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# The Influence of Active Learning on the College Student Departure Process

## Toward a Revision of Tinto's Theory

### *The Student Departure Problem*

Almost one-half of students entering two-year colleges and more than one-fourth (28.5%) of students entering four-year collegiate institutions leave at the end of their first year (Tinto, 1993). Such departure rates are vexing to both scholars and practitioners. Scholars seek explanations, whereas college and university administrators desire to manage their student enrollments by reducing such rates of departure.

Although various theoretical perspectives—economic, organizational, psychological, societal—have been advanced to account for the phenomena of college student departure (Tinto, 1986; 1993), Tinto's interactionist theory of college student departure enjoys near-paradigmatic status, as indicated by more than 400 citations and 170 dissertations pertaining to this theory (Braxton, Sullivan, & Johnson, 1997). Recently, Braxton, Sullivan, and Johnson (1997) empirically and conceptually assessed Tinto's theory. Their assessment focused on the degree of support for the 13 primary propositions postulated in Tinto's 1975 foundational theory. Empirical tests robustly support only 5 of the 13 primary propositions. However, 4 of these propositions are logically interrelated. Put in narrative form, these 4 propositions read: student

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entry characteristics affect the level of initial commitment to the institution. These student entry characteristics include family background characteristics (e.g., socioeconomic status, parental educational level), individual attributes (e.g., academic ability, race, and gender) and pre-college schooling experiences (e.g., high-school academic achievement). The initial level of commitment to the institution influences the subsequent level of commitment to the institution. This subsequent level of institutional commitment is also positively affected by the extent of a student's integration into the social communities of the college. The greater the level of subsequent commitment to the institution, the greater the likelihood of student persistence in college.

However, these empirically backed propositions leave social integration unexplained. Theory elaboration affords one approach to the development of explanations for social integration and the revision of Tinto's theory. Theory elaboration entails the application of new concepts borrowed from other theoretical perspectives to explain the focal phenomena (Braxton, Sullivan, & Johnson, 1997). Institutional type (Chapman & Pascarella, 1983), organizational attributes (Berger & Braxton, 1998; Braxton & Brier, 1989), motivations for attending college (Stage, 1989), financial aid (Cabrera, Nora, & Castaneda, 1992), fulfillment of expectations for college (Braxton, Vesper, & Hossler, 1995), sense of community in residence halls (Berger, 1997), student involvement (Milem & Berger, 1997), life task predominance (Brower, 1992), and self-efficacy (Peterson, 1993) are among the concepts derived from other theoretical perspectives given empirical treatment to understand both social integration and student departure decisions.

Various constructs may also be derived from a consideration of the role of the college classroom in the college student departure process in general and the identification of forces that influence social integration in particular. Tinto (1997) contends that if social integration is to occur, it must occur in the classroom (p. 599), because the classroom functions as a gateway for student involvement in the academic and social communities of a college (Tinto, Goodsell, & Russo, 1993). Thus, the college classroom constitutes one possible source of influence on social integration, subsequent institutional commitment, and college departure.

Recently, scholars have begun to recognize the role of the classroom in the college student departure process. Specifically, the direct influence of classroom-based academic experiences of students on their withdrawal decisions (Nora, Cabrera, Hagedorn, & Pascarella, 1996), the relationship between social integration (sense of belonging) and the discussion of course content with other students outside of class (Hurtado & Carter (1997), and the role of cooperative learning in the college

student departure process (Tinto, 1997) have received empirical treatment. Faculty use of active learning practices constitutes another possible source of influence on the college student departure process in general and social integration in particular. Active learning is any class activity that “involves students in doing things and thinking about the things they are doing” (Bonwell, & Eison, 1991, p. 2). Active learning activities include discussion, questions faculty ask students in class, cooperative learning, debates, role playing, and the questions faculty ask on course examinations.

Active learning should not be confused with academic integration, a core construct of Tinto 1975 foundational theory of college student departure. Active learning is conceptually distinct from academic integration, for active learning and other classroom-based experiences (Nora, Cabrera, Hagedorn, & Pascarella, 1996; Hurtado & Carter, 1997) are antecedents of academic integration (Braxton, in press).<sup>1</sup> Academic integration reflects a student’s experience with the academic systems and academic communities of a college or university. Such experiences find expression in a student’s sense of normative congruence and affiliation with these academic systems and communities (Braxton, in press; Braxton & Lien, in press; Durkheim, 1951; Tinto, 1975). In contrast, antecedents of academic integration are academic activities or classroom-based experiences that shape a student’s perception of their degree of academic integration (Braxton, in press).<sup>2</sup> Put differently, active learning and other classroom activities constitute sources of influence on academic integration. Typical approaches to measuring academic integration further illustrate this distinction. Academic integration typically has been operationally defined and measured as a student’s estimation of their academic and intellectual development, grade point average and student’s perception of faculty concern for teaching and student development (e.g., Braxton & Brier, 1989; Cabrera, Castañeda, Nora, & Hengstler, 1992; Pascarella, Duby, & Iverson, 1983; Pascarella & Terenzini, 1980; Pascarella & Terenzini, 1983; Terenzini, Pascarella, Theophilides, & Lorang, 1985). Thus, typical measures of academic integration suggest that active learning and other classroom-based teaching practices are sources of influence (antecedents) on academic integration and should not be viewed as interchangeable with academic integration.

### *Active Learning and Student Departure*

Active learning enhances student knowledge and understanding of course content (Anderson & Adams, 1992; Chickering & Gamson, 1987; Johnson, Johnson, & Smith, 1991; McKeachie, Pintrich, Yi- Guang, &

Smith, 1986). Thus, students who frequently encounter active learning in their courses perceive themselves gaining knowledge and understanding from their course work. As a consequence, such students may be more likely to view their collegiate experience as personally rewarding. Because their classes are judged to be rewarding, students may invest the psychological energy needed to establish memberships in the social communities of their college or university (Milem & Berger, 1997).<sup>3</sup>

Students who frequently experience active learning in their classes may also have more time available for participation in collegiate social communities because they feel that they are able to spend less time on course preparation and studying for examinations. In comparison, students who infrequently experience active learning in their courses may become socially isolated in order to improve their academic performance in their courses. Active learning course activities may also help students develop friendships and networks of peer support that assist them in the establishment of membership in the social communities of their college or university. Thus, active learning course practices may directly influence social integration and indirectly affect subsequent institutional commitment and student departure decisions.

Tinto (1997) focused on the role of cooperative learning in the college student departure process. Cooperative learning constitutes a special case of active learning, for it involves the use of small groups of students who work together with the goal of maximizing both their own learning and that of members of their group (Johnson, Johnson, & Smith, 1991). Although cooperative learning has received empirical treatment, little or no research has centered on the role of the more general process of active learning on social integration, subsequent institutional commitment, and student departure decisions. Thus, the purpose of this inquiry is to estimate the influence of such forms of active learning as class discussions, knowledge level examination questions, group work, and higher order thinking activities on social integration, subsequent institutional commitment, and student departure decisions.

### *Methods*

This study used a longitudinal design composed of 718 first-time, full-time first-year students at a highly selective, private research I university. Three different surveys were administered to these students: one during orientation, one during the fall semester, and the third during the spring semester. The Student Information Form (SIF) administered by the Cooperative Institutional Research Program of UCLA/ACE was the survey given to students at the end of the orientation for first-year stu-

dents. Of these 1,547 first-year students, 1,343 gave permission for the institution to use their survey responses for research purposes (86.2%). The Early Collegiate Experience Survey (ECES) was administered to students in each residential living unit during the fall semester (late October 1995). A total of 1,237 usable surveys were returned for a response rate of 79.9%. The third survey, the Freshman Year Survey (FYS) was administered to students in their living units during March 1996. 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 along with other institutional data.

The resulting sample was a longitudinally constructed panel consisting of 718 individuals (46.4% of the entering class), who provided data at each of the three time points. The sample is generally representative of the population from which it was drawn. More specifically, 51% of the sample is comprised of females, whereas females make-up 52% of the population of first-year students. In addition, 80% of the students in the population of first-year students are white, whereas 84% of the students in the sample are white.

From these surveys, six sets of variables were developed: (1) student background characteristics—race, gender, parental income, parental educational level, high-school grade point average, and SAT composite score, (2) initial institutional commitments, (3) active learning classroom behaviors, (4) social integration, (5) subsequent institutional commitment, and (6) departure decisions. The six student background characteristics correspond to those characteristics delineated by Tinto (1975). Specifically, race, gender, and SAT-Composite score are individual attributes, whereas parental income and parental educational level are family background characteristics. High-school grade point average is an indicator of precollege schooling experiences. The SIF was used to measure the six student background characteristics and initial institutional commitment. Active learning behaviors were assessed using survey items derived from the ECES and the FYS, whereas social integration, subsequent institutional commitment, and departure decisions were measured using the FYS given during the spring semester.

With the exception of faculty active learning behaviors, these sets of variables correspond to the strongly supported propositions of Tinto's Theory discerned by Braxton, Sullivan and Johnson (1997). The operational definitions for the specific variables included in each variable set are exhibited in Table 1.

Because active learning has been the object of little or no instrument development, four composite measures were developed for this inquiry. As a consequence, these composite measures are best regarded as ex-

TABLE 1  
Listing and Definition of Variables

Exogenous Variables	
1. Parental income	Estimated parental income (less than \$6,000 = 1, \$200,000 or more = 14) SIF item.
2. High-school GPA	self-reported high-school grade point average(D = 1, A or A+ = 8) SIF item.
3. Gender	Student gender (male = 1, female = 2) SIF item.
4. Race	Student racial/ethnic identity (nonwhite = 2,white = 1) SIF item.
5. Parental educational level	Level of parental educational attainment. Composite of two SIF items: one asking for father's level and the other assessing the mother's level of educational attainment. (grammar school or less for both parents = 2, graduate work for both parents = 16).
6. Composite SAT score	Composite of SAT verbal and math scores or converted ACT score. SIF item.
7. Initial institutional commitment (IC1)	Students' choice of institution (3rd = 1, 1st = 4). SIF item.
<i>Endogenous Variables</i>	
8. Class discussion	Composite of three ECES items measuring how frequently students observe the following activities in their fall semester classes (1 = never, 4 = very often): (1) Instructors make class discussions intellectually stimulating, (2) Instructors answer students' questions in a way that helps students understand the material, and (3) Instructors encourage students to participate in class discussions. Alpha estimate for this composite measure is 0.71.
9. Higher order thinking activities	Composite of six FYS items measuring how frequently students observe or engage in the following activities in their classes (1 = never, 4 = very often): (1) Instructors engage me in classroom discussion or debate of course ideas and concepts, (2) Instructors' questions in class ask me to point out any fallacies in basic ideas, principles, or points of view presented in the course, (3) Instructors' questions in class ask me to argue for or against a particular point of view, (4) Exams require me to argue for or against a particular point of view and to defend my argument, (5) Course papers or research projects require me to argue for or against a particular point of view and to defend my argument, and (6) Course papers require me to propose a plan for a research project or experiment. Alpha estimate for this composite measure is 0.84.
10. Exams limited to knowledge of facts	A single item indicator asking students how frequently (1 = never, 4 = very often) students observe that exam questions are limited to knowledge of facts. FYS item.
11. Group work	A composite of two ECES items measuring how frequently (1 = never, 4 = very often) students do the following in their classes: (1) Instructors require students to work in groups, and (2) Instructors require students to work in cooperative groups to do course assignments. Alpha estimate for this composite measure is 0.68.
12. Social integration (SI)	A composite of two subscales: peer group relations and out-of-class interactions with faculty members. For both subscales, respondents indicated how much they agree with each item of the subscale (strongly disagree = 1, strongly agree = 4). The following 5 FYS items comprise the peer group relations subscales: (1) Interpersonal relationship with students yields positive intellectual growth, (2) Has developed close personal

TABLE 1 (Continued)

	relationships with a student, (3) Interpersonal relationship with students yields positive personal growth, (4) Difficult to make friends (reverse scored), (5) Few students would listen and help if I have problem (reverse scored). The Cronbach alpha estimate for this subscale is 0.76.
	The following 5 FYS items comprise the out-of-class informal interactions with faculty subscale: (1) Satisfied with opportunity to meet and interact with faculty, (2) has developed a close relationship with at least one faculty member, (3) Non-classroom interactions with faculty have had a positive influence on my intellectual growth and my interest in ideas, (4) non-classroom interactions with faculty have had a positive influence on my personal growth, values, and attitudes, and (5) non-classroom interactions with faculty have had a positive influence on my career goals and aspirations. The Cronbach alpha estimate for this subscale is 0.82. For the composite measure, the Cronbach alpha estimate is 0.75.
13. Subsequent institutional commitment (IC2)	A composite of three FYS items indicating how much the respondents agree (strongly disagree = 1, strongly agree = 4) with the following statements: (1) It is not important to graduate from this university (reverse scored), (2) I am confident 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 for this scale is 0.72.
14. Departure decision,	A composite of three FYS items. These items index the intent to re-enroll likelihood that the student will re-enroll at the focal university next fall: (1) extremely unlikely = 1, extremely likely = 5, (2) certain <i>not</i> to re-enroll = 1, certain to re-enroll = 5, and (3) no chance = 1, 100% sure to re-enroll = 5. Alpha estimate for this scale is 0.89.

ploratory in nature. Nevertheless, these four composite measures represent faculty active learning behaviors. As such, these composite measures do not assess the attitudes and values faculty hold regarding active learning. The four types of active learning classroom behaviors used were class discussions, knowledge level examination questions, group work, and higher order thinking activities. These four forms of active learning correspond to Bonwell and Eison's (1991) definition of active learning: any class activity that "involves students in doing things and thinking about the things they are doing." *Class Discussions* pertain to the use of the discussion method by faculty. Class discussions of course content require students to think about the course content. Thus, class discussions fit the definition of active learning. *Knowledge Level Exam Questions*, a negative indicator of active learning, concerns the extent to which faculty limit examination questions to a knowledge of facts concerning course content. *Knowledge Level Exam Questions* constitutes a negative indicator of active learning given that preparation for examina-



tions requiring a knowledge of facts tends to require a surface rather than a deep level approach to learning course content (Entwistle & Tait, 1995). *Group Work* relates to the extent to which students are required to work in groups both in class and on course assignments. Group work entails active learning because students are required to think about the content of their courses in order to complete the work of the group. *Higher order thinking activities* refers to how frequently faculty pose questions to students during class that require higher order thinking about the course material. This dimension of active learning builds on the research of Barnes (1983) and Smith (1983) on questioning in college classrooms. Higher order thinking activities are also consistent with the definition of active learning given that higher order thinking about course content requires students to employ a deep level approach to learning course content (Entwistle & Tait, 1995). As evidenced by the survey items making up each of these composite scales (see Table 1), we hold that these composite scales possess face validity.

The measures of social integration and subsequent institutional commitment used in this piece of research were obtained from Pascarella and Terenzini (1980). Social integration is composed of two subscales empirically identified by Pascarella and Terenzini: peer group interactions and out-of-class interactions with faculty.

In this study, departure decisions are operationalized as a students' intent to return. The use of intent to return is well supported by research that demonstrates a strong relationship between intentions and actual persistence (Bean, 1980, 1983; Pascarella, Duby, & Iverson, 1983; Voorhees, 1987; and Cabrera, Casteñeda, Nora, & Hengstler, 1992).

### *Statistical Design*

Path analysis using ordinary least-squares multiple regression was used to test the formulations derived from the theoretical framework of this piece of research.<sup>4</sup> Exogenous variables include five student background characteristics, whereas initial institutional commitment, the four indicators of active learning, social integration, subsequent institutional commitment, and student departure decisions were designated as endogenous variables. To test the influence of active learning on social integration, subsequent institutional commitment, and withdrawal decisions, eight structural equations were estimated, using GEMINI (Wolfe & Ethington, 1985), a FORTRAN program based on the formulations of Sobel (1982). Direct and indirect effects of each of the constructs included in the model were estimated using GEMINI. The criterion used to identify statistically reliable direct and indirect effects was the 0.05 level of statistical significance.

## Findings

Table 2 displays the means and standard deviations of the variables measured in this inquiry. Zero-order correlations among the variables used in the path analysis are exhibited in Table 3.<sup>5</sup> The eight structural equations estimated are shown in Table 4. Table 4 exhibits the direct effects of the various variables included in each structural equation, whereas Table 5 presents the indirect effects of variables on subsequent institutional commitment and departure decisions. The findings derived from the path analyses are organized by direct and indirect effects.

### *Direct Effects*

Given that the influence of active learning on social integration, subsequent institutional commitment, and student departure decisions is of central interest in this piece of research, the direct effects of active learning on these constructs receive primary attention.

Two of the four indicators of active learning wield statistically significant influences on social integration. Class discussions ( $\beta = 0.21$ ,  $p < 0.0001$ ) and higher order thinking activities ( $\beta = 0.05$ ,  $p < 0.0001$ ) positively influence social integration. However, group work and knowledge-level exam questions fail to exert a statistically reliable effect on social integration.

TABLE 2  
Means and Standard Deviations of Variables

Variables	Mean	Standard Deviation
Race/ethnicity	1.17	0.379
Gender	1.49	0.500
Parental income	10.91	2.780
Parental educational level	12.87	2.640
High-school GPA	7.12	0.988
Composite SAT score	1125.34	398.200
Initial institutional commitment	3.28	0.949
Knowledge-level exam questions	2.30	0.791
Class discussions	8.81	1.740
Group work	4.68	1.350
Higher order thinking activities	14.93	3.61
Social integration	25.39	4.280
Subsequent institutional commitment	13.21	2.980
Intent to re-enroll	12.85	2.930

TABLE 3  
Zero-Order Correlations Among the Variables

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Race	1.00													
2. Gender	0.04	1.00												
3. Parental income	-0.20	0.00 <sup>a</sup>	1.00											
4. Parental educational level	-0.08	-0.02	0.34	1.00										
5. High-school GPA	-0.06	0.13	-0.12	-0.08	1.00									
6. Composite SAT score	-0.06	-0.05	0.12	0.09	0.04	1.00								
7. IC1	-0.11	-0.11	-0.02	-0.09	0.06	-0.09	1.0							
8. Knowledge level	-0.02	-0.14	0.03	0.07	-0.09	-0.03	-0.01	1.00						
9. Discussions	-0.05	0.03	0.04	0.01	0.02	-0.01	0.02	-0.03	1.00					
10. Group work	-0.05	-0.03	-0.03	0.02	-0.08	-0.06	0.11	0.09	0.23	1.00				
11. Higher order	-0.06	-0.03	0.11	0.00 <sup>a</sup>	-0.04	-0.07	0.03	0.13	0.19	0.14	1.00			
12. Social integration	-0.06	0.20	0.01	0.04	0.10	-0.06	0.05	-0.03	0.22	0.03	0.08	1.00		
13. IC2	-0.07	0.05	-0.05	-0.01	0.09	-0.07	0.15	-0.07	0.19	0.02	0.06	0.62	1.00	
14. Intent	0.02	0.09	-0.02	-0.00 <sup>a</sup>	0.12	-0.00 <sup>a</sup>	0.08	-0.16	0.17	0.01	0.01	0.46	0.59	1.00

<sup>a</sup> =  $r$  less than  $\pm 0.00$ .

TABLE 4  
Structural Parameter Estimates of Endogenous Variables (Standardized Direct Effects)

Independent Variables	Dependent Variables							
	IC1	Knowledge	Discussions	Group Work	Higher Order	Social Integration	IC2	Intent
1. Race	-0.12***	-0.01	-0.04	-0.02	-0.02	-0.05***	-0.03***	0.07***
2. Gender	-0.08***	-0.13***	0.03*	-0.03***	-0.03***	0.18***	-0.10***	0.01
3. Parental income	0.00 <sup>a</sup>	0.00 <sup>a</sup>	0.04	0.13***	0.13***	-0.02	-0.05***	0.02
4. Parental educational level	-0.09***	0.06***	-0.03	-0.02	-0.02	0.05***	-0.00 <sup>a</sup>	0.00 <sup>a</sup>
5. High-school GPA	0.04***	-0.07***	0.02	-0.06***	-0.07***	0.07***	0.03***	0.05***
6. Composite SAT score	-0.09***	-0.04***	-0.02	-0.06***	-0.06***	-0.04***	-0.03***	0.04***
7. IC1		0.01	0.01	0.11***	0.11***	0.02	0.12***	0.01
8. Knowledge level						-0.00 <sup>a</sup>	-0.06***	-0.11***
9. Discussions						0.21***	0.06***	0.05***
10. Group work						-0.02	-0.02	0.00 <sup>a</sup>
11. Higher order						0.05***	0.01	-0.02
12. Social integration							0.61***	0.14***
13. IC2								0.49***
14. Intent								
R Squared	0.20**	0.03**	0.01	0.04**	0.02*	0.10***	0.42***	0.39***

<sup>a</sup>beta weight less than +/-0.00. \* $p < 0.05$ . \*\* $p < 0.01$ . \*\*\* $p < 0.0001$ .

TABLE 5  
Standardized Indirect Effects on Social Integration, Subsequent Institutional Commitment and Intent to Re-Enroll

Independent Variables	Social Integration	Subsequent Institutional Commitment	Intent To Re-Enroll
1. Race	-0.15***	-0.43***	-0.37***
2. Gender	0.06***	0.81***	0.37***
3. Parental income	0.02***	-0.00 <sup>a</sup>	-0.03***
4. Parent educational level education	-0.01	0.02***	0.01
5. High-school GPA	0.02	0.17***	0.19***
6. Composite SAT score	-0.00 <sup>a</sup>	-0.00 <sup>a</sup>	-0.00 <sup>a</sup>
7. IC1	0.01	0.04	0.21***
8. Knowledge level		-0.03	-0.11***
9. Discussions		0.22***	0.19***
10. Group work		-0.03	-0.04***
11. Higher order		0.02***	0.02***
12. Social integration			0.21***

<sup>a</sup>beta less than +/-0.00  
\*\*\**p* < 0.0001.

Class discussions (beta = 0.06, *p* < 0.0001) also positively influence subsequent institutional commitment. In contrast, knowledge-level exam questions (beta = -0.06, *p* < 0.0001), an indicator of passive rather than active learning, negatively affects subsequent institutional commitment. Consistent with the assessment of Tinto's Theory made by Braxton, Sullivan and Johnson (1997), social integration (beta = 0.61, *p* < 0.0001) also exercises a statistically reliable positive direct influence on subsequent institutional commitment.

Two of the four indices of active learning affect, in a statistically reliable way, student persistence. Class discussions positively influence (beta = 0.05, *p* < 0.0001) persistence, whereas knowledge-level exam questions (beta = -0.11, *p* < 0.0001) negatively influence such student behavior. In addition, both social integration (beta = 0.14, *p* < 0.0001) and subsequent institutional commitment (beta = 0.49, *p* < 0.0001) exert positive effects on student decisions to remain in their chosen collegiate institution.

*Indirect Effects*

Class discussions exercise statistically reliable indirect effects on both subsequent institutional commitment (beta = 0.22, *p* < 0.0001) and a student's intent to return to the focal collegiate institution (beta = 0.19, *p* < 0.0001). Moreover, social integration (beta = 0.21, *p* < 0.0001) indirectly affects intent to return in a positive, statistically significant manner. From Table 5 it can be observed that higher order thinking activities

wields a statistically significant influence on both subsequent institutional commitment and intent to return. Group work and knowledge-level exam questions exert statistically significant indirect effects. However, the regression coefficient of these effects fall below the criterion of 0.05 suggested by Land (1969) as meaningful. Thus, these indirect effects are regarded as chance occurrences.

### *Limitations*

Several limitations to this research moderate the conclusions and implications for practice derived from its findings. First, intent to return constitutes a proxy measure for actual student persistence. Consequently, the findings of this study pertain to a student's likelihood of departure rather than their actual departure. Second, only the likelihood of persisting from the first year to the second year of college is addressed by this study. Hence, departure in subsequent years is not assessed. Moreover, some withdrawals who might re-enroll at the focal university are also not included (Eckland, 1964). Third, this study was conducted at a single research-oriented, highly selective residential university. Thus, the findings of this study may not be generalizable to other types of colleges and universities. However, single institutional studies are more in keeping with the underlying assumptions of Tinto's theory as it seeks to explain the longitudinal process of student departure within a given college or university (1993, p. 112). As such, Tinto asserts that his theory "is not a systems model of departure" (1993, p. 112). Finally, our measures of active learning are best viewed as exploratory. Hence more refined measures of active learning should be developed in future research.

### *Conclusions and Recommendations for Research*

The findings of this study offer some support for the role of active learning in influencing student persistence/departure decisions. Put differently, faculty classroom behaviors play a role in the student departure process. Three of the four indices of active learning wield a statistically significant influence on one or more of the central constructs of this study's theoretical perspective: social integration, subsequent institutional commitment, and students' intent to return. Only active learning emphasizing group work fails to influence any of these constructs.

The findings of this study also add to our knowledge and understanding of social integration. Although social integration is unaccounted for by those propositions of Tinto's Theory that enjoy robust empirical sup-

port (Braxton, Sullivan & Johnson, 1997), institutional type (Chapman & Pascarella, 1983), organizational attributes (Berger & Braxton, 1998; Braxton & Brier, 1989), motivations for attending college (Stage, 1989), financial aid (Cabrera, Nora, & Castaneda, 1992), fulfillment of expectations for college (Braxton, Vesper, & Hossler, 1995), sense of community in residence halls (Berger, 1997), and student involvement (Milem & Berger, 1997) do represent empirically based sources of influence on social integration. Active learning should be added to this growing body of knowledge on sources of influence on social integration.

Moreover, the pattern of findings of this inquiry indicate that faculty classroom behaviors in general and active learning in particular may constitute an empirically reliable source of influence on social integration, subsequent institutional commitment, and departure decisions. As a consequence, various facets of faculty teaching role performance may serve as a basis for the elaboration of Tinto's Theory. Future efforts to revise Tinto's 1975 foundational theory through theory elaboration should include not only measures of active learning, but also other dimensions of faculty teaching role performance that might facilitate social integration, subsequent institutional commitment, and student persistence.

### *Recommendations for Further Research*

Because student learning constitutes the crux of the theoretical formulations guiding this inquiry, faculty teaching behaviors that affect—theoretically or empirically—student learning should be the focus of further research efforts designed to elaborate Tinto's theory. Such faculty teaching behaviors might include various types of teaching methods, the application of principles of good practice, and adherence to norms governing teaching role performance. To elaborate, faculty use of such teaching methods as the lecture, collaborative learning, and personalized systems of instruction are examples of teaching methods that might variously affect social integration, subsequent institutional commitment, and persistence.

Faculty application of the seven principles of good practice—encouragement of faculty-student contract, encouragement of cooperation among students, encouragement of active learning, prompt feedback, emphasizing time on task, communicating high expectations, and respect for diverse talents and ways of knowing—described by Chickering and Gamson (1987) might also influence social integration, subsequent institutional commitment, and departure decision. The application of these seven principles may influence the student departure process in general and social integration in particular because of the vigorous base

of research that indicates that the application of these practices enhances student learning (Sorcinelli, 1991).

Faculty adherence to undergraduate college teaching norms might also wield an influence on social integration, subsequent institutional commitment, and persistence. Such empirically derived proscribed undergraduate college teaching norms as condescending negativism, inattentive planning, moral turpitude, particularistic grading, personal disregard, and uncommunicated course details may hinder student learning of course content (Braxton & Bayer, 1999). As a consequence, students who take courses from faculty whose classroom decorum reflects these proscribed teaching behaviors may learn less from such courses. In turn, this may negatively affect their degree of social integration as well as indirectly influence their subsequent institutional commitment and departure decisions.

Future research should also explore the following explanations for the somewhat surprising failure in this study to document a relationship between our measure of group work and any of the key variables in this model of persistence. Such a failure is particularly striking when we consider that another measure of engagement with peers, participation in class discussions, did have positive effects in the analysis. There are at least two plausible explanations for this finding. Both explanations suggest that we may have been somewhat imprecise in the construction of our variable intended to represent involvement by students in group work in their classes. First, it is possible that the measure of group work that was created for use in this study does not appropriately capture this construct. The scale that was used was created by combining two related, but possibly conceptually different, items. One item assessed the extent to which students had been required by faculty to work together in groups. The second item assessed the extent to which students had been required to work together in *cooperative* groups in class. These two items may represent two *distinct* types of group work. The second explanation is related to when the data for the two items in this scale were gathered. Both items came from the ECES which was administered at the midpoint of the fall semester. It is possible that this was simply “too early” a point in time at which to gather these data. Had the data been gathered later in the year, students’ perceptions of their time spent in these activities might have differed from their very early assessments regarding their involvement in group work. Whatever the explanation for these findings, it is important that future research explore this relationship in greater detail.

In addition to the considerations described above, the current study should be replicated in other types of colleges and universities. Com-



muter institutions, in particular, should be the focus of such studies. In comparison to residential colleges and universities, commuter institutions offer fewer opportunities for social interaction necessary for integration into the social communities of such collegiate institutions (Pascarella, Duby, & Iverson, 1983). As a consequence, considerable psychological energy is required of students seeking social interaction in commuter institutions. Thus, students who experience active learning in the classroom may make the extra efforts necessary to develop friendships with their peers.

### *Implications for Practice*

The ability and/or willingness of faculty to use the pedagogical approaches found to be significant in predicting constructs in this model of college student persistence are related frequently to the size of the class being taught by the faculty member. Larger, "lecture style" classes make it difficult for faculty to employ active learning methods in the classroom. However, it is precisely this type of class in which many first-year students are enrolled. We suggest that there are at least two ways in which this concern can be addressed. First, a number of strategies can be found that allow faculty to integrate active learning approaches into classes with larger enrollments. Bonwell (1996) and Bonwell and Sutherland (1996) provide guidance regarding ways in which faculty can integrate aspects of active learning into lecture style classes to create *enhanced lectures* that will positively impact students. These *enhanced lectures* (Bonwell, 1996) are "a series of short, mini-lectures punctuated by specific active learning events designed to meet class objectives" (p. 33). Other active learning activities that can be incorporated into lecture style classes to create enhanced lectures include the pause procedure, short writes, think-pair-share, formative quizzes, lecture summaries, and classroom assessment techniques (Bonwell, 1996; Bonwell & Sutherland, 1996).

The second way in which this concern can be addressed is through the creation of more first-year seminar classes like those that have begun to appear on many campuses across the nation. Clearly, the use of active learning techniques is easier in classes that have smaller enrollments. These seminars can help students to understand what they need to know regarding what active learning methods are, the ways in which they work, and the advantages and challenges that are presented in these pedagogical approaches (Warren, 1997). Warren suggests that the best place for these activities to begin is during orientation programs. These seminars also provide opportunities for cooperative partnerships between

student affairs professionals and faculty. He properly asserts that student service professionals have been using active learning for many years. Hence, these seminars provide an opportunity for faculty and student affairs professionals to work more closely together to create a seamless connection between the curricular and the co-curricular activities of the college, a connection that has been called for in the *Student Learning Imperative* (American College Personnel Association, 1994). For example, on residential campuses, sections of freshman seminars could be organized based upon the living unit of students. Faculty and residence hall staff could join together in teaching these seminars and work to create curricular and co-curricular experiences that can maximize the impact of these courses on students.

It is important to consider what the findings of this study reveal in the context of information gleaned from other studies of persistence. For example, Milem and Berger (1997) have established the important roles that involvement with peers and perceptions of peer support have in predicting social integration. Given these findings, and our discussion in the paragraph immediately above, the impact of the use of active learning activities in the classroom is likely to be amplified if these methods are applied in classrooms that are linked to living/learning programs that are specifically designed for first-year students.

The findings of this study also have implications for the type of questions that faculty ask students in class and for the development of questions asked on course examinations. Although some class and examination questions at the knowledge level may be appropriate, faculty should strive to develop questions at higher levels of course understanding. Bloom's (1956) *Taxonomy of Educational Objectives: The Cognitive Domain* can provide faculty with thoughtful ways in which to do this. Bloom provides a vocabulary and a framework for the development of examination questions that require a higher level of course understanding than knowledge level questions require.

Frost (1991) recommends that advising programs be particularly attentive to the needs of first-year students. Consistent with this recommendation, the findings of this study suggest that academic advisors (whether they be faculty, professional advisors, and/or peers) should encourage students to consider the pedagogical practices employed by specific faculty in classes when advising students about the courses that they should take. For this suggestion to be successful, advisors must have information about the pedagogical practices faculty at their institution employ in the classes that they teach.

Consistent with this line of thinking, student course rating instruments should be constructed in a way that gathers information on the

frequency with which faculty use various active learning activities in the classroom. This information can provide faculty, administrators, and students with a means for understanding the connection between teaching role performance and a range of student outcomes (including student persistence). The information gathered from these instruments can also provide the information that is needed by advisors so that they are able to provide students with the information about faculty pedagogy that is described above.

Finally, individuals with responsibility for faculty development activities at colleges and universities should develop workshops, seminars, and discussion groups that assist faculty members in acquiring the knowledge and skills necessary to successfully incorporate active learning methods in the classes they teach. Most faculty have not received any training or support for their teaching activities as part of their graduate training. Rather, they are most likely to teach in the way that they were taught. Regrettably, few faculty have been taught in classes where active learning techniques were incorporated as the dominant form of instruction. Moreover, because most college and university faculty lack expertise in posing discussion questions and in writing examination questions that make fine-grained distinctions among levels of course understanding (Braxton, 1993), faculty development workshops that focus on these issues should also be created. These workshops should assist faculty in acquiring the skills necessary to develop questions that plumb the levels of understanding discussed by Bloom (1956).

An argument can be made that involvement in activities like these requires most faculty to make changes in the way in which they “normally” do things. Participation in these types of activities clearly is not the norm for faculty. Hence, it is important to consider factors that are likely to encourage faculty to be innovative in their pedagogical approaches. Finkelstein (1984) indicates that the willingness of faculty to be innovative in the manner in which they approach aspects of their work is influenced primarily by intrinsic factors relating to the personal and professional needs of the faculty member. However, organizational factors are likely to “increase their potency” (Finkelstein, 1984, p. 131) in the extent to which faculty feel that a specific innovation is something that the organization is demanding of them and/or is something on which faculty believe that the institution is placing great emphasis. Hence, institutions that clearly communicate the value that they place on active learning methods (and the role that these methods appear to have in the persistence process) can increase the likelihood that faculty will incorporate these methods into their classroom teaching practices.

### Concluding Thoughts

The teaching practices of college and university faculty play a significant role in the college student departure process. This role holds importance for both our understanding of the process of college student departure and for the improvement of institutional retention rates. Both research and practice should increase efforts to enhance the pedagogical practices of college and university faculty members. Such efforts might not only reduce student departure, but also increase student learning.

### Notes

<sup>1</sup>We acknowledge the recommendation of an anonymous reviewer of this manuscript that a distinction between active learning and academic integration be made

<sup>2</sup>Braxton (in press) makes a distinction between antecedents of social integration and social integration. However, this distinction also directly applies to the difference between antecedents of academic integration and academic integration.

<sup>3</sup>The notion of psychological energy is derived from Astin's (1984) Theory of Involvement. In this theory, Astin asserts that involvement depends on the amount of physical and psychological energy students expend in different objects related to the college or university environment.

<sup>4</sup>LISREL is an alternative statistical technique we might have used. However, the major characteristics of LISREL were not needed to estimate the influence of active learning on social integration, subsequent institutional commitment and student departure decisions. Specifically, the development of an instrument to measure active learning was not a purpose of this study. Thus, the measurement component of LISREL was not needed, because our measures of active learning are best viewed as exploratory. We also did not need to correlate the error terms of the various variables because of the paucity of research on this topic. Put differently, a baseline of research is needed before error terms are correlated. In addition, we wished to have the effects of all variables estimated rather than to constrain the estimation of the effects of some variables.

<sup>5</sup>As evidenced by the zero-order correlations displayed in Table 3, high multicollinearity does not pose a problem to the execution of the path analysis. From Table 3, it can also be observed that the zero-order correlations among the four measures of faculty active learning behaviors are low. Based on these correlations, one might raise a question about whether the four active learning behaviors are measuring the same thing. If we had measured faculty attitudes and values about active learning, then these low zero-order correlations among the four active learning measures would be problematic. However, we measured faculty active learning behaviors. The low zero-order correlations suggest that most faculty members may be choosing to use only one of the four types of active learning instructional behaviors. The choice of one active learning behavior implies that active learning is valued. Thus, these low zero-order intercorrelations do not suggest that our measures of active learning are problematic.

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