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ABSTRACT

The effect of collegiate experiences on students' reported personal development during the first two years of college were studied after controlling for individual, prematriculation differences. LISREL (Linear Structural RELationships) Analysis was employed to fit Tinto's theoretical framework to the variables and processes potentially involved in the impact of college on students' personal growth. Results indicate that while both social and academic integration levels are reliably related to reported personal growth in each year, academic integration appears to have the stronger influence, particularly in the sophomore year. Academic and social integration in the first year was related to integration levels in the second year, but the evidence suggests that reported personal development in the freshman year may be independent of the growth reported in the sophomore year. Findings generally support the construct validity of Tinto's theory and of its utility for studying college student outcomes other than attrition/retention behaviors. From a practical standpoint, the results suggest that students' integration into the academic system of the college may be as important to their personal growth as to their academic and intellectual development. (Author/SW)

STUDENTS' PERSONAL GROWTH DURING THE FIRST TWO YEARS OF COLLEGE

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STUDENTS' PERSONAL GROWTH DURING THE FIRST TWO YEARS OF COLLEGE

Abstract

This study sought to determine whether students' reported personal development during the first two years of college, after controlling for individual, pre-matriculation differences, is reliably related to their collegiate experiences during those years and whether the sources of infuence on that reported growth vary from one year to the next. LISREL results indicate that while both social and academic integration levels are reliably related to reported personal growth in each year, academic integration appears to have the stronger influence, particularly in the sophomore year. Academic and social integration in the first year was related to integration levels in the second year, but the evidence suggests that reported personal development in the freshman year may be independent of the growth reported in the sophomore year.

STUDENTS' PERSONAL GROWTH DURING THE FIRST TWO YEARS OF COLLEGE

Colleges and universities have made a number of claims over the years concerning the direct and indirect benefits of college attendance. In the last five-to-eight years, however, legislators, state coordinating agencies, taxpayers, parents and students have increasingly asked to see the evidence supporting those claims. Tennessee and South Dakota have already mandated "value-added" student outcomes assessment programs, and similar projects of one sort or another are being planned in another third of the states.

As the literature reviews of Feldman & Newcomb (1969), Lenning et al. (1974a, 1974b), Bowen (1977) and others make clear, a substantial body of research exists dealing with college students, the institutions they attend, and what happens to students during and after college. Much of that research has focused on students' nonintellective development during college, including changes in personality, attitudes, political preferences, religious beliefs, values, aspirations, intellectual and career orientations, and self-identities. After reviewing the research conducted prior to about 1967, Feldman and Newcomb (1969) reported finding consistent evidence of personal growth in a variety of areas. Bowen (1977), a decade later, concluded that "There is an abundance of evidence about personal self-discovery during college and related changes in values, attitudes and life choices" (p. 112).

A number of weaknesses are apparent in the accumulated evidence, however. First, most studies use cross-sectional designs and fail to control for individual difference among students at the time they entered

college. In the absence of some knowledge of what student are like at the time of matriculation, it is impossible to know with any confidence whether subsequently observed differences among students are attributable to the collegiate experience or to the individual differences that existed at the time of matriculation.

Second, much of the existing research tends to be descriptive, characterizing students, for example, by their personality profiles, attitudes, or value orientations. In recent years, research in this area has been increasingly theory-based, but of those studies, few seek to identify those collegiate experiences that might facilitate or impede students' personal development and over which institutions have some policy or programmatic control. Little has changed since Bidwell, writing a decade ago, noted that "It has not been shown persuasively . . . that the 'effects' observed are indeed attributable to college influence; more important, the processes by which they may occur have not been specified" (quoted in Bowen, 1977, p. 105).

Finally, with a few exceptions (e.g., Newcomb's Bennington College studies and those of Nevitt Sanford and his colleagues at Vassar), most studies focus on student development during a single year (typically the freshman year), or between the freshman and senior years, comparing senior scores on some measure with those obtained at the time of entry to college. Little attempt has been made to monitor students' personal development from year to year to determine when such growth occurs and whether the influences on that growth vary over time. Even Astin's (1977) and Trent and Medsker's (1968) studies, both of which examined in detail the behavioral and attitudinal impacts of college, gave little or no attention to year-by-year student growth in any particular area.

Specifically, this study sought to determine 1) whether students' reports of their personal growth during the first two years of college can be reliably related to their experiences during those years, after controlling for pre-college characteristics, and 2) whether the sources of influence on that reported growth are different in the two years.

METHODS

Theoretical Framework

In his model of undergraduate student attrition, Tinto (1975) theorizes that students' pre-college traits lead to varying initial levels of goal and institutional commitment. These commitments, in turn, influence the manner in which the student interacts with the academic and social environment of the institution, resulting in varying subsequent levels of integration in the institution's academic and social systems. According to the theory, the higher the level of academic and social integration, the greater the likelihood that the student will remain enrolled.

It seems reasonable, however, to consider dropping out as only one possible educational outcome and to expect a students' integration into the social and academic systems of an institution to influence other educational outcomes as well. If the collegiate experience has a positive influence on the personal and academic growth of students, then the student who is more integrated into the academic and social life of an institution might be expected to grow more in a number of ways than a less integrated student. This study's design follows the Tinto model, and a secondary purpose of the research was to test the proposition that the model has utility for studying educational outcomes other than student attrition.

Design and Sample

During the summer of 1980, freshmen attending a randomly-selected five of nine summer orientation sessions at a large, selective, public research university in the northeast were asked to complete a locally-developed questionnaire soliciting a variety of academic and personal background information. Usable responses were received from 1,105 freshmen who subsequently matriculated at the university (approximately 50% of the 1980 freshman class).

In April of each of the two succeeding academic years, a detailed questionnaire asking students about their experiences during the year just ending was sent to each of the students who had participated in the preceding data collections. After follow-up mailings, usable responses were received from 723 students at the end of the freshman year (a 65% response rate), and from 460 at the end of the sophomore year (64% of the freshman respondents). This study is based on the responses of the 460 students who participated in both years of the study. This group constitutes 42 percent of the original sample, and 22 percent of the original entering freshman class. Tests indicate that respondents are representative of the population of freshmen with respect to academic aptitude (combined SAT courses), high school achievement (high school percentile rank), gender and combined parental education.

Variables

Students' pre-college characteristics, treated as exogenous variables (i.e., outside the causal model), were high school achievement (percentile rank in graduating class) and highest degree planned (bachelor's, master's or doctorate). Preliminary analyses indicated that other background variables for which data were available were not reliably related to the

dependent measures, nor to other post-matriculation variables and were, consequently, excluded from the model. Excluded variables included: sex, race or ethnicity, combined SAT scores, and parents' level of formal education.

Each year's follow-up instrument asked students to: 1) estimate the number of times during the year they had met with a faculty member outside the classroom for each of six reasons (only conversations lasting 10 to 15 minutes or more were to be counted); 2) indicate the number of hours per week, on the average, they had spent in organized, extra-curricular activities in both the fall and spring semesters (subsequently summed to form a single index); 3) to respond to a series of 34 Likert-scale items designed to measure various dimensions of social and academic integration in the Tinto model, and 4) to respond to ten items describing various indicators of the level of students' classroom and social involvement.

The 34 Likert items, comprising five dimensions, were taken from Pascarella and Terenzini (1980). A series of principal components analyses indicated substantial stability in the five-factor solution across academic years. Scales based on three of these factorial dimensions, labeled "Peer Relations," "Faculty Relations," and "Faculty Concern for Student Development and Teaching," were used in this study. The internal consistency (alpha) reliability coefficients for these three scales range from .71 to .82 in this study.

Frequency of contact with faculty was measured by students' estimates of the total (summed) number of times during the year they had met with a faculty member outside of class for "academic" purposes (to get academic program advice, to discuss careers, or to discuss intellectual or course-related topics), and for "non-academic" purposes (to discuss

personal problems, to discuss campus issues, or to socialize informally). Sums were transformed to the natural logarithm of the frequency plus one prior to analysis in order to correct for skewness.

The indicators of students' classroom and social involvement were taken from Terenzini, Pascarella and Lorang (1982) and have alpha internal consistency reliability coefficients of .61 and .75. The classroom involvement scale measures such things as the extent to which the student "enjoyed . . . classes" and "learned something new in . . . classes." The social involvement scale includes such items as "felt at home here" and "met students who were interesting." Principal components analyses indicated that the two-factor solution is stable across years for the students in this study.

Thus, the predictor variables in this study were the two covariates listed earlier and eight independent variables, or "college experience" variables, grouped in two sets--one reflecting academic integration, the other indexing social integration--for each of the two years under study. The variables comprising each set are given in Table 1.

On each of the follow-up instruments, students were also asked to indicate the amount of progress they believed they had made during the year just ending in each of twenty-nine skill or growth areas (Terenzini, Pascarella and Lorang, 1982). The items were scored on a one-to-four scale, where 1 = "no progress at all" and 4 = "a great deal of progress." One of four components derived factorially from these items, the "Personal Development" scale, was adopted as the dependent measure in this study. This scale includes the following five items: 1) developing a sense of personal responsibility (self-reliance and self-discipline); 2) developing skills in expressing myself orally and in writing; 3) developing an

interest in or openness to new ideas; 4) developing a clearer or better understanding of myself as a person (my interests, talents, values), and 5) developing interpersonal skills and the ability to relate to others. The internal consistency reliabilities for this scale were .75 in the freshman year and .77 in the sophomore year.

Analytical Method

LISREL (Joreskog & Sorbom, 1981) was employed to fit Tinto's theoretical framework to the variables and processes potentially involved in the impact of college on students' personal growth. The LISREL technique offers several advantages over the more common ordinary least-squares (OLS) path analytic techniques. First, LISREL affords a more comprehensive and rigorous test of a model's empirical adequacy as an explanatory system (its internal validity) than can be obtained using OLS standardized regression coefficients (Hennessey, 1985).

Second, LISREL models are nonrecursive: they can estimate reciprocal (simultaneous) effects of two variables, each influencing the other. OLS path models, by comparison, are recursive (i.e., the causal influence is assumed to be unidirectional) and cannot model reciprocal effects. (Two-stage, least-squares regression might have been chosen and would yield similar results.)

Third, LISREL permits the control of measurement error and any correlation between error terms, thus producing relatively unbiased path estimates. This is particularly useful in longitudinal studies where the autocorrelation between measures of the same variable at $Time_1$ and $Time_2$ is a significant confounding factor when measuring structural effects and assessing changes that occur between measurements (Joreskog, 1981).

Fourth, LISREL allows the researcher to estimate the effects of latent (unobservable) constructs on the final endogenous (dependent) variable while simultaneously controlling for correlations between their empirical indicators. The LISREL model produces more reliable (unbiased) estimators than can be obtained using OLS procedures.

The structural model specified that goal commitment was a latent construct reflected by the exogenous (outside the model) variable "highest degree expected." Academic aptitude was also specified as a latent construct, indicated by the exogenous variable "high school achievement." These two constructs were theorized, in turn, to influence students' levels of academic and social integration. "Academic integration" was presumed to be reflected in students' scores on the variables listed under that heading in Table 1, while "social integration" was operationalized by scores on variables listed under that heading in the same table. Both academic and social integration levels were hypothesized to have a direct effect on students' reported personal development during the same year and on the level of social and academic integration in the following year, which in turn, would influence the level of personal growth reported in that same year. Similarly, the amount of personal development reported in one year was expected to influence the reported growth in the following year.

RESULTS

Table 1 reports the means and standard deviations for all variables used in the analysis. It also provides a key to the variable abbreviations used in Figure 1, a schematic representation of the LISREL model developed in this study.

Figure 1 shows the two parts of the LISREL model developed in this study: the "measurement model" and the "structural model, combined. In Figure 1, the boxes represent the measured variables used in the analyses. The oval to which each box is attached represents the latent construct the observed variables are presumed to reflect. Taken together, the boxes and the attached oval define the LISREL "measurement model" and summarize how each latent construct was empirically constituted. The coefficients associated with the paths linking each box to an oval are interpretable as standardized regression (i.e., beta) weights and reflect the relative contribution of each variable to the definition of the latent construct: the higher the coefficient, the larger the contribution to defining the latent trait. For purposes of model identification, one parameter (the best indicator of the underlying construct) is set with a starting value of 1.0.

The relations described by the lines connecting the ovals constitute the theoretical (structural) model as adjusted to reflect the relations identified in the analysis of the observed data. The numbers associated with each connecting line are interpretable as path coefficients, or standardized regression weights, and reflect the relative strength of the influence of one latent construct upon another. Where a path was statistically unreliable, but of theoretical interest, a dotted-line path is shown in Figure 1 and the coefficient is enclosed in parentheses.

As noted earlier, one of the strengths of LISREL is its ability to control for correlated error terms and for autocorrelation (the correlation of a measure with itself when used two or more times in a longitudinal study). Those correlations were not thought to be particularly illuminating in the present study and, in the interest of parsimony, they

are not reported in Figure 1. (Readers interested in that information are invited to contact the first author.)

The LISREL model produced an R^2 of .23 for freshman year personal development and .29 for reported sophomore year growth. The overall goodness-of-fit index (which can vary from 0 to 1, where "0" reflects the absence of any fit between the model and the data, and "1" indicates a perfect fit) was .96, indicating a strong fit between the observed covariance matrix and that predicted by the structural model (χ^2 = 218, with d.f. = 168).

Examination of the path coefficients in Table 1 indicates that neither background characteristic (highest degree planned nor percentile rank in high school class) was reliably related to students' academic or social integration. Their relation to academic integration was in the expected direction but not statistically significant, as indicated by the dotted-line paths and the parentheses about their coefficients.

Looking at the reliable paths in the remainder of Figure 1, it is apparent that the results of this study are consistent with theoretical expectations in some instances, but not in others. In both the freshman and sophomore years, as predicted by Tinto's theory, students' levels of both academic and social integration were reliably related to their reported personal growth during those years. In this analysis, academic and social integration appear to be about equally influential in the freshman year, but the impact of academic integration is clearly the greater in the sophomore year, about a third greater than that of social integration.

More interesting, the effect of academic integration on freshman year reports of personal growth was found to be both direct and indirect, the

latter being mediated by social integration. Thus, the total effect of academic integration (.359) on reported personal growth in the first year appears to be somewhat greater than that of social integration. Moreover, Tinto (1975, pp. 96-97) has suggested that both institutional and goal commitments, and levels of academic and social integration, might interact, high levels of one, for example, compensating for low levels of another. Thus, the direct effect of academic integration on social integration is consistent with Tinto's suggestion, but the nature of the relation is one-way, not reciprocal. This finding of a direct, but unidirectional, relation between academic and social integration is consistent with that reported by Terenzini and Wright (1986) in a study of students' reports of cognitive development, but the finding is not consistent with the compensatory relation between academic and social integration reported by Pascarella and Terenzini (1979, 1983). No relation between academic and social integration levels was found in the sophomore year.

The theory-predicted relation between students' levels of academic and social integration in one year and those in the next also emerged. This finding suggests that the overall level of academic and social integration, at least in the first two years of college, may be cumulative.

Both Tinto's theory and intuition would lead one to expect that students' reported personal growth in the freshman year would be reliably related to their sophomore year level of academic and social integration and, ultimately, to their reported personal development during that same year. Neither of these expectations was fulfilled, however. While the path from freshman to sophomore year personal growth was in the expected direction, it was not statistically reliable (path coefficient = .11). Similarly, the anticipated influence of reported freshman year personal

development on both academic and social integration in the sophomore year failed to emerge.

Limitations

This study is limited in several respects. First, the results are based on the responses of students at a single institution. To the extent that these students and their experiences during the first two years of college differ from those at other institutions, the results reported here may not be generalizable beyond the university at which the study was conducted. Second, students' self-reported perceptions of their personal development was the criterion measure in this study, and it is not yet known how precisely students' self-reports of growth, using this particular instrument, may correspond to more objective developmental measures. At the same time, however, Pace has written that dismissing students' self-reports as invalid or biased "is a mistake. All the evidence that we have indicates that college students are conscientious and generally accurate reporters . . . and that their judgments of what they have gained are consistent both with external evidence, when it exists, and with what we might expect in the light of their activities and interests" (1985, p. 13). Elsewhere, Pace (1984, pp. 34-38) reports evidence on this point.

Third, due to limitations on the amount of background information available on respondents in this study, the role of background traits may be underestimated. Future studies of this sort should include additional measures of students' pre-college personal and academic histories. Fourth, this study investigated students' reported personal development over only the first two years of college. It is possible that the dynamics of personal growth in the later years of college are different in both the nature and magnitude of their effects. Finally, the present model probably

constitutes a less-than-fully-specified representation of Tinto's constructs of academic and social integration. Future research should include additional measures of those constructs, such as degree of value consensus with faculty and other students, and frequencies of various kinds of behaviors.

SUMMARY AND CONCLUSIONS

The final structural model explained a little less than a quarter (23%) of the variance in students' reports of their freshman year personal development, and nearly a third (29%) of the variability in their reported sophomore year growth. The goodness-of-fit index for the two-year model was .96 (on a scale of 0 to 1), indicating a comparatively close fit between the data and the theoretical structure ("1" reflects a perfect fit).

As predicted from the Tinto model, students' levels of academic and social integration were positively and reliably related in both years to the extent of their reported personal development. Interestingly, however, the level of academic integration appeared to be somewhat more influential than the degree of social integration on the amount of personal growth reported. This was particularly apparent in the sophomore year, when the impact of academic integration was approximately one-third greater than that of social integration. In the freshman year, while the direct effects of the two types of integration were approximately equal, academic integration was also found to have an indirect effect (through social integration) on reported personal growth. This finding is identical to one reported by Terenzini and Wright (1986) in a study of students' reported cognitive development. In neither study, however, was the indirect effect

of academic integration apparent in any year other than the freshman year, and in neither study was the relation reciprocal: level of social integration appears, in both studies, to have no effect of level of academic integration.

Consistent with the Tinto (1975) model, academic integration in the freshman year was positively related to the sophomore year level. Similarly, freshman year social integration was related to sophomore year integration, but somewhat more strongly than were freshman and sophomore year academic integration levels.

In several notable respects, however, the data did not support the Tinto model. For example, students' background traits in this study were unrelated to either academic or social integration or to reported personal development in either year. This finding may be artifactual, however, inasmuch as the pre-college traits used are more closely associated with academic integration than with social involvement. Preliminary analyses had indicated that other personal and background variables (e.g., sex, race/ethnicity, academic aptitude, and parents' education) were unrelated to other variables in this analysis, and they were, thus, excluded. If different pre-college variables (e.g., personality traits) had been employed, however results more consistent with the theory might have emerged.

The most striking departure from theoretical expectations involved the absence of strong evidence to suggest that students' reported personal growth in the freshman year is related to sophomore year level of academic or social integration, or, more surprising yet, to the level of personal development reported in the sophomore year. Neither a direct nor indirect link was found between reported personal growth in the two years. These

two findings constitute major departures from the Tinto model and warrant further investigation to determine whether they can be replicated on a different sample of students or in a different institutional setting.

The findings of this study have both theoretical and practical implications. In the main, the results of this study are generally supportive of the construct validity of Tinto's (1975) theory and of its utility (as adapted) as a conceptual guide for studying college student outcomes other than attrition/retention behaviors. The presumed reciprocality between levels of academic and social integration in any given year is called into question, however. The relation between these two variables appears to be unidirectional, and academic integration appears to influence social integration. It is possible, or course, that this finding is situational: the university at which the study was done is highly selective in its admissions and, because of the strong academic competition and strong academic and career orientations of students, it may be that involvement in the academic life of the institution is something of a prerequisite for involvement in its social life. Indeed, the academic life may, in part, define the social life of the campus, at least during the freshman year.

It may also be, however, that learning in one domain influences, and is influenced by, learning or growth in the other. The replication of the effect of academic integration level on social integration reported by Terenzini and Wright (1986) suggests some stability to this relation. While it remains to be determined whether that relation is, in fact, unidirectional or reciprocal, the result is at least partially consistent with Tinto's theory and with Cantor and Kihlstrom's framework describing

the reciprocal relations between cognitive processes and social behavior (in Korn, 1986). Further research is needed to illuminate the matter.

Equally interesting is the apparent independence of reported personal development in the freshman year from that reported in the sophomore year. It is possible, of course, that influences outside the model are involved. It may also be that personal development sufficiently great to be detectable with the measures employed in this study does not occur with equal frequency in both years. For example, some students' personal development may occur primarily in the freshman year, while for others, personal growth may take place in the sophomore year. The zero-order correlation between the levels of growth reported in the two years is .47, neither very low nor terribly high for the same measure at two points in time.

It is also possible, of course, that the apparent independence of the two variables is a statistical artifact. The means of the personal growth scales for the two years are approximately the same (2.96 and 2.93 in the first and second years, respectively; see Table 1), and there is relatively little variation within each year (standard deviations = .31 and .23). This attenuated variance, particularly in the sophomore year, may explain the apparent absence of any relation between reported personal growth in the two years. It would appear that clarity must, again, come from future research.

From a practical standpoint, the results of this study suggest that students' integration into the academic systems of an institution may be as important to their personal growth as to their academic and intellectual development. These findings suggest a potential need to rethink campus and departmental orientations programs, many of which tend to give primacy to

introducing students to the social, rather than academic, aspects of the collegiate experience. Because of the important influence of faculty in fostering academic integration, the results also have implications for faculty roles in advising students, as well as for institutional incentive structures and hiring policies.

Finally, the results suggest a coherence and integrity in the developmental process: experiences thought to promote students' academic or intellectual development also appear to influence students' personal growth. Consequently, the results suggest it may be necessary to rethink the nature of students' structured learning experiences, recognizing this "integrity" in program planning so as to take full advantage of the opportunities for both cognitive and affective growth that may be present in formal or structured learning experiences.

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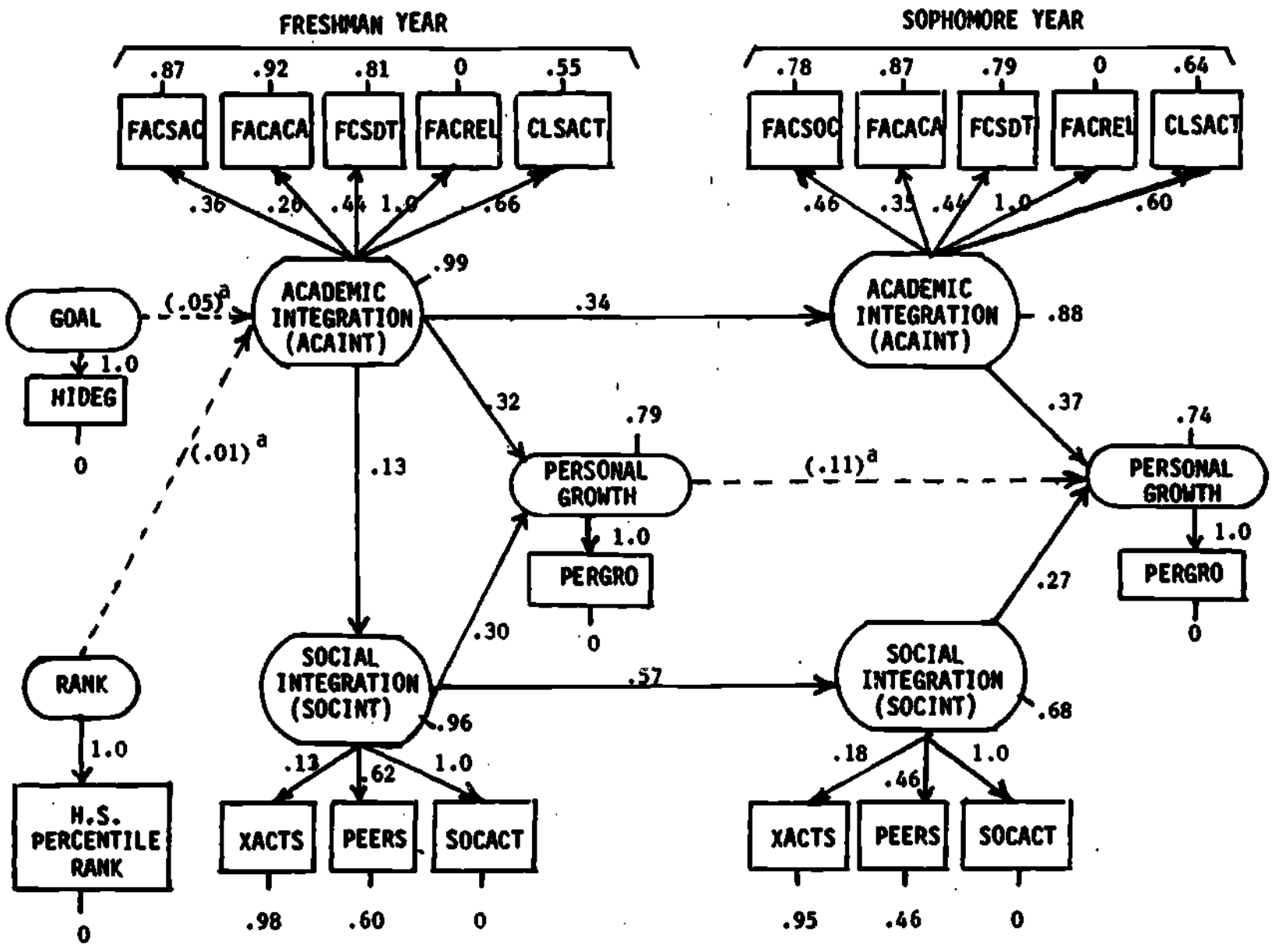
Table 1

MEANS AND STANDARD DEVIATIONS
FOR FRESHMAN AND SOPHOMORE YEARS

(n = 463)

	MEANS		STANDARD DEVIATIONS	
Variable	Fr.	So.	Fr.	So.
Dependent Measure				
Personal growth scale (PERGRO)	2.96	2.93	.31	.23
Pre-college Characteristics				
H.S. percentile rank (RANK)	87.70		10.70	
Highest degree planned (GOAL)	4.13		1.15	
Academic Integration				
Faculty relations scale (FACREL)	2.55	2.66	.95	.96
Faculty concern for students and teaching (FCSDT)	2.63	2.60	.61	.61
Frequency of academic contact w/ faculty (FACACA)[a]	1.97	1.65	.58	.89
Frequency of social contact w/ faculty (FACSOC)[a]	.45	.53	.71	.82
Classroom involvement scale (CLSACT)	2.50	2.48	.49	.53
Social Integration				
Social involvement scale (SOCACT)	2.98	2.90	.66	.63
Peer relations scale (PEERS)	3.42	3.44	.65	.59
Extra-curricular activities[a] (XACTS)	.73	.82	.56	.61

[a]Logarithmically transformed.



[a]Statistically non-significant path.

Figure 1: LISREL model of students' personal growth over two years.