and aspects of the campus environment (Paulsen and St. John, 1997). This model connects what we know about college choice with

existing knowledge about undergraduate persistence. Although the model focuses on financial variables, it is noteworthy because of recognition by the authors that student behaviors and perceptions continually interact and modify each other as part of the ongoing persistence process.

There have also been some key pieces from student outcomes literature that shed light on the role that involvement may play in the undergraduate persistence process. Kuh, Schuh, Whit, and associates (1991) suggest that "involving colleges" promote the best environment for student learning and development. More specifically, Kuh et al. (1991) contend that students are more likely to be satisfied with their education and feel a sense of loyalty to their institution if the institution promotes active involvement on the part of students in campus life and learning. Using language from Tinto's (1975, 1993) work, Kuh et al.'s (1991) findings can be rephrased in the following manner: student involvement leads to greater integration in the social and academic systems of the college and promotes institutional commitment.

In revisiting his original propositions about involvement, Astin (1996) reviews twenty years of national longitudinal data covering thousands of students across the nation and finds that involvement continues to have a powerful impact on students. More specifically, Astin (1996) indicates that involvements with academics, faculty, and student peers are the most potent forms of positive involvement, while noninvolvement with campus life has a powerful negative impact on student outcomes.

Involvement has also been shown to have specific benefits for various subgroups of students on campus, particularly for students from underrepresented populations. For example, Davis (1991) found that increased interaction with peers and faculty, along with increased involvement in organized activities, leads to a lower dropout rate for African-American students. In a related study, Taylor and Howard-Hamilton (1995) found that African-American students on predominantly white campuses who were more involved with clubs and organizations, academic experiences, sports, faculty, and staff interactions, campus employment, and community service were more likely to develop a positive racial identity. Given the positive relationship between racial/ethnic identity development and student persistence (e.g., Queveda-Garcia, 1987; Hughes, 1987; Sedlacek, 1987), Taylor and Howard-Hamilton (1995) demonstrate the important role that involvement can play in the retention of African-American students on campuses where they have been traditionally underrepresented.

Recognizing that involvement, along with students' perceptions of integration, is an important contributing factor in college student persistence, this study builds on the previous work of Milem and Berger (1997) by further refining their combined model for understanding college student persistence. Using a more parsimonious version of Milem and Berger's (1997) model (see Fig. 1), this study adds to our understanding of the relationship between involvement

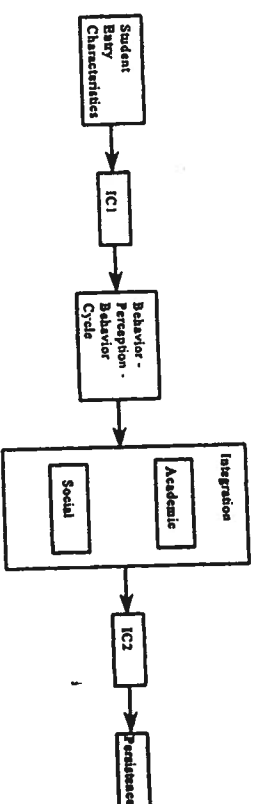


FIG. 1. Conceptual model.

behaviors and integration perceptions by testing the direct and indirect effects of these constructs on student persistence.

METHODS

Design and Sample

A longitudinal panel was constructed from the data collected as part of a larger study of first-year persistence funded by the Office of the Provost at a highly selective, private, residential research university in the Southeast. Data were collected at three points in time from first-time freshmen who entered in the Fall of 1995. Initial data were collected in August 1995. The university has been a regular participant in the Cooperative Institutional Research Program (CIRP) for over 20 years. All first-time freshman students ($n = 1,547$) were administered the Student Information Form (SIF) at the end of freshmen orientation. For the purposes of other research being conducted at the institution, students were also asked to answer 14 supplemental items. Of the original sample of 1,547 students, 1,343 gave permission for the information that they provided to be released to the institution for research purposes (86.2%).

The second set of data were collected in late October 1995, about midway through the fall semester. With the cooperation of the Office of Housing and Residential Education, the Early Collegiate Experiences Survey (ECES) was administered to students in each living unit. The ECES was developed as an early assessment of student behaviors and perceptions concerning a wide range of issues directly and indirectly related to the process of college student persistence. Items on this survey included measures of faculty teaching behaviors, student involvement, perceptions of the campus environment and campus climate, reactions to stress, and satisfaction. A total of 1,237 surveys were returned (a response rate of 79.9%).

A third survey, the Freshman Year Survey (FYS), occurred in March 1996 and was administered in the same manner as the ECES. The FYS was devel-

oped directly from instruments that had been used in previous studies of the Tinto model (Pascarella and Terenzini, 1980). In addition, overlapping items from the ECES that measure aspects of involvement were included on the FYS. A total of 1,061 surveys were returned (a response rate of 68.5%).

Data from all three collection points were matched by social security number and merged into one data set. The result was a longitudinally constructed panel consisting of 718 individuals (46.4% of the entering freshman class) for whom we had data at each of the three time points. The institution has an extremely low attrition rate; only 57 students (approximately 8%) did not return to campus for the fall semester of their sophomore year. Hence, the measure of first-year persistence that serves as the dependent variable in this study was highly skewed and had little variance. In order to compensate for this potential methodological problem, a random sample of half of the 661 persisters was chosen to be included in the statistical analysis of this study. In effect, this strategy provides a means for oversampling the nonpersisters vis-à-vis the persisters. The resulting sample is purposively stratified so that there is enough of a numerical balance between persisters and nonpersisters that regression-based analysis can be properly conducted. This allows for the use of an actual measure of persistence, rather than a proxy measure, which had been used in previous studies of low-attrition environments (e.g., Milem and Berger, 1997; Berger and Braxton, 1998). Moreover, this strategy is consistent with previous discussions of appropriate methods for making purposeful adjustments of highly skewed distributions (Sellitz, Wrightsman, and Cook, 1976). The random subsample was compared with the larger sample from which it was drawn, using *t*-test comparisons, and no statistically significant differences were found. Hence, the resulting subsample used for analysis in this study consists of 387 individuals: 330 persisters (84.3%) and 57 nonpersisters (15.7%).

Variables

Building upon the earlier integrated model (Milem and Berger, 1997), seven sets of independent variables are used to test the modified model. These include: (1) student background characteristics, (2) initial commitment, (3) mid-fall behavioral/involvement measures, (4) mid-fall perceptual measures, (5) mid-spring behavioral/involvement measures, (6) academic and social integration, and (7) subsequent commitment. The variables are listed in their hypothesized order of causal sequence. The dependent variable in this study is a measure of student persistence from the first to second year of college.

Of the seven sets of independent variables, student background characteristics, initial commitment, student perceptions of institutional and peer support, academic and social integration, and subsequent commitment are all derived from previous research exploring the integrated model (Milem and Berger,

THE ROLE OF STUDENT INVOLVEMENT

1997). Variables measuring involvement behaviors (during mid-fall and mid-spring) are derived via exploratory factor analyses. The factor analyses were performed as a means for further reducing the large number of involvement factors initially identified in the exploratory development of this model (Milem and Berger, 1997). The same items were included in the factor analyses and a larger factor structure was discovered that reduced the original eight involvement factors to a more efficient three-factor structure. Table 1 defines all of the variables used in this study. Table 2 provides the means, standard deviations, and variance inflation factors for these variables and Table 3 provides the correlations among all of the variables used in the path analysis. The factor loadings and alpha reliabilities for the six behavioral involvement measures and two measures of perceived support can be found in Table 4.

Multivariate Analysis

The modified persistence model was tested causally through a path analysis. Path analysis is a data-analytic technique suggested as a multivariate statistical procedure for studies of persistence. Exogenous variables in the model include the measures of student background characteristics. All remaining variable constructs are defined as being endogenous.

A series of structural equations using PLS Path (Sellin, 1989), a computer program that is designed for path analysis using a partial least squares technique developed by Wold (1982), was conducted to estimate the direct and indirect effects of each of the constructs included in the model. Each equation produces standardized partial regression coefficients, also known as beta weights (β). These regression coefficients allow us to understand the direct and indirect effects of each construct with the effects of all other constructs in the model being held constant.

LIMITATIONS

There are several limitations inherent in this research. First, this sample is drawn from a highly selective, private research university with a very homogeneous population relative to the general postsecondary population. Therefore, these findings may not be generalizable to other populations. Second, only a subsample of the data was used for analysis because of the highly skewed nature of the dependent variable. While this artificially deflates the response rate of persisters, this methodological choice allows for the use of the actual measure of persistence as the dependent variable rather than forcing the use of a proxy measure of intent to return. Third, this study focuses only on volunteer persistence from the first to second year of college. Therefore, it does not account for later reenrollments (Eckland, 1964) nor does it account for withdrawal in subsequent years of college (Berger and Braxton, 1998).

TABLE 1. Listing and Definition of Variables

<i>Background Characteristics</i>	
1. Race: Black (RACEB)	Student racial/ethnic identity (nonblack = 1, black = 2) SIF Item
2. Race: White (RACEW)	Student racial/ethnic identity (nonwhite = 1, white = 2) SIF Item
3. Political View: Liberal (POLVW)	Student political views (far right = 1, far left = 2) SIF Item
4. Gender (GENDER)	Student gender (male = 1, female = 2) SIF Item
5. High School Grade-Point Average (HSGPA)	Self-reported high school grade-point average (C- or less = 1, A or A+ = 8) SIF Item
6. Family Income (INCOME)	Estimated parental income (less than \$6,000 = 1, \$200,000 or more = 14) SIF Item
<i>Initial Levels of Commitment</i>	
7. Initial Institutional Commitment (IC1)	Student's choice of institution (less than third = 1, first = 4) SIF Item
<i>Fall Involvement Behaviors</i>	
8. Fall Faculty Involvement (FFAC)	Composite of six ECES items measuring how often students reported involvement with faculty (never = 1, very often = 4)
9. Fall Peer Involvement (FPEER)	Composite of 18 ECES items measuring how often students reported involvement with peers (never = 1, very often = 4)
10. Fall Noninvolvement (FNO)	Composite of seven ECES items measuring how often students reported noninvolvement (never = 1, very often = 4)
<i>Intermediate Perceptions</i>	
11. Perceived Institutional Support (PINSP)	Composite of four ECES items measuring the extent to which students reported perceiving a supportive institutional environment (strongly disagree = 1, strongly agree = 4)
12. Perceived Peer Support (PPRSP)	Composite of five ECES items measuring the extent to which students reported perceiving a supportive peer environment (strongly disagree = 1, strongly agree = 4)
<i>Spring Involvement Behaviors</i>	
13. Spring Faculty Involvement (SFAC)	Composite of six FYS items measuring how often students reported involvement with faculty (never = 1, very often = 4)
14. Spring Peer Involvement (SPEER)	Composite of 18 FYS items measuring how often students reported involvement with peers (never = 1, very often = 4)
15. Spring Noninvolvement (SNO)	Composite of seven FYS items measuring how often students reported non-involvement (never = 1, very often = 4)

TABLE 1. (Continued)

<i>Integration</i>	
16. Academic Integration (AI)	A composite of 10 FYS items indicating how well students agree with the following statements (strongly disagree = 1, strongly agree = 4): (1) satisfied with my academic experience; (2) satisfied with the extent of my intellectual development; (3) my interest in ideas and intellectual matters has increased; (4) my academic experience has had a positive influence on my intellectual growth and interest in ideas; (5) my interpersonal relationships with other students have had a positive influence on my intellectual growth and interest in ideas; (6) my interpersonal relationships with other students have had a positive influence on my personal growth, values, and attitudes; (7) few of the faculty members are genuinely interested in teaching—reverse scored; (8) few of the faculty members are genuinely outstanding teachers—reverse scored; (9) most faculty members are interested in students; and (10) most faculty members are interested in helping students grow in more than just academic areas (Alpha estimate is 0.74 for this composite measure)
17. Social Integration (SI)	A composite of 10 FYS items indicating how well students agree with the following statements (strongly disagree = 1, strongly agree = 4): (1) interpersonal relationships yield positive intellectual growth; (2) have developed close interpersonal relationships; (3) interpersonal relationships yield positive personal growth; (4) it is difficult to make friends—reverse scored; (5) few would listen and help if I have a problem—reverse scored; (6) satisfied with opportunities to interact with faculty; (7) developed close relationship with faculty; (8) interact with faculty positively on intellectual growth; (9) interact with faculty positively on personal growth; and (10) interact with faculty positively on career choice (Alpha estimate is 0.72 for this composite measure)
<i>Subsequent Commitments</i>	
18. Subsequent Institutional Commitment (IC2)	A composite of three FYS items indicating how well students agree with the following statements

TABLE 1. (Continued)

	ments (strongly disagree = 1, strongly agree = 4): (1) it is not important to graduate from this university—reverse scored; (2) I am confident that I made the right decision to attend this university; and (3) I am sure that this university is the right place for me (Alpha estimate is 0.72 for this composite measure)
Persistence	
19. Persistence (PERSIST)	Institutional data indicating whether the student returned to the university the following fall semester (did not return = 0, persisted = 1)

RESULTS

Table 5 summarizes the direct effects from the path analysis. Three entry characteristics—being black ($\beta = .12^{**}$), being white ($\beta = .11^{**}$), and being female ($\beta = .10^{**}$)—have statistically significant direct effects on initial levels of institutional commitment. Initial levels of institutional commitment

TABLE 2. Means, Standard Deviations, and Variance Inflation Factors

Variable	Mean	S.D.	VIF
RACEW	1.84	0.36	1.19
RACEB	1.03	0.17	1.25
SEX	1.49	0.50	1.21
HSGPA	7.11	0.97	1.12
INCOME	10.81	2.82	1.15
POLVIEW	2.74	0.82	1.09
IC1	3.26	0.96	1.10
FPEER	46.14	5.98	1.92
FFAC	8.46	2.52	1.78
FNO	12.99	3.96	2.27
PINSP	12.59	3.96	1.49
PPRSP	10.21	1.81	1.64
SPEER	48.97	6.79	2.66
SFAC	10.38	4.01	3.00
SNO	14.84	4.26	2.89
AI	25.76	5.53	1.63
SI	25.30	4.26	2.31
IC2	13.16	3.09	2.50
PERSIST	0.86	0.34	N/A

TABLE 3. Correlation Matrix

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1. RACEB	1.00																		
2. RACEW	-.35**	1.00																	
3. POLVW	.05	-.12*	1.00																
4. GENDER	.04	-.05	.12*	1.00															
5. HSGPA	-.09	.12*	.06	.13*	1.00														
6. INCOME	-.15**	.18**	.03	.02	-.12*	1.00													
7. IC1	.04	.14*	.02	.10*	.11*	-.06	1.00												
8. FFAC	-.01	.03	.06	-.05	-.07	.08	-.01	1.00											
9. FPEER	.02	.09	.03	.14**	-.05	.21**	.08	.36**	1.00										
10. FNO	.01	-.03	.12*	.07	-.07	.01	-.22**	.33**	.05	1.00									
11. PINSP	-.13*	.08	.06	.17**	.14**	.02	.07	.12*	.12*	-.35**	1.00								
12. PPRSP	-.02	.03	.11	.09	.02	.04	.19**	-.16**	.24**	-.45**	.24**	1.00							
13. SFAC	-.01	.09	-.16**	-.11*	-.10*	.10	-.07	.37**	.15**	.12*	-.03	-.09	1.00						
14. SPEER	-.01	.10	-.07	.04	-.07	.19**	.04	.18**	.52**	-.08	-.01	.13*	.55**	1.00					
15. SNO	.03	.01	.00	-.03	-.11*	.04	-.07	.16**	.02	.52**	-.29**	-.33**	.54**	.27**	1.00				
16. AI	-.02	.09	-.09	.03	.05	-.01	.05	.22**	.15**	-.17**	.30**	.16**	.45**	.34**	.02	1.00			
17. SI	.02	.08	.03	.19**	.09	.02	-.06	.10*	.25**	-.42**	-.24**	.51**	.11*	.30**	-.42**	.23**	1.00		
18. IC2	.02	.05	-.07	.02	.07	-.07	.15**	-.15**	.14**	-.52**	.29**	.41**	-.13*	.19**	-.56**	.26**	.65**	1.00	
19. PERSIST	-.10*	.05	-.00	-.12*	.06	-.03	-.02	-.06	.03	-.12*	-.06	-.10	-.16**	.07	-.00	-.09	.03	.07	1.00

* $p \leq .05$, ** $p \leq .01$.

TABLE 4. Results of Factor Analyses

Factor Items	Fall Factor Loadings	Spring Factor Loadings
<i>Peer Involvement</i>		
attendance campus movies, plays, recitals, etc.	0.46	0.46
helped another student	0.41	0.51
participated in organized study	0.48	0.52
discussed course content with other students	0.48	0.38
studied with other students	0.53	0.65
talked out of class with classmates	0.29	0.38
socialized with friends	0.51	0.46
participated in greek activities	0.31	0.25
gone on a date with a student	0.34	0.35
drank beer, wine, liquor	0.32	0.29
performed volunteer work	0.42	0.45
participated in student clubs/groups	0.48	0.40
participated in residence life activities	0.41	0.51
participated in campus religious life	0.42	0.41
participated in intramurals	0.34	0.27
exercised at recreation center	0.29	0.28
Alpha Reliabilities	0.75	0.70
<i>Faculty Involvement</i>		
talked with faculty outside of class	0.71	0.77
socialized with faculty	0.51	0.77
had lunch/dinner with faculty	0.78	0.70
been a guest in professor's home	0.74	0.69
had coffee/soft drink with professor	0.75	0.73
met with a faculty during office hours	0.44	0.46
Alpha Reliabilities	0.77	0.86
<i>Noninvolvement</i>		
missed class due to illness	0.71	0.77
failed to finish coursework on time	0.48	0.55
overslept & missed class/appointment	0.47	0.51
felt like leaving college	0.29	0.37
reconsidered decision to enroll here	0.35	0.30
felt homesick	0.38	0.28
felt like I did not belong here	0.43	0.53
Alpha Reliabilities	0.77	0.79
<i>Perceived Institutional Support (PINSIP)</i>		
faculty concerned about me	.659	
staff concerned about me	.656	
ask faculty for help in difficulty	.674	
professors recognize me out of class	.675	
instructors discuss course out of class	.718	
Alpha Reliability	.723	

THE ROLE OF STUDENT INVOLVEMENT

TABLE 4. (Continued)

Factor Items	Fall Factor Loadings	Spring Factor Loadings
<i>Perceived Peer Support (PPSP)</i>		
there is a student in whom I confide	.573	.1
peers with whom I feel comfortable	.774	
peers who share views and beliefs	.783	
opportunities to develop friendships	.735	
Alpha Reliability	.773	

have a direct negative effect ($\beta = -.09^*$) on noninvolvement, but do not seem to significantly affect early involvement with peers and faculty. Several entry characteristics directly affect early involvement. Students with higher high school grade-point averages are less likely to be involved with faculty ($\beta = -.09^*$) and are also less likely to be noninvolved ($\beta = -.14^{**}$). Involvement with peers in the first part of the fall semester is positively affected by being female ($\beta = .15^{**}$) as is being from a family with higher income levels ($\beta = .19^{***}$). Being female also positively affects perceptions of institutional support ($\beta = .20^{**}$) and perceptions of peer support at the end of the fall semester. Perceptions of institutional support are also positively predicted by high school grade-point average ($\beta = .11^*$), but are negatively predicted by being African-American ($\beta = -.12^{**}$).

The direct effects of entry characteristics play a diminishing role at later stages in the model. Only one entry characteristic has a significant direct effect on spring involvement. Students who are politically liberal are less likely to be involved with faculty in the spring ($\beta = -.14^{**}$). There is only one direct effect on academic or social integration, that being females are more likely to be socially integrated ($\beta = .13^{**}$). Being African-American is the one direct effect on persistence and it is negative ($\beta = -.13^*$).

All three measures of fall involvement have statistically significant direct effects on perceptions of peer and institutional support. Noninvolvement negatively impacts both perceptual measures: institutional support ($\beta = -.39^{***}$) and peer support ($\beta = -.44^{***}$). In contrast, peer involvement in the fall semester positively affects institutional support ($\beta = .09^*$) and peer support ($\beta = .29^{***}$). Involvement with faculty during the fall semester has a positive effect on perceptions of institutional support ($\beta = .19^{***}$), but a negative effect on perceptions of peer support ($\beta = -.12^{**}$). Involvement with faculty in the fall semester positively predicts subsequent involvement with faculty in the spring semester ($\beta = .35^{***}$) and subsequent institutional commitment ($\beta = .11^*$). Early involvement with peers has a statistically significant direct effect on subsequent involvement with peers ($\beta = .51^{***}$). Noninvolvement in the

TABLE 5. Standardized Parameter Estimates of Direct Effects for Path Analysis

Variables	IC1	FFAC	FPEER	FNO	PINSP	PPRSP	SFAC	SPEER	SNO	AI	SI	IC2	PERSIST
RACEB	.12**	.04	-.03	.02	-.12**	.02	.02	-.01	.03	.03	.03	.03	-.13*
RACEW	.11**	.03	.08	.02	.01	.04	.07	.04	-.03	.04	.02	.03	-.03
POLVW	-.06	-.06	-.03	.10*	-.01	-.07	-.14**	-.04	-.07	.03	.00	-.01	.03
GENDER	.10**	-.07	.15**	.05	.20***	.11*	-.06	.02	-.03	.03	.13**	.04	.03
HSGPA	.05	-.09*	.05	-.14**	.11**	-.04	-.07	-.05	-.04	.06	.04	.07	.02
INCOME	-.03	.07	.19***	-.01	-.01	-.00	.04	.03	.03	-.02	-.04	.02	.03
IC1		-.04	.01	-.09*	.08	-.06	-.04	.04	-.01	.06	-.02	.08*	.03
FFAC					.19***	-.12**	.35***	.04	-.02	.05	.04	.11*	.08
FPEER					.09*	.29***	.09	.51***	.04	-.05	-.09	.03	.06
FNO													
PINSP					-.39***	-.44***	-.04	-.16**	.43***	-.12**	-.06	-.08*	-.15**
PPRSP							-.07	-.15**	-.10*	.23***	.04	-.01	-.09
SFAC							-.03	.02	-.11*	.09*	.34***	.05	.06
SPEER										.21***	-.11*	.16**	.14*
SNO										.13**	.42***	.12*	-.07
AI										-.19***	-.22***	-.41***	-.11*
SI												.09*	.07
IC2												.39***	.14**
R ²	.059**	.031*	.056*	.044**	.239***	.265***	.159***	.289***	.207***	.289***	.391***	.434***	.247***

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

fall semester positively predicts future noninvolvement in the spring ($\beta = .43***$). Early noninvolvement is also a statistically significant negative predictor of spring involvement with peers ($\beta = -.16**$), academic integration ($\beta = -.12**$), subsequent institutional commitment ($\beta = -.08*$), and persistence ($\beta = -.15**$).

The variable measuring perceptions of institutional support is a negative predictor of both spring involvement with peers ($\beta = -.15**$) and spring noninvolvement ($\beta = -.10*$). It is also a positive predictor of academic integration ($\beta = .23***$). Students who perceive a supportive peer environment are less likely to be noninvolved in the spring ($\beta = -.11*$), but more likely to be integrated academically ($\beta = .09*$) and socially ($\beta = .34***$).

Measures of spring involvement also show some significant direct effects. Involvement with faculty during the spring semester has significant effects on all of the subsequent variables in the model. This measure of faculty involvement is a negative predictor of social integration ($\beta = -.11*$), but a positive predictor of academic integration ($\beta = .21***$), subsequent institutional commitment ($\beta = .16**$), and persistence ($\beta = .14*$). Peer involvement in the spring semester has statistically significant effects on academic integration ($\beta = .13**$), social integration ($\beta = .42***$), and subsequent institutional commitment ($\beta = .12*$). Noninvolvement in the spring negatively predicts all subsequent variables in the model, including academic integration ($\beta = -.19***$), social integration ($\beta = -.22***$), subsequent institutional commitment ($\beta = -.41***$), and persistence ($\beta = -.11*$).

Academic and social integration are both positive predictors of subsequent institutional commitment ($\beta = .09*$) and ($\beta = .39***$) respectively. Social integration also has a statistically significant direct effect on persistence ($\beta = .14**$) as does subsequent institutional commitment ($\beta = .38***$).

Table 6 describes the significant indirect effects for this model. Holding politically liberal views has significant negative indirect effects for perceptions of institutional support ($\beta = -.08*$), spring involvement with peers ($\beta = -.08*$), and spring involvement with faculty ($\beta = -.18***$). Being female has a statistically significant positive indirect effect on social integration ($\beta = .09*$). Being African-American has a negative indirect effect on persistence ($\beta = -.07*$). Being a student from a family with a higher annual income has a statistically significant positive indirect effect on peer involvement in the spring ($\beta = .09*$).

There are several indirect effects associated with levels of involvement in the fall, with noninvolvement producing most of these significant effects. Early fall, with noninvolvement has positive indirect effects on subsequent noninvolvement ($\beta = .13**$) and negative indirect effects on spring involvement with peers ($\beta = -.06*$), academic integration ($\beta = -.17**$), social integration ($\beta = -.08*$), subsequent institutional commitment ($\beta = -.10*$), and persistence

TABLE 6. Standardized Parameter Estimates of Statistically Significant Indirect Effects for Path Analysis

Variables	PINSP	PPRSP	SFAC	SPEER	SNO	AI	SI	IC2	PERSIST
RACEB									-.07*
RACEW									
POLYW	-.08*		-.18***	-.08*					
SEX							.09*		
HSGPA				.09*					
INCOME									
IC1								.07*	
FFAC				.19***					
FPEER				-.06*	.13*	-.17**	-.08*	-.10**	-.16**
FNO						-.07*			
PINSP									.07*
PPRSP									
SFAC								.07*	.12**
SPEER								-.11**	-.20***
SNO									
AI									.15**
SI									

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

($\beta = -.16^{**}$). Early faculty involvement has a positive indirect effect on subsequent institutional commitment ($\beta = .07^{*}$) and early involvement with peers has a similar effect on later peer involvement ($\beta = .19^{***}$).

Perceptions of institutional and peer support each have one significant indirect effect. Perceptions of institutional support demonstrate a negative indirect effect on academic integration ($\beta = .07^{*}$), while perceptions of peer support have a positive indirect effect on persistence ($\beta = .07^{*}$). Involvement with peers in the spring has positive indirect effects on subsequent institutional commitment ($\beta = .07^{*}$) and persistence ($\beta = .12^{**}$). Spring noninvolvement has negative indirect effects on subsequent institutional commitment ($\beta = -.11^{*}$) and persistence ($\beta = -.20^{***}$). Social integration has a positive indirect effect on persistence ($\beta = .15^{**}$).

DISCUSSION

The results of this study confirm the utility of using a combined model that accounts for both the behavioral and perceptual components to describe the persistence process during the first year of college. There are several interesting patterns of direct, indirect, and total effects (see Table 7 for a summary of total effects on academic integration, social integration, subsequent institutional commitment, and persistence) that emerge regarding student entry characteristics. For example, being female has positive effects throughout the model, particularly with regard to peer relationships. Family income also appears to play a

TABLE 7. Total Causal Effects (Standardized) on Integration, Subsequent Commitment, and Persistence

Independent Variable	Academic Integration	Social Integration	Institutional Commitment 2	Persist
RACEB	.05	-.01	.03	-.20***
RACEW	.08	.06	.05	.01
POLYW	-.02	-.06	-.07	-.02
GENDER	.02	.22***	.05	.04
HSGPA	.04	.05	.11*	.02
INCOME	.03	.02	.12**	.06
IC1	.08	.03	.18***	.07
FFAC	.11*	.07	.18***	.13**
FPEER	.01	-.04	.06	.11*
FNO	-.29***	-.14**	-.18***	-.31***
PINSP	.16**	-.01	.04	-.05
PPRSP	.08*	.40***	.10*	.13**
SFAC	.21***	-.11*	.21***	.19***
SPEER	.13**	.42***	.19***	.05
SNO	-.19***	-.22***	-.52***	-.31***
AI			.09*	.10*
SI			.39***	.29***
IC2				.38***

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

role in the development of positive peer relationships and subsequent institutional commitment.

High school grade-point average seems to be an important predictor as it has three statistically significant direct effects on early involvements and perceptions and a statistically significant total effect on subsequent institutional commitment. It is interesting that high school grade-point average has a negative influence on involvement with faculty in the fall. While this seems counterintuitive, this finding most likely reflects the fact that early in the year students are most likely to interact with faculty if they are having academic difficulty. Potentially, the most troubling finding in this study concerns the persistence of African-American students. While African-American students enter the institution with strong levels of institutional commitment, they are less likely to perceive the institution as being supportive and less likely to persist. It is alarming that even after controlling for a number of entry characteristics, being black is the third largest negative predictor of persistence, trailing only the two measures of noninvolvement. Of all the entry characteristics, this is the only measure that has a statistically significant effect on persistence. Explanations for this pattern of findings regarding the experience of African-American student

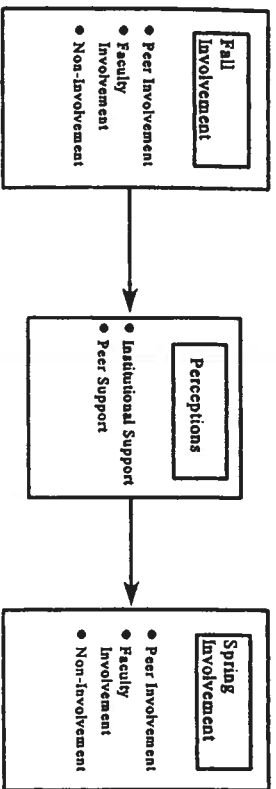


FIG. 2. Behavior-perception-behavior cycle.

at this institution may be found in a study of the campus racial climate at this institution. A new framework for studying the campus racial climate has been suggested that can be applied in studies of persistence as well as a range of other outcomes for undergraduates (Hurtado et al., 1998). The framework is generated from a multidisciplinary analysis of empirical studies that relate to the campus racial climate in higher education.

Perhaps the most important pattern of findings in this study revolves around the cycle of fall involvement behaviors-intermediate perceptions-spring involvement behaviors (see Fig. 2). Early involvement in the fall semester positively predicts spring involvement and has significant indirect effects on social integration, academic integration, subsequent institutional commitment, and persistence. All three early involvement measures also have significant total effects on persistence. It is particularly interesting that the three types of involvement measures seem to exert very different types of effects. Involvement with faculty in the fall has statistically significant positive and negative direct and indirect effects. The pattern of positive direct effects suggests that early involvement with faculty increases the likelihood that students will have positive perceptions of institutional support and subsequent institutional commitment. However, fall faculty involvement has a negative direct effect on perceptions of peer support. This may indicate that students who are not fitting in socially are turning to faculty for a source of support and that early involvement with faculty may help some students who are struggling to find a niche on campus.

Early peer involvement appears to strengthen perceptions of institutional and social support and ultimately persistence. In contrast, early noninvolvement has a number of negative effects throughout the model. In fact, students who are not involved early in the fall semester tend to stay uninvolved throughout the year. Moreover, they are less likely to perceive the institution or their peers as supportive, less likely to become integrated, and as a result, less likely to per-

sist. It is interesting to note that the initial level of institutional commitment is a negative predictor for noninvolvement, suggesting that students without high levels of institutional commitment are less likely to become involved and less likely to persist. While this makes sense, and it supports Tinto's (1975, 1993) formulations about the role of institutional commitment, this finding suggests that it is important to identify these students very early in their first year and try to get them to become involved with some aspect of campus life, academic or social. It may also be that the interests of some of these students do not match well with what is offered at the institution and that a better job needs to be done by the institution in matching the needs of students with programs and services that are offered. These findings suggest that previous research on first-year retention has underestimated the role that involvement (or lack of involvement) plays in student persistence. This also suggests that with so much focus being paid to the concept of integration, not enough attention has been given to students who are not becoming engaged in the early stages of the integration process on campus.

Positive perceptions of institutional and peer support generally tend to lead to lower levels of noninvolvement in the spring and greater levels of academic and social integration. Positive perceptions of peer support also have positive total effects on subsequent institutional commitment and persistence. However, positive perceptions of institutional support have a negative effect on peer involvement in the spring. This is most likely a manifestation of students who are not fitting in socially, but are finding other sources of support from faculty and staff members. This conclusion is supported by the finding that involvement with faculty in the spring has a negative total effect on social integration. This pattern of involvement suggests that faculty may play a very important role in the term of involvement process, particularly for those students who are not fitting in socially. This assertion is supported by the fact that involvement with faculty, in both the fall and spring, has a positive total effect on persistence.

As expected, academic and social integration are important predictors of subsequent institutional commitment. They also have statistically significant total effects on persistence, although social integration seems to play a larger role than does academic integration. This lends further support to our assertion regarding the important role that faculty play for students who are struggling socially. Given the importance of social integration in this model, it may be that faculty involvement is helping a number of students to persist who may not otherwise.

The negative effects of having more liberal political views in this model of student persistence are dramatic. The only positive direct effect predicts fall noninvolvement (a negative outcome) and the other statistically significant direct effect is a negative path to spring involvement with faculty. In addition, the measure of more liberal political views has more statistically significant indirect

tion has particular salience at highly selective institutions where many students come knowing exactly what to expect and those expectations are congruent with institutional expectations. Less selective and/or less homogeneous institutions may not exert this effect quite so strongly. Hence, future studies should examine this model in different types of institutional contexts to better understand the influence of institutional type on the integration process.

The theoretical redefinition of the integration process has important implications for practice. Viewing integration in this manner changes the approach to improving retention rates on campus. Traditionally, the concept of students changing so as to adapt to campus values and norms has become institutionalized as the prevailing administrative philosophical viewpoint on many college campuses. The findings from this study suggest that if we are serious about improving retention on campus, particularly for traditionally underrepresented groups, then we must find educationally sound ways to ensure that campus environments reflect the norms and values of a wider variety of students rather than the norms and values of a select few.

Finally, the results of this study indicate that involvement with student peers and faculty generally has positive benefits for first-year students. However, recent work by Pascarella, Whitt, Nora, Edison, Serra Hagedorn, and Terenzini (1997) suggests that some types of peer involvement are more beneficial than others and some types of first-year involvement can have negative consequences for students. As such, future studies should carefully articulate and more fully investigate the effect of different types of involvement on student success.

CONCLUSION

The examination of both direct and indirect effects provides further evidence that the elaboration of Tinto's (1975, 1993) model of individual student departure with constructs from Astin's (1984) theory of involvement provides a useful combined model of persistence. By including behaviorally based measures of involvement, this model provides a better explanation of how students interact, in terms of behaviors and perceptions, with the college environment as a precursor to academic and social integration. Moreover, this model demonstrates how behavior and perceptions are part of the same process whereby each continually modifies the other as the student becomes increasingly (or in some cases, decreasingly) integrated into the social and academic systems on campus. The inclusion of behavioral measures also provides an improved means for suggesting policies and practices that may be used to improve retention on specific campuses. It is our hope that this new model will be useful to other scholars who explore these questions at a wide variety of college and university campuses.

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A SYSTEMIC, STUDENT-CENTERED STUDY OF UNIVERSITY SERVICE

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This paper discusses the methods and findings of the Student Focus Project, a six-month study of student perceptions of service at a large university in Brisbane, Australia. The study paneled 24 focus groups of undergraduate students to assess their beliefs about a pretested set of questions concerning positive and negative aspects of university life, successes and frustrations with university service, attempts to overcome the obstacles of university life, and what students expect from their relationship to the university. Of the themes identified in the Student Focus study, it was found that "malignant bureaucracy" and the "balkanization of information" are systemic factors that negatively influence student perceptions of the quality of university service. It was also found that student strategies for service recovery can contribute to the overall confusion and poor performance of university services.

Quality service for students has become an important theme of higher education (Chaffee, 1990; McMillen, 1991; Sines and Duckworth, 1994; Soutar and McNeil, 1996; Soutar et al., 1994). For example, Chaffee (1990) offers educators in the 1990s the following watchwords: "The primary value that should motivate all action is improvement in quality services" (p. 60). Sines and Duckworth (1994) agree:

It's time for educational institutions to face two facts: they are in a competitive battle for students, and students are customers . . . students are increasingly seeking out those institutions offering them the treatment they believe they deserve as paying customers. (p. 2)

In pursuing the aim of service quality, educational providers are beginning to understand that perceptions of service transcend the area of quality teaching and encompass the students' overall experience with the university (Sines and Duckworth, 1994, p. 3).

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