1997

A Modified Model of College Student Persistence: Exploring the Relationship Between Astin's Theory of Involvement and Tinto's Theory of Student Departure

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This study provides insight into 1st-year undergraduate persistence by using behavioral measures, based on Astin's theory of involvement, to further our understanding of Tinto's theory of student departure. The findings from this study support using an integrated model in which student behaviors and perceptions interact to influence the development of academic and social integration.

Pascarella and Terenzini (1991) noted that Tinto's interactionalist model of individual student departure is "quite similar to Astin's (Theory of Involvement) in its dynamics" (p. 51). It is rather surprising that even though Tinto's interactionalist model of student departure (1975, 1993) and Astin's theory of involvement (1984) both deal with the issue of persistence in college and are among the most widely cited approaches in the higher education literature, the relationship between the two rarely has been studied empirically. We used longitudinal data to empirically test a conceptual model of student persistence that integrates behavioral constructs from Astin's work to further specify aspects of Tinto's model.

CONCEPTUAL OVERVIEW

"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 was clearly describing involvement as behavioral in meaning. "It is not so much what the individual thinks or feels, but what the individual does, how he or she behaves, that defines and identifies involvement" (p. 298). This theory of involvement is rooted in a longitudinal study of college student persistence from which Astin (1975) concluded that factors contributing to persistence were associated with students' involvement in college life, whereas, factors contributing to departure from college were associated with students' noninvolvement.

Astin (1984) suggested five basic postulates in his theory: (a) involvement means the investment of physical and psychological energy in different "objects" that range in the degree of their specificity; (b) involvement occurs along a continuum, with different students investing different amounts of energy in various objects at various times; (c) involvement includes quantitative and qualitative components; (d) the amount of student learning and personal development is directly proportional to the quality and quantity of involvement; and (e) "the effectiveness of any educational practice is directly related to the capacity of that policy or practice to increase involvement" (p. 298). Astin maintained that the final two postulates provide helpful "clues for designing more effective educational programs for students" (p. 298).

In his interactionalist model of student departure, Vincent Tinto (1993) also supported the critical role of student involvement in positive educational outcomes for college students. Moreover, he emphasized the need to better understand the relationship between student involvement in learning and the impact that involvement has on student persistence. In Tinto's words, "There appears to be an important link between learning and persistence that arises from the interplay of involvement and the quality of student effort. Involvement with one's peers and with the faculty, both inside and outside the classroom, is itself positively related to the quality of student effort and in turn to both learning and persistence" (Tinto, 1993, p. 71).

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Tinto argued that learning is linked to persistence given that "the more students learn, the more likely are they to persist" (Tinto, 1993, p. 131).

Tinto's (1993) revision of his initial conceptual model (Tinto, 1975) included 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. In fact, in the discussion of his revised model, Tinto (1993) explicitly described ways in which students "experience" and "interact with" the campus environments—phrasing that implies a strong behavioral component. Most of the existing empirical literature testing the Tinto model (Braxton & Brier, 1989; Halpin, 1990; Pascarella & Terenzini, 1980) has focused on the perceptual component of academic and social integration, while ignoring measures of actual behaviors. A few studies have included some behavioral measures with perceptual measures in the social and academic integration scales (Nora & Rendon, 1990; Pascarella & Chapman, 1983). However, Astin (1973, 1991) warned that researchers should be careful about clearly distinguishing between behavioral and perceptual measures because they measure different types of data. Pascarella and Terenzini (1991) also articulated the importance of distinguishing between these types of measures.

The relationship between behaviors and perceptions has been well documented in the social psychology literature (Walsh, 1973; Gifford, 1987) but has rarely been explicitly specified in the empirical testing of theoretical models. Lewin (1936) is perhaps the most influential theorist in this line of inquiry, and his "Behavior is a function of the interaction between the environment and the person (B(f) = ExP)" model is the foundation for much of the current literature on student development (Strange, 1994). The model suggests that a person's perceptions within a certain environment will lead to specific behaviors and that new behaviors often modify existing perceptions (Walsh, 1973). Hence, a model that specifies behavioral and perceptual components of integration is more likely to describe the longitudinal integration process as described by Tinto. Incorporating Astin's (1984) involvement constructs (behavioral measures) with the traditionally perceptually based (Braxton & Brier, 1989; Pascarella & Terenzini, 1980) measures of academic and social integration provides a potential mechanism for uniting these distinct components of the integration process.

In this paper we seek to lend more specificity to the relationship between these two influential ideas through analyses of data from a longitudinal study of student persistence. Moreover, neither of these works, nor the relationship they share with each other, have been examined in the context of a highly selective private research university where our data were collected. Specific questions addressed are:

- What behavioral mechanisms in the campus environment(s) facilitate or inhibit the integration process?
- Does the addition of behavioral involvement constructs improve our understanding of the integration process?
- What is the relationship between student behaviors and student perceptions in the integration process?

A MODIFIED TINTO MODEL

Tinto's model of individual student departure is among the most widely discussed and explored in the higher education literature. As conceptualized in this paper, involvement is believed to be critical in students' process of persistence. Tinto asserted that the process of becoming integrated into the academic and social systems of a college occurs when students successfully navigate the stages of separation, transition, and incorporation. Separation involves students' ability to disassociate themselves to some degree from the norms of past communities, including families, high school friends, and other local ties. Transition occurs after the successful negotiation of separation. In transition, students find themselves in a situation where they have separated themselves from the norms and patterns of their past lives but have not yet adopted norms and behaviors from their new environment. Incorporation happens when

students adapt to and adopt the prevailing norms and behavior patterns of their college or university community. Once incorporated, the students become integrated, although successful integration does not necessarily ensure persistence.

As students enter a campus environment they begin to interact with that environment. In doing so, they encounter new values, attitudes, behaviors, ideas, and norms; and these interactive encounters allow students to explore new experiences and to adopt normative beliefs and patterns that may differ from the normative beliefs and patterns from home. Initially, students may begin to reject some or many of the norms of their family and friends. This separation process often starts as anticipatory socialization while students prepare to leave home for college.

Tinto described transition as "a period of passage between the old and the new, before the full adoption of new norms and patterns of behavior and after the onset of separation from old ones" (p. 97). Tinto cited Attinasi (1989) in making his point that the scope of transition depends in part "upon the degree to which individuals have already begun the process of transition prior to formal entry" (p. 97). This would seem to be particularly relevant to the population that comprises the sample in our study (an elite, highly selective private university).

The primary components of the process of incorporation involve the academic and social integration of students into the life of the college. Tinto's discussions of academic and social integration seem to be rooted chiefly in the degree to which students believe they are a part of the academic and social systems of the college or university. Although he acknowledged the significant role that contact with faculty, staff, and other students has in the process of incorporation, Tinto discussed these within the context of the influence they have on "individuals' judgments about the degree to which the institution . . . is committed to student welfare" (p. 117). This poses a critically important question when we consider student persistence in college: What processes allow students to successfully navigate the stage of transition and to enter the stage of incorporation?

Involvement as a Facilitator of Incorporation

In addressing the question of facilitative processes, we believe that Astin's ideas about involvement become extremely helpful in expanding our understanding of a model of college student persistence. Students who become successfully incorporated into the college environment have "moved away from the norms and behavioral patterns of past associations" (Tinto, 1993, p. 98) and have been able to identify and adopt new norms and behavioral patterns that are appropriate to the specific context of their college or university. Tinto pointed out that although Van Gennep discussed "specific rituals and ceremonies whereby such

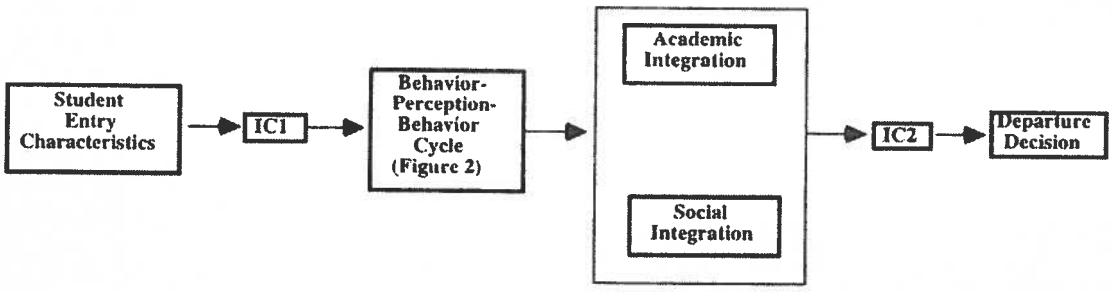

FIGURE 1.
Conceptual Model

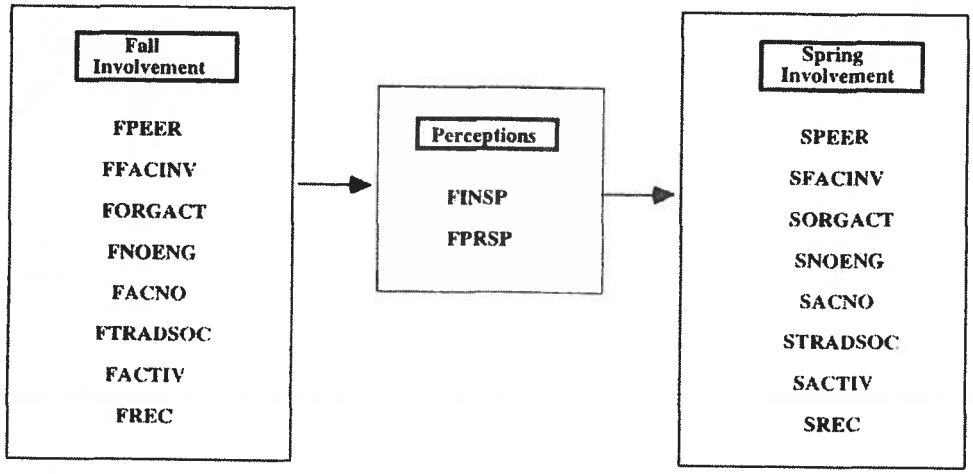

FIGURE 2.
Behavior–Perception–Behavior Cycle

Note. See Table 1 for variable definitions.

connectedness is ratified" (p. 99), this process is not as clearly defined or articulated for college students. Tinto suggested various ways this can occur at many institutions (in particular, at institutions with large residential populations) through involvement in various activities on campus (i.e., Greek life, residence hall activities, student union activities, contact with faculty, intramural sports, and a variety of other curricular, cocurricular, and extracurricular activities).

In this study, we seek to further define the process of transition and incorporation as described by Tinto and to specify mechanisms by which students form their judgments and perceptions regarding the extent to which they "fit" in the academic and social systems of their institution. Specifically, we suggest that the incorporation of students (or lack thereof) into the college environment results from a series of interactions between their behaviors and perceptions. If asked, Astin might argue that this happens through students' involvement in the institution and the effect that this involvement has on students' perceptions about the institution and how well they perceive their fit at the institution.

We argue that during the transition stage (occurring within the first 8 weeks of this study) of our persistence model, students begin to engage in a variety of behaviors that represent different forms and types of involvement (or lack of involvement). As discussed by Astin, different students will invest varying amounts of energy in various "objects." In turn, we suggest that involvement in these behaviors will influence students' perceptions regarding the degree to which students think the institution supports the academic and social aspects of their experiences. In turn, these perceptions influence the likelihood that students will invest additional "energy" through their continued involvement. Moreover, we believe that subsequent involvement will influence the level of students' institutional commitment which inevitably influences whether or not students become successfully incorporated into the college's social and academic systems. Our modified model of persistence is presented in Figures 1 and 2. (Complete descriptions of the variables listed in Figure 2 are presented in Table 1.)

In this model, students enter the institution with specific entry characteristics. Some students will have stronger levels of commitment to graduating from a particular institution than others. Initial levels of institutional commitment lead to varying degrees of involvement during

TABLE 1.

Factor Loadings and Alpha Reliabilities for Involvement Behavior Scales

Scale Name / Item Names	Fall	Spring
Involvement with Faculty (FACINV)		
Talk with faculty outside of class	.707	.772
Socialize with faculty	.513	.771
Lunch/dinner with faculty	.778	.703
Been guest in a professor's home	.738	.689
Coffee/soft drink with a professor	.752	.726
Met with faculty during office hours	.441	.464
Alpha Reliability	**.769**	**.861**
Involvement with Peers (PEER)		
Attended campus movies, plays, recitals	.523	.649
Helped another student with a problem	.603	.628
Participated in an organized study activity	.789	.642
Discussed course content with students	.649	.520
Studied with other students	.721	.643
Talked with classmates out of class	.503	.470
Socialized with friends	.454	.463
Socialized with someone of another race	.392	.368
Alpha Reliability	**.574**	**.622**
Academic Nonengagement (ACNO)		
Missed class due to illness	.529	.425
Failed to finish coursework on time	.546	.423
Missed class/appointment because overslept	.568	.649
Alpha Reliability	**.626**	**.707**

Scale Name / Item Names	Fall	Spring
Nonengagement with University (NOENG)		
Felt like leaving college	.655	.748
Reconsidered decision to attend this university	.811	.786
Felt homesick	.700	.601
Felt like I did not belong here	.825	.839
Alpha Reliability	**.836**	**.801**
Activist Involvement (ACTIV)		
Discussed racial/ethnic issues	.818	.638
Discussed political/social issues	.813	.722
Alpha Reliability	**.660**	**.624**
Traditional Social Activities (TRADSOC)		
Participated in Greek social activities	.792	.789
Gone on date with another student	.630	.548
Drank beer, wine, liquor	.761	.703
Alpha Reliability	**.737**	**.691**
Organized Activities (ORGACT)		
Volunteer work	.556	.711
Student clubs/groups	.529	.469
Residence hall programs/activities	.644	.724
Religious services/meetings	.655	.680
Alpha Reliability	**.568**	**.746**
Informal Exercise and Recreation (REC)		
Exercised at campus recreation center	.834	.826
Informal exercise/sports	.852	.795
Alpha Reliability	**.741**	**.717**

Factor Loadings and Alpha Reliabilities for Perceptual Scales

Institutional Support (INSP)	
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**

Peer Support (PRSP)	
There is a student in whom I confide	.573
Peers with whom I feel comfortable	.774
Peers who share views and beliefs	.783
Opportunities to develop friendships	.735
Alpha Reliability	**.773**

the Fall semester. Students' involvement with the campus environment(s) leads to perceptions of institutional and peer support. These perceptions of support affect the levels of subsequent involvement in the campus environment(s) during the Spring semester. These involvement behaviors affect subsequent levels of institutional commitment, which in turn affect students' departure decisions.

More specifically, the inclusion of behavioral measures in this model provides a conceptual tool that can be used to explain how interaction with the social and academic systems of a campus affects the integration process. Although Tinto emphasized the importance of interactive behaviors between students and the campus environment(s), previous empirical tests of his model have generally failed to include direct measures of these interactions. Instead, researchers have usually chosen to estimate a direct path from initial commitments to social and academic integration, omitting a key component of the Tinto model. Using Astin's theory of involvement, we measured the interaction between students and their environment(s) by examining how involvement behaviors affect perceptions, which in turn affect subsequent behavior. This behavior-perception-behavior cycle provides an explanatory mechanism for describing how students navigate the stages of incorporation.

METHODS

Design and Sample

The data were collected as part of a longitudinal study of 1st-year persistence funded by the Office of the Provost at a highly selective private residential university located in the southeastern United States. The university has a total enrollment of nearly 10,000 students, of whom about 6,000 are undergraduates. Entering first-time full-time freshmen classes contain approximately 1,500 students each year. Over 90% of all undergraduates and approximately 98% of entering freshmen live on campus.

A longitudinal panel was constructed from the data collected for this study in order to capture the effects specified in the Tinto model. Data were collected at three times. 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 freshmen (n = 1,547) were administered the Student Information Form (SIF) at the end of freshman orientation. For the purposes of another retention-related study being conducted at the institution, students were also asked to answer 14 supplemental items. Of the original sample of 1,547 students, 1,343 (86.2%) gave permission for the information that they provided to be released to the institution for research purposes.

The second set of data were collected in late October 1995, about midway through the Fall semester. With the cooperation of the residential life staff, 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, and of 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) was administered in March 1996, using the same procedures as the ECES. The FYS was developed directly from instruments that had been used in previous studies of the Tinto model (Pascarella & 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 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 all three times. The sample is generally representative of the population from which it is drawn: 51% of the students in the sample are female, 84% are White, and 3% are African American. Students

at this institution come from affluent backgrounds, with 53% of the students reporting annual family incomes in excess of $100,000. They are also high achievers academically, with a mean self-reported high school grade point average (GPA) falling in the A- range. Our sample has a slightly higher persistence rate than the population (93% compared to 91%), but this pattern is found in most survey research on undergraduate retention.

Variables

Seven sets of independent variables were used to test our modified model of persistence. These variables are listed in their hypothesized order of causal sequence and include: (a) student background characteristics, (b) initial level of commitment to the institution, (c) mid-Fall behavior/involvement measures, (d) mid-Fall perceptual measures, (e) Spring behavior/involvement measures, (f) academic and social integration, and (g) mid-Spring commitment to the institution. The dependent variable in this study is a measure of student persistence. Specifically, the dependent variable is a composite comprising three items that asked students to assess the likelihood of their enrolling at the institution in the subsequent term. There is a body of research that supports use of this variable as a measure of persistence (see Bean, 1980; Bers & Smith, 1991; Pascarella, Duby & Iverson, 1983).

Of the independent variables, student background characteristics, initial commitment to the institution, academic and social integration, and mid-Spring commitment to the institution are derived from previous research that explores the Tinto model (see Pascarella & Terenzini, 1980). Variables measuring initial behavior/involvement, student perceptions, and subsequent behavior/involvement were derived through a series of exploratory factor analyses of items contained on the ECES and the FYS. Factors were extracted using the principle axis factor method and were rotated orthogonally. The factor analyses of the behavior/involvement items from the ECES and the FYS yielded identical factor solutions for the Fall and Spring. The final factor solutions listing the specific items, their factor loadings, and reliability estimates for each factor are presented in Table 1 (Descriptive statistics and correlations for the variables used in this study are available upon request from the first author).

Multivariate Analyses

The modified persistence model was tested causally through a path analysis, a data-analytic technique suggested as a statistical procedure for use in studies of persistence (Braxton, Duster, & Pascarella, 1988). Because this was a first step in the testing of this proposed model, only direct effects were estimated. Exogenous variables in the model included measures of student background characteristics. All remaining variables were defined as being endogenous.

A series of structural equations using ordinary least squares multiple regression were conducted to estimate the direct effects of the constructs contained in the model. Each equation produces a standardized partial regression coefficient (β). These regression coefficients allow us to understand the direct effect of each construct with the effects of all other constructs in the model being held constant (Pedhauzer, 1982).

RESULTS

Entry Characteristics

Table 2 contains a summary of the structural equations used to estimate our modified model of student persistence. The discussion of results summarized in Table 2 focuses primarily on whether or not there is evidence supporting our proposed model of persistence. Hence, not all of the statistically significant paths depicted in the table are discussed in detail.

Given the unique background of students who attend this institution, nearly every student who enters the institution is highly committed to the goal of receiving at least a bachelor's degree. In fact, we found that there was essentially no variation in goal commitment for students in this sample (only one student in our sample reported not aspiring to complete at least a bachelor's degree). Hence, the construct of goal commitment is excluded from our model of

TABLE 2.

Standardized Beta Coefficients for Path Analysis Predicting Intent to Re-enroll

Variable	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
1. Sex: Female	.10*	.04	.12*	−.10*	−.05	.06	.04	−.06	−.02	.14***	.10**	.10*	.07*	.07	.07*	.01	.02	−.07	−.07*	−.01	.15***	−.03	.03
2. Race: White	.14***	−.02	−.05	.02	.02	−.05	.16***	−.04	.04	−.00	−.06	−.03	−.03	.02	.10**	−.05	.09**	.02	−.03	.01	.05	.04	−.07
3. Race: Black	.10*	.07	−.01	.06	.02	.05	−.02	.11**	.00	−.10**	.01	.07	−.03	−.02	.07	.02	.05	.06	.01	.02	.01	.03	−.00
4. High School GPA	.04	.10**	−.01	−.09*	−.22***	−.03	−.23***	.05	−.00	.08*	.03	−.09*	−.01	−.07	−.08*	−.07*	.02	−.04	−.02	.08*	.03	−.00	.03
5. Parental Income	−.03	.01	.03	.06	.01	−.04	.26***	.03	−.05	.05	.01	.02	.00	−.00	−.01	−.01	.06*	−.04	.01	−.03	−.05	−.08*	.03
6. Liberal Political View	−.08*	−.06	−.00	−.06	.05	.09*	−.05	−.00	−.14***	−.00	−.10**	−.11**	.02	−.07	−.01	.01	.01	−.03	.03	−.01	.01	−.03	.03
7. Institutional Commitment I	.02	−.01	.03	−.02	−.05	−.02	−.05	−.06	.04	−.02	.05	.02	−.02	−.00	−.01	.05	.05	.01	.03	−.02	.08*	.02
8. Fall: Organized Activities									−.03	−.01	.28***	.02	−.02	−.03	.00	−.03	.03	.00	.04	.03	.05	−.03
9. Fall: Involvement with Peers									.09*	.22***	.06	.48***	.10**	.05	.05	.03	.14**	.01	−.08	−.10**	−.02	.01
10. Fall: Involvement with Faculty									.32***	−.08*	.09*	.02	.32***	.04	−.02	.07*	−.06	.04	.07	.05	−.08*	−.01
11. Fall: Academic Nonengagement									−.28***	.01	.01	−.05	−.02	.38***	−.07	−.05	.01	−.02	.03	−.04	.04	−.06
12. Fall: Nonengagement with University									−.28***	−.45***	−.01	−.14***	.04	−.02	.51***	−.07*	−.10*	.00	.00	.02	−.09*	−.04
13. Fall: Traditional Social Involvement									−.05	.17***	.06	.04	.10*	.13**	.08*	.68***	.08*	.04	−.01	−.08	−.02	−.06
14. Fall: Activist Involvement									.05	.02	−.02	.02	−.03	−.01	−.05	−.05	.36***	−.07*	−.02	−.02	−.05	.05
15. Fall: Informal Exercise and Recreation									.04	−.02	.01	.02	.04	−.00	.02	.05	−.02	.55***	−.08*	.02	−.01	−.04
16. Fall: Perception of Institutional Support											.02	.04	−.03	−.06	.08**	.08**	.01	.02	.24***	.02	.06	−.01
17. Fall: Perception of Peer Support											.03	−.02	−.01	−.00	−.10**	−.02	−.12**	.00	.06	.35***	−.00	−.07
18. Spring: Organized Activities																			−.03	.06	.02	.12*
19. Spring: Involvement with Peers																			.16***	.25***	.09**	.04
20. Spring: Involvement with Faculty																			.51***	.05	−.04	.02
21. Spring: Academic Nonengagement																			−.03	−.00	.02	.04
22. Spring: Nonengagement with University																			−.17***	−.33***	−.44***	−.15**
23. Spring: Traditional Social Involvement																			−.01	.18***	.06	.07
24. Spring: Activist Involvement																			.06	08*	.01	−.03
25. Spring: Informal Exercise and Recreation																			.02	−.02	.00	.01
26. Academic Integration																					.05	.01
27. Social Integration																					.31***	.13***
28. Institutional Commitment II																						.40***
29. Intent to Reenroll																						
R^2	.034***	.021**	.017	.031**	.056**	.021*	.176***	.022*	.030**	.263***	.343***	.173***	.280***	.183***	.269***	.343***	.554***	.188***	.335***	.377***	.481***	.608***	.414***

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

student persistence for undergraduates at this institution.

We did expect to find that measures of student background characteristics exerted a significant influence on initial level of commitment to the institution. Four of the entry characteristics were found to have a direct path to institutional commitment at entry. Being a woman, being White, and being African American were all found to positively predict institutional commitment, whereas having a more liberal political ideology was found to negatively predict initial level of commitment to the institution.

Women students were more likely to report higher levels of early involvement with peers ($\beta = .12$) but lower levels of early involvement with faculty at the institution ($\beta = -.10$). Women were more likely than men to report higher levels of perceived support from both the institution and from their peers ($\beta = .14$ and .10, respectively). There were also direct positive paths between being a woman and participation in mid-Spring organized activities and activities with peers. Women were more likely to report higher levels of academic nonengagement in the Spring and lower levels of involvement in recreational activities. Finally, there was a direct positive path between being a woman and social integration ($\beta = .15$).

Based on the distribution of students from different racial/ethnic backgrounds at the institution and in our sample, we decided to include only two dichotomous measures of race/ethnicity. There was a significant positive path for both White and African American students and institutional commitment at entry. There were significant positive paths for White students and our measures of involvement in traditional social activities (Greek activities, dating, drinking alcohol) during both the Fall and Spring semesters. White students were also more likely to report more academic nonengagement during the Spring semester. In an interesting finding, there was a weak negative relationship ($\beta = -.07$) between being White and our dependent variable (intent to reenroll). African American students were likely to report higher levels of activist involvement during the Fall semester ($\beta = .16$). Not surprisingly, we see that African American students are less likely to report that they perceive the institution to be supportive of them during the Fall semester ($\beta = -.10$).

In another interesting finding regarding the effect of demographic variables in our model, we found that income was highly predictive of involvement in traditional social activities during the Fall ($\beta = .22$) and weakly predictive of this measure during the Spring semester ($\beta = .06$). Income was also a negative predictor of institutional commitment during the Spring semester.

Students who had higher levels of academic achievement or who may have been more academically oriented (as represented by their high school GPAs) were more likely to become involved in organized activities during the Fall ($\beta = .10$) and less likely to report that they were involved with faculty ($\beta = -.09$) or in traditional social activities ($\beta = -.23$) during the Fall semester. These students were also more likely to report higher levels of perceived institutional support during the Fall semester. During the Spring semester, students with higher GPAs in high school were less likely to report that they were involved in organized activities, not engaged academically, and generally not engaged in their college experience. As we expected, there was a direct positive path between high school GPA and academic integration.

As we mentioned earlier, students with more liberal political orientations reported lower levels of commitment to the institution at entry. They were also more likely to report a greater degree of nonengagement during the Fall semester and less likely to report that they were involved in recreational activities. More-liberal students were less likely to perceive that they had the support of their peers at the institution. This is not surprising because the student body at this institution is characterized as being conservative in its political ideology (44% of the undergraduates characterize themselves as being conservative or far right, whereas only 17% characterize themselves as liberal or far left).

Early Commitments Measures

Institutional commitment at the time of entry served only as a weak positive predictor of institutional commitment during the mid-Spring. No other significant paths emerged in our

analysis. The fact that this variable served only as a weak positive predictor of subsequent commitment is likely explained by the fact that there was little variation found in this measure. As noted earlier, most students who enter the institution do so believing that they will graduate from the university.

Fall Involvement Measures

Our findings provided strong support for the hypothesized relationship between early involvement and perceptions—namely, that the nature of students' early involvement during the Fall semester would influence their perceptions about their experience at the institution and that these perceptions would then influence the nature and extent of their subsequent involvement at the institution. Moreover, as we expected, early involvement in the Fall semester predicted involvement during the Spring semester.

Involvement in organized activities in the Fall served only as a strong positive predictor of involvement in organized activities during the Spring semester ($\beta = .28$). This finding was not surprising because these were freshmen in their first semester of college who were less likely to be involved in these types of activities. There were no significant paths between this type of involvement and either of the perceptual measures in our model.

The literature on college impact identifies the critical role that peers play in facilitating a variety of outcomes for undergraduates (see Astin, 1993; Feldman & Newcomb, 1969; Pascarella & Terenzini, 1991). Our results suggest additional support for these findings. Involvement with peers served as a significant positive predictor of perceived institutional support and peer support ($\beta = .09$ and .22, respectively). As we expected, early peer involvement also served as a strong negative predictor of subsequent peer involvement ($\beta = .48$). Early involvement with peers also served as a positive predictor of Spring semester involvement with faculty ($\beta = .10$) and subsequent activist involvement ($\beta = .14$). In a rather intriguing finding, there was a negative path between early involvement with peers and social integration ($\beta = -.10$).

Our results also supported a large body of research indicating that involvement with faculty members in and out of the classroom positively influences various cognitive and affective outcomes for college students. Our findings indicated direct paths between involvement with faculty and our two perceptual constructs. There was a strong positive path between involvement with faculty and perception of institutional support ($\beta = .32$). However, the nature of the relationship between involvement with faculty and perception of peer support was weakly negative ($\beta = -.08$). Early involvement with faculty also predicted involvement in Spring-semester organized activities ($\beta = .08$), with faculty ($\beta = .32$), and in traditional social activities ($\beta = .07$). There was a weak negative relationship between early involvement with faculty and institutional commitment during mid-Spring ($\beta = -.08$).

Two of our constructs were actually indicators of a *lack* of involvement by undergraduates (academic nonengagement and nonengagement with the university). The nature of the relationships that these variables had with other variables in our model was generally what we had expected to find. Academic nonengagement is a strong negative predictor of perceptions of institutional support ($\beta = -.28$). We also found that students who were not initially engaged academically were much more likely to report less engagement with academics during the Spring semester ($\beta = .38$). Students who initially reported that they were not engaged with the university were less likely to perceive that they were supported by the institution ($\beta = -.28$) or by their peers ($\beta = -.45$). Nonengagement with the university during the Fall semester also served as a negative predictor of subsequent involvement with peers, in traditional social activities, and in activist activities. Moreover, this construct served as a strong predictor of lack of engagement with the university during the Spring semester ($\beta = .51$). One quarter of the variance in Spring nonengagement can be explained by the fact that students were not engaged during the first 8 weeks of the Fall semester. This finding suggests that students who fail to become engaged with the institution from the beginning are likely to

remain uninvolved during the Spring. There was also a negative path between Fall nonengagement with the university and Spring institutional commitment ($\beta = -.09$).

As we expected, early involvement in traditional social activities served as a predictor of perception of peer support ($\beta = .17$). Moreover, there were significant direct paths between early involvement in traditional social activities and five of our Spring involvement measures. As expected, students who reported early involvement in these activities were also very likely to be involved in traditional social activities during the Spring semester ($\beta = .68$). Students who reported early involvement in traditional social activities were more likely to report involvement with faculty during the Spring semester ($\beta = .10$). There was also a weak positive relationship between these early involvements and subsequent activist involvement. We also found that early involvement in traditional social activities served as a predictor of subsequent academic nonengagement ($\beta = .13$) and nonengagement with the university ($\beta = .08$).

Early activist involvement served as a positive predictor of subsequent activist involvement ($\beta = .36$) and a weak negative predictor of involvement in recreational activities during the Spring semester ($\beta = -.07$). Finally, early involvement in recreational activities predicted subsequent involvement in recreational activities ($\beta = .55$) and had a weak negative relationship to academic integration ($\beta = -.08$).

Perceptual Measures

The nature of the relationships between our perceptual measures and involvement during the Spring semester was not as clearly articulated as we had initially believed it would be. Perceived institutional support had a weak positive path to Spring nonengagement with the university ($\beta = .08$) and a weak positive relationship with involvement in traditional social activities ($\beta = .08$). Perception of peer support was negatively related to Spring nonengagement ($\beta = -.10$) and to activist involvement during the Spring ($\beta = -.12$). However, we did see a strongly articulated relationship between the two Fall semester perceptual measures and Tinto's constructs of academic and social integration. As expected, perceived institutional support was strongly related to academic integration ($\beta = .24$), and perceived peer support was strongly related to social integration ($\beta = .35$).

Spring Involvement Measures

The pattern of findings between our measures of Spring semester involvement and constructs from the Tinto model were generally what we expected they would be. Students who reported higher levels of involvement with peers during the Spring semester were likely to report higher levels of academic integration ($\beta = .16$), social integration ($\beta = .25$), and institutional commitment ($\beta = .09$). Students who reported higher levels of involvement with faculty were much more likely to report higher levels of academic integration ($\beta = .51$). Greater social integration was also predicted by involvement during the Spring semester in traditional social activities ($\beta = .18$) and activist involvement ($\beta = .08$). Finally, nonengagement with the university during the Spring was a negative predictor of academic integration ($\beta = -.17$), social integration ($\beta = -.33$), institutional commitment ($\beta = -.44$), and intent to reenroll ($\beta = -.15$).

Academic Integration, Social Integration, and Institutional Commitment

We found that academic integration did not predict either institutional commitment (as Tinto suggested in his model) or our dependent variable of intent to reenroll. However, social integration did serve as a significant positive predictor of institutional commitment ($\beta = .31$) and intent to reenroll ($\beta = .13$). Hence, our findings suggest that at this institution, social integration may have a more influential role in predicting student persistence than does academic integration. Finally, as we expected, institutional commitment was a strong positive predictor of intent to reenroll ($\beta = .40$).

DISCUSSION

There are a number of findings discussed in the results section that warrant further discussion. The first of these involves the relationship

between political ideology and students' perceptions of having support from their peers. Students who enter the university with more liberal political ideologies clearly comprise a very small part of the student body making it more difficult to find people they believe to be like themselves at the university. Hence, given that it is harder for these students to find others who hold similar views, more politically liberal students may be less likely to perceive their peers as supportive. A second finding of importance involves the relationship between early involvement in traditional social activities and academic nonengagement and nonengagement with the university. This may indicate that going "overboard" with involvement in this area has a detrimental effect on students.

When we consider the highly selective nature of this university, the fact that social integration had a more influential role in predicting persistence than did academic integration may not be all that surprising. The students accepted for admission to university like this one have records of high academic achievement. Hence, we might expect that they would have less relative concern and/or difficulty in integrating into the academic aspects of the environment. On the other hand, given that this student body is both highly affluent and politically and social conservative, students who do not come from similar backgrounds and/or who do not share similar views may find it extremely difficult to find a group of peers with whom they can relate. This, in turn, might negatively influence their ability to become integrated into the social system of the university. These findings also support those presented by Braxton, Sullivan, and Johnson (1997) in their recent review of findings of research that has been done testing the Tinto model.

We are cautiously optimistic as to the conceptual and practical contribution made by our modified model of college student persistence. The relationship between involvement and the effect that it has on students' perceptions of their experience, as college students generally and as students at specific institutions, appears to add further definition to the transition stage described in Tinto's conceptual model. Our findings clearly suggest that various forms of involvement do influence students' perceptions of institutional support and peer support. In turn, these perceptions of support appear to have an effect on students' levels of institutional commitment. This process, as we have conceptualized it, helps us better understand the questions we posed earlier. The nature of the relationship between perception and subsequent behaviors during the Spring semester is less clear. However, the importance of early involvement is well documented as a predictor of subsequent involvement. Our findings suggest that the interaction between involvement (or lack of involvement) and student perceptions of support may be a process through which we will come to better understand the ways in which students successfully navigate passage through the stage of transition and enter the stage of incorporation.

Our findings also offer insight into ways that we might inform and improve educational practice as it relates to student persistence. In particular, our findings about the importance of early involvement may be extremely informative. Although much of the research on college impact and student persistence has shown that student involvement is important, we think that many scholars and practitioners in the field of higher education may have underestimated the role that very early involvement by students seems to play in this persistence model. Our findings suggest that the extent to which students become involved during their first 6 to 7 weeks of a semester are significantly related to whether they are likely to persist at the institution.

Of perhaps even greater significance is the role that early involvement with faculty appears to have in the persistence process. Higher education practitioners generally do a good job of encouraging students to become involved with their peers upon their arrival at college, but practitioners seem to place less relative importance on the need for students to become more actively engaged with faculty members from the inception of their college careers. Practitioners often seem to think that involvement with faculty is something that happens later in students' college careers. Although this may be the case, our findings suggest that early involvement with

faculty tends to have a positive role in our model of student persistence.

LIMITATIONS

As with any piece of empirical research, this study has its limitations. Hence, any conclusions suggested by these findings must be considered within the context of these limitations. The first two limitations are related to our measure of persistence. First, our persistence measure captures only 1 year of what is a multiyear process. Second, as stated earlier, our measure of persistence was based on students' assessments, and not directly on institutional data signifying that these students had enrolled for the subsequent academic year. The highly skewed nature of the actual measure of persistence in this population (less than 9% of entering students do not return for a second year) makes it impractical to use this measure in regression-based causal models. Hence, future studies exploring this modified model of persistence in other settings should include a direct measure of persistence.

A third limitation of this study is that with path analysis we can examine only direct effects of the variables included in this model. As an initial test of the saliency of our proposed model, this is sufficient. Future tests of our revised model should estimate the direct and indirect effects of variables included in the model. This will provide a more accurate judgment regarding the utility of this model in predicting student persistence.

A fourth limitation concerns the behavioral measures. Like all of the variables used in this study, the involvement measures are self-reported responses to items contained on our surveys. Direct observations of these behaviors probably would produce different patterns of findings than would self-reports of the same behaviors. Combs (1959) contended that although individuals believe they are providing an accurate report of their behaviors when they self-report behavior on a survey, they often unconsciously misrepresent their actual behavior in order to conform to expectations and protect self-esteem. Hence, future studies of this type might involve direct observation of behaviors in order to glean further information about the nature of involvement behaviors. Although this strategy would require that researchers study a much smaller sample of subjects, this might prove to be a fruitful methodological trade-off that would allow researchers to elaborate further on the behavior-perception-behavior cycle described in our model.

A final limitation has do with our sample. This study was conducted at only one highly selective, private, residential, research university. Hence, its findings may not be generalizable beyond the institution. In order to determine whether these findings apply beyond the context of this institution, this model should be tested with data from students at other types of institutions.

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