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ABSTRACT

The way that college students' levels of academic and social integration influenced their reported personal development during 4 years of college was investigated. The question of whether the types of influences on growth varied from one year to the next was also studied. During the summer of 1980, a sample of freshmen completed a questionnaire covering academic and personal background. In April of 1981-1984, a detailed questionnaire covered students' experiences during the year just ending. A total of 206 students participated in each of the 4 years. It was found that students' reports of their personal development in each year was strikingly constant from one year to the next. At the same time, however, some variation was apparent in the influence of any given year on students' reports of their cumulative growth over the 4-year period. The junior and senior years appeared to have a direct effect on reported cumulative growth, whereas the effects of the freshman and sophomore years were all indirect, each year's influence being mediated through the succeeding years. Academic integration appears to be somewhat more influential than social integration in the lower division years, but social integration would seem to grow in influence in the upper division years. 22 references. (SW)

THE INFLUENCE OF ACADEMIC AND SOCIAL INTEGRATION ON STUDENTS' PERSONAL DEVELOPMENT DURING FOUR YEARS OF COLLEGE

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THE INFLUENCE OF ACADEMIC AND SOCIAL INTEGRATION ON STUDENTS' PERSONAL DEVELOPMENT DURING FOUR YEARS OF COLLEGE

Abstract

This study explored whether students' levels of academic and social integration were reliably related to their reported personal development during four years of college. The study also sought to determine whether the sources of influence on reported growth varied 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 the freshman and sophomore years, academic integration in the last two years of college appears to be independent of both junior and senior year reported personal development and reported cumulative growth. At the same time, however, the effects of academic integration levels in the freshman and sophomore years continue to be apparent indirectly in the personal growth reported in later years.

THE INFLUENCE OF ACADEMIC AND SOCIAL INTEGRATION ON STUDENTS' PERSONAL DEVELOPMENT DURING FOUR YEARS OF COLLEGE

Early studies of the effects of college on students were heavily influenced, as one might expect, by the discipline of the researcher. Psychologists sought explanations of human behavior and attitudes in personality and other constructs that described conditions largely within the human actors, while sociologists turned to external social and organizational structures and norms to explain behavior. During the 1960s, however, models of college student behavior were developed that reflected both individual and environmental characteristics and theories of how the interactions among these sets of variables might, in combination, shape students' learning and behavior (e.g., Pace & Stern, 1958; Holland, 1966; Pervin, 1967).

Since that time, and as a consequence of these conceptual developments, the research on college students has become increasingly sophisticated. Studies have sought not only to explain the relations between individuals and their environments as predictors of behavior and attitudes, but they have also attempted to estimate the magnitudes of both the individual and joint influences of these sets of variables on student growth.

Literature reviews and individual studies, however, increasingly suggest not only that the interaction of individuals with their environment are involved in student behavior and learning, but also that there are interactions within the individual, between the cognitive and affective dimensions of the same individual student's nature. Korn (1986), for example, concluded that "complex interactions (occur) between what has been

traditionally labeled the cognitive and affective domains of human behavior" (p. 11). He noted, further, after a discussion of what he called the "cognitive revolution in psychology," that a "key element in this conceptual revolution is understanding an individual's active transaction/interaction with significant aspects of his or her environment" (p. 13).

There can be little doubt that students grow in a variety of ways during their college years, and that at least some of this development is a function of college attendance (Feldman & Newcomb, 1969; Hyman, Wright & Reed, 1975; Astin, 1977; Bowen, 1977; Pace, 1979; Pascarella, 1980). There is, of course, less consensus about how much of students' growth can be reliably attributed to their collegiate experiences (as opposed to normal maturation) and about which influences are the most important for growth in a number of areas.

Much of the available 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 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. For example, most studies of students' academic and intellectual development focus on growth during a single year (typically the freshman year), or over the collegiate career (usually contrasting students'

freshman- and senior-year scores on the same variable). Few studies have attempted to monitor the rate of academic development, or the variability of the pattern of influences on such growth, from year to year to determine when and how such development occurs. Moreover, few studies have sought to identify those collegiate experiences that might facilitate or impede students' personal growth and over which institutions have some policy or programmatic control.

This study sought to extend the developing line of inquiry into how students' involvement in the academic and social systems of an institution influence students' reported personal development. Specifically, this study sought to determine 1) whether students' reports of the personal growth during each of four years of college, and cumulatively over that period, can be reliably related to their academic and social experiences during those years, after controlling for pre-college characteristics, and 2) whether the sources of influence on that reported growth vary from one year to the next.

METHODS

Theoretical Framework

Several models have been advanced for explaining how students develop in the college setting. Astin (1985) offers the "involvement" theory of student learning, which he states in its simplest form as: "Students learn by becoming involved" (p. 133). Among the basic postulates of this theory are that involvement requires "the investment of physical and psychological energy," "occurs along a continuum" (from none to substantial), "has both quantitative and qualitative features," and involves both attitudinal and behavioral dimensions (pp. 135-136). This theory, however, provides only

general guidance to researchers interested in a more detailed specification of the dynamics of collegiate impact.

Tinto (1975), in his model of the undergraduate attrition process, offers a more detailed statement of potentially significant influences on collegiate outcomes. Tinto theorizes that students' pre-college traits and levels of commitment to the institution and to personal goals influence the manner in which the student interacts with the institutional environment. These interactions, in turn, lead to varying levels of integration in the institution's academic and social systems. According to Tinto, the level of academic and social integration (other things being equal) is positively related to the likelihood that the student will continue enrollment.

Tinto's model, however, may also be a useful framework for conceptualizing the variables and processes potentially involved in other areas of collegiate impact on students, incorporating in a comparatively explicit causal model many of the basic components or themes of other developmental theories (e.g., Astin's (1985) notion of "involvement"). If the college experience positively influences students' personal and academic growth, then it seems reasonable to expect that a student who is more integrated into (or "involved" in) the academic and social life of an institution will grow more in a number of ways than will a less integrated or "involved" student. On this assumption, the present study focused on the influence of students' academic and social integration levels on their reported personal growth during four years of college.

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 (approximately 50% of the 1980 freshmen class).

In April of each of the four 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 year's data collection. After a follow-up mailing each year, usable response rates were: freshmen year, n = 723 (65%); sophomore year, n = 460 (64%); junior year, n = 301 (65%), and senior year, n = 206 (68%). This study, then, is based on the responses of the 206 students who participated in each of the four years of the study. This group constitutes 19 percent of the original sample, and nearly 10 percent of the entering freshman class four years earlier. 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 (sex, race or ethnicity, combined SAT scores, and parents' level of formal education) were not reliably related to the dependent measure nor to other post-matriculation variables and were, consequently, excluded from the model.

To measure students' levels of integration in the academic and social systems of the institution, 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 specifically 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 level of classroom and social involvement.

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). To correct for positive skewness, a constant of one was added to each sum, which was then transformed to a natural logarithm prior to analysis.

The 34 Likert items, comprising five dimensions, were taken from Pascarella and Terenzini (1980). A series of principal components analyses indicated substantial stability of 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 ranged from .71 to .82 in this study.

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. Sample items from the classroom experience scale are: "enjoyed my classes" and "learned something new in my 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 four years under study. The variables comprising each set are given in Table 1.

On each of the annual follow-up instruments, students were also asked to report on twenty-nine items the amount of progress they believed they had made during the year just ending in various academic and non-academic skill or growth areas. The items, taken from Terenzini, Pascarella and Lorang (1982), 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 measure of students' annual personal growth in each of the four years in this study. This scale reflects students' generalized reports of personal growth using 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 (alpha) reliabilities for this scale were .75, .77, .80, and .74 in the freshman through senior years, respectively.

In the senior year follow-up survey, students were also asked to report the cumulative amount of progress they believed they had made on the same twenty-nine items used to constitute the development scales for each of the four years of the study. In order to assess students' cumulative growth, however, respondents were asked to report their progress "since coming to (this institution)," using a 9-point Likert scale, where 1 = "no growth or development at all," and 9 = "an extraordinary amount of growth" (these were the anchor points on the scale; intermediate points were not labeled). The cumulative measure of students' personal growth over the four-year period (the final endogenous variable in the model) was a factorially-derived scale, consisting of students' reports of generalized personal growth using the following seven items: 1) developing a sense of personal responsibility (self-reliance and self-discipline); 2) developing a clearer or better understanding of myself as a person (my interests, talents, values); 3) developing interpersonal skills, and the ability to relate to others; 4) preparing for active participation in a democratic society; 5) preparing for continued personal and intellectual growth after college; 6) developing long-term, leisure-time interests, and 7) preparing for life in a changing world. This scale has an internal consistency reliability of .91. The zero-order correlations between students' annual reports of growth and the senior year estimate of cumulative personal development for the full four-year period were .20, .23, .31, and .36 in the freshman to senior years, respectively.

'Analytical Method.

Figure 1 displays for heuristic purposes only the freshman and sophomore year portions of the theoretical model underlying this study. For reasons of parsimony, the junior and senior year portions are not shown (the path arrows extending off to the right in Figure 1 are intended to suggest the continuation of the model into the junior and senior years), but the model for each of those years is identical to those given for the first two years. The full theoretical model tested also contained one additional latent construct, representing reported cumulative personal development over the four-year period. Schematically, this construct is placed to the right of senior year personal growth and has four paths leading to it, representing the direct effects of each of the four individual years' reported personal growth.

Figure 1 shows both the "measurement model" and "structural models" of the LISREL analysis employed for this study. Each box represents a measured variable used in the analyses (and given in Table 1). The oval to which one or more boxes is connected represents the latent construct (e.g., academic integration) that the observed variables (together) are presumed to reflect. The boxes and the oval to which each is connected by an arrow, taken together, constitute the LISREL "measurement model" and provide a summary of how each latent construct was empirically constituted. The ovals themselves and the arrows between and among them in Figure 1 constitute the "structural model" and specify the hypothesized relations among constructs based on the theoretical framework underlying the study.

In this study, as can be seen in Figure 1, students' entering goal commitments and high school achievement levels are exogeneous background variables (i.e., determined by forces outside the causal structure) that

are presumed to influence levels of academic integration in the freshman year. Academic integration was presumed to be reflected in students' scores on the variables listed under that heading in Table 1 and whose acronyms are given in the boxes in Figure 1. Social integration was operationalized by scores on variables listed under that heading in the same table. Academic and social integration levels are presumed to influence each other reciprocally, to effect the amount of personal growth reported at the end of the freshman year, and to influence academic and social integration levels in the succeeding year. Freshman year personal growth, in turn, is expected to influence the following year's academic and social integration levels, as well as the personal development reported for the sophomore year, and so on through the senior year. Finally, personal growth in each of the four years is expected to influence cumulative personal growth, reported at the end of the senior year for the entire four-year period.

LISREL VI (Joreskog & Sorbom, 1984) was used to test this causal structure because it offers several advantages over the more common ordinary least-squares (OLS) path analytic techniques, providing a more comprehensive and rigorous test of a model's empirical adequacy as an explanatory system (Hennessey, 1985). First, LISREL models are nonrecursive, permitting tests for reciprocal effects (e.g., between academic and social integration within the same year; see Figure 1). Second, LISREL enables the researcher to model measurement error and autocorrelation (the correlation between the same measure taken at two or more different times), thus producing relatively unbiased path estimates. Finally, whereas the assumption of uncorrelated error terms in OLS factor analytic techniques is frequently violated, LISREL permits estimation of

the effects of latent (unobservable) constructs while simultaneously controlling for correlations among their empirical indicators. Thus, LISREL's confirmatory factor analysis produces more reliable (unbiased) estimators.

RESULTS

Table 1 gives the means and standard deviations for all observed variables used in this study. As can be seen at the bottom of the table, the amount of personal development reported was nearly invariant from one year to the next, the differences between years all being statistically non-significant. As will be seen below, however, the influence of each year on cumulative personal growth varied over time.

Table 2 reports the lambda coefficients for the LISREL measurement model. These coefficients are associated with the paths linking each measured variable (box) to the latent construct (oval) which it reflects. These weights are interpretable as factor loadings and reflect the relative contribution of each observed variable to the operationalization of the latent construct. The higher the lambda, the more completely the variable measures the underlying construct. Although each indicator variable is a fallible measure of the underlying construct, this inaccuracy is taken into consideration by explicitly modeling the indicators' measurement error structure. For purpose of identification in the standardized model, one parameter (the best indicator of the underlying construct) is set to 1.0 and the resultant error term is set to 0 (the indicator variable is completely determined; measurement is assumed to be free of error).

As can be seen in Table 2, each observed variable (with four exceptions) reliably measures at least some portion of the latent construct

it reflects. It would appear that the statistical non-significance of the "faculty concern for student development and teaching (FCSDT)" scale in the junior year, and of the "peer relations (PEERS)" scale in both the junior and senior years, is attributable to the attenuated variance of those variables in those years. Neither that condition, however, nor any other readily apparent one can explain the loss of significance of the "classroom activities (CLSACT)" scale in the senior year.

Figure 2 gives the full structural model of the influences on students' reported personal development during four years of college. The overall R^2 for this model was .20, indicating the model explained one-fifth of the variance in reported cumulative personal growth over the four-year period. The overall goodness-of-fit index was .79 (it can vary from 0 to 1, where 0 reflects no fit between the data and the theoretical model and 1 indicates a perfect fit), suggesting a moderately strong fit between the observed covariance matrix and that predicted by the structural model (X^2 = 1,172, d.f. = 716).

The numerical values associated with each path arrow in Figure 2 are interpretable as standardized regression (beta) weights (or path coefficients) and indicate the direction and relative strength of the influence of one latent construct on another. It would appear that students' background characteristics in this study are only slightly related to their reported freshman year academic integration. (Recall that students' sex, race/ethnicity, academic aptitude and parents' formal education were excluded from these analyses because a preliminary analysis indicated they were not related to other independent or dependent variables.) Only the path from students' pre-college degree aspirations (GOAL) to freshman year academic integration was statistically reliable.

The path from high school academic achievement level (RANK; percentile rank in class) is in the expected direction, but is statistically non-significant (for that reason, the path coefficient is enclosed in parentheses). Interestingly, students' initial degree aspirations also had a negative effect (-.12) on reported cumulative personal growth, suggesting that students' with lower initial degree aspirations apparently enjoy relatively greater overall personal growth than students with higher initial aspirations.

A comparison of the hypothesized paths (see Figure 1) with those shown in Figure 2 reveals both similarities and differences. As predicted, academic and social integration levels in one year were related to those in the following year for each of the four years. Similarly, students' levels of academic and social integration in the freshman and sophomore years, as expected, had a direct and reliable effect on reported personal development during both of those years. It is interesting to note that academic integration had as strong an effect as social integration on reported personal growth in the freshman year, and a nearly forty percent greater influence in the sophomore year. In contrast, while theoretical expectations about the influence of social integration levels were also identified in the junior and senior years, it would appear that students' levels of academic integration in those later years are independent of their reported personal growth both in those individual years and cumulatively. Finally, as expected, students' reports of personal growth in one year had a consistent and direct effect on reported development in the succeeding year.

Notable departures from theoretical expectations are apparent, however. In only two of the four years -- the junior and senior years --

was reported personal growth directly related to cumulative development. Similar hypothesized paths for the freshman and sophomore years failed to emerge. In addition, in none of the four years was the anticipated path identifiable from reported personal growth in one year to either academic or social integration in the succeeding year. Moreover, Pascarella and Terenzini (1979, 1983), consistent with theory-based expectations, found evidence supporting the presence of a reciprocal (i.e., two-way) relation between academic and social integration. Terenzini and Wright (1987) found a unidirectional relation (from academic to social integration), but only in the freshman year. Neither a reciprocal nor a recursive relation was identified in this study -- in any year.

Several other findings, not readily apparent in Figure 2, emerged from this study. While the direct effects of academic integration levels on reported personal growth appear to disappear in the junior and senior years, the results of this study indicate that the indirect influence of academic integration levels in the early years continues to be felt in subsequent years. For example, the indirect effect of freshman year academic integration on reported sophomore year personal growth is .48, nearly 20 percent greater than the direct effect of reported freshman year personal development or sophomore year academic integration level (both .39). Similarly, the indirect effect of freshman year academic integration level on junior year reported growth is .26, and that of sophomore year academic integration is .23 (the latter figure includes a non-significant path of .11 from junior year academic integration to reported growth in that same year). The indirect effects of early levels of social integration on later years reported personal development are more modest.

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 four 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, as well as measures of such variables as readiness to learn and change, and personal self-confidence. 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, frequencies of various kinds of behaviors, and

measures of students' efforts to grow and to take advantage of the personal and academic growth opportunities available in the collegiate setting (see, e.g., Pace, 1984).

SUMMARY AND CONCLUSIONS

Overall, the structural model tested accounted for a fifth of the variance in a generalized measure of students' cumulative personal development over a four-year period. The goodness-of-fit index, which can vary from 0 to 1, was .79, suggesting a moderately strong fit (for a model of this size) between the observed covariance matrix and that predicted from the theoretical model.

The results indicate, consistent with those reported by Terenzini, Theophilides and Lorang (1984), that students reports of their personal development in each year is strikingly constant from one year to the next. At the same time, however, some variation is apparent in the influence of any given year on students' reports of their cumulative growth over the four-year period. The junior and senior years appear to have a direct effect on reported cumulative growth, whereas the effects of the freshman and sophomore years were all indirect, each year's influence being mediated through the succeeding years.

From a theoretical point of view, the results of this study offer moderate support for the adaptation of Tinto's (1975) model of college student attrition to the study of other collegiate educational outcomes. Students' levels of social integration were consistently and reliably related to their reported personal growth in each of the four years, and students' academic integration in the freshman and sophomore years had a direct and statistically significant effect on reported growth in each of

those years. Moreover, reported development in each year was reliably related to that in the following year. Similarly, students' levels of academic and social integration had reliable and direct effects on integration levels in the succeeding year. All of these findings are consistent with theoretical expectations.

In several notable instances, however, the expected paths failed to emerge. In no year, for example, was academic or social integration reliably influenced by reported personal growth in the previous year. The effects of personal growth in one year on that in a later year appear to be direct only and not mediated through any other variable. Moreover, only in the junior and senior years does annual reported growth appear to be related to overall personal development, something that was expected in all four years.

More interesting is the apparent importance of academic integration levels in the freshman and sophomore years, not only on reported personal growth in those years, but also on personal growth in later years. While junior and senior year academic integration levels appear to be unrelated to reported personal growth in those same years, freshman year academic integration has an indirect effect on reported sophomore year growth that exceeds the direct effect of any other variable. Similarly, sophomore year academic integration appears to exert an influence on junior year personal development that is greater than the direct effect of junior year social integration level and is exceeded only by the direct effect of the previous year's reported growth.

Taken together, these results suggest that the dynamics of students' personal development over a four-year period may be such that the same

conceptual structure ought not to be employed in each of the four years. The combined effects of academic and social integration, for example, are apparent in the first two years, but their relative importance seems to reverse over the four-year period. Academic integration appears to be somewhat more influential than social integration in the lower division years, but social integration would seem to grow in influence in the upper division years. Indeed, academic integration in the upper division years appears to have no influence on personal development in those years.

A similar reversal in the relative influence of academic and social integration on students' reported academic development is reported by Terenzini and Wright (1987). In that study, academic integration levels, as might be expected, were related to students' reported academic growth in all four years of college. Social integration, by contrast, was unrelated to reported academic growth in the lower division years, but emerged in the junior year as a reliable influence, and by the senior year, it appeared to exert as much influence on reported academic development as did academic integration levels. Those findings, taken together with the ones reported here, suggest that early integration into the academic system of an institution may be an important vehicle of both academic and social growth among students in the freshman and sophomore years of college. In the later (junior and senior) years, however, these two studies' findings suggest, social integration levels gain in salience, exerting an influence approximately equivalent to that of academic integration, perhaps even replacing the latter as a source of collegiate impact.

Why academic integration in the first two years should be so influential in students' reported personal growth, waning in influence in the upper division years is not immediately apparent, although several

possibilities suggest themselves. First, the finding may be a statistical artifact related to the reliability of measurement. The internal consistence reliability of the academic integration portion of the measurement model drops from .73 and .77 in the freshman and sophomore years, respectively, to .64 in the junior year and .47 in the senior year. At the same time, however, similar deterioration in reliability occurs in the social integration portion of the measurement model, where the coefficients (never high to begin with) are .60, .57, .43 and .43 from the freshman to senior year, respectively.

A more plausible possibility is the high academic quality of students attracted by the institution at which this study was conducted. It may be that in the early years of college, the personal identities of these students are closely tied to their academic lives, academic involvement or success being associated in their minds with personal developmental gains. Alternatively, and perhaps more plausible yet, these findings may offer qualified support for the view that the intellectual experiences of students in and out of the classroom in the early years of college broaden their views of their world and themselves. According to this view, expanding intellectual horizons promote self-analysis, reflection on one's own intellectual and personal interests and values, and, consequently, increased self-understanding. The results of this study are at least consistent with expectations of the effects of a liberal education.

The results, moreover, are consistent with social psychological theories (see Korn, 1986) of the importance in student growth of the interactions of cognitive and affective forces within individuals, as well as the interactions of individuals and their environments. It would appear that integration in the academic domain of an institution is not only

reliably related to reports of academic growth, but to personal development as well.

From a practical point of view, the results may be faintly discouraging: promoting student development (whether academic or personal) increasing'y appears to be more complicated than one might first have thought. The apparent synergy of academic and social dimensions in this and other studies increasingly suggests a need for more detailed research on the dynamics of student growth and for more careful planning in the development of academic and non-academic programs and services intended to foster or facilitate student development. What was previously thought to exert an influence in one domain may also have consequences in another.

The apparently influential role of academic integration on students' reported personal growth highlights the importance of programs and services that introduce students to the academic life of a campus, and those activities are by no means limited to orientation programs. Student-faculty relations are heavy contributors to the operationalization of "academic integration" in this study, and ways must be found to encourage increased faculty involvement in the early institutional lives of new students.

As the results of this study indicate, the effects of these and similar programs are likely to be cumulative: academic integration levels in one year have both direct effects on growth in that year, but also direct effects on integration levels and indirect effects on reported growth in succeeding years as well. Indeed, there is some evidence to suggest that academic integration levels in preceding years may have as great an influence (possibly greater) on personal growth in a later year as social integration in that same later year. Thus, it would appear that

"getting-off to a good start" may be critical: academic and social integration in one year appears to lead to greater and continued development in subsequent years.

Finally, it would seem that we are really just beginning to understand the dynamics of student growth during the college period. If nothing else, this study suggest the importance of studying the year-to-year nature of, and influences on, student development in the college years. Freshman vs. senior year comparisons may well be hiding as much as they reveal.

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Table 1

Means and Standard Deviations for All Variables Over Four Years

Variable	MEANS				STANDARD DEVIATIONS			
	Fr.	So.	Jr.	Sr.	Fr.	So.	Jr.	Sr.
Pre-college characteristics:								
H.S. percentile rank (RANK)	85.72				11.67			
Highest degree planned (GOAL)	2.42				.93			
Academic Integration:								
Faculty relations scale (FACREL)	2.56	2.61	2.78	3.02	.96	.93	1.06	1.05
Faculty concern for students & teaching (FCSDT)	2.65	2.63	2.34	2.90	.58	.58	.37	.45
Freq. of academic contact w/faculty (FACACA)[a]	1.99	1.60	1.85	1.94	.56	.88	.86	.95
Freq. of social contact w/faculty (FACSOC)[a]	.43	.48	.60	.78	.71	.75	.81	.94
Classroom activities scale (CLSACT)	2.49	2.48	2.52	2.63	.49	.55	.56	.55
Social Integration:								
Social activities scale (SOCACT)	3.00	2.97	2.73	2.53	.68	.63	.60	.58
Peer relations scale (PEERS)	3.46	3.47	2.70	3.36	.61	.58	.32	.41
Extra-curricular activities (XACTS)[a]	.74	.81	.89	.79	.57	.60	.61	.64
Annual Personal Growth (PERGRO)	2.93	2.88	2.89	2.93	.55	.57	.60	.56
Cumulative Personal Growth (OPERGRO)				6.65				1.63

[a]Logarithmically transformed.

Table 2

LISREL Measurement Model Coefficients

Scale/Variable	Fr.	So.	Jr.	Sr.
Academic Integration				
Frequency of contact with faculty for social purposes (FACSOC)	.81	.85	.85	.56
Frequency of contact with faculty for academic purposes (FACACA)	.62	.63	.79	.55
Faculty concern for student development and teaching scale (FCSDT)	.53	.66	.07*	.16
Faculty relations scale (FACREL)	1.00	1.00	1.00	1.00
Classroom activities scale (CLSACT)	.69	.70	.50	.10*
Social Integration				
Extracurricular activities (XACTS)	.20	.16	.21	.23
Peer relations scale (PEERS)	.60	.54	.09*	.06*
Social activities scale (SOCACT)	1.00	1.00	1.00	1.00

*Not significant ($p > .05$, two-tailed)

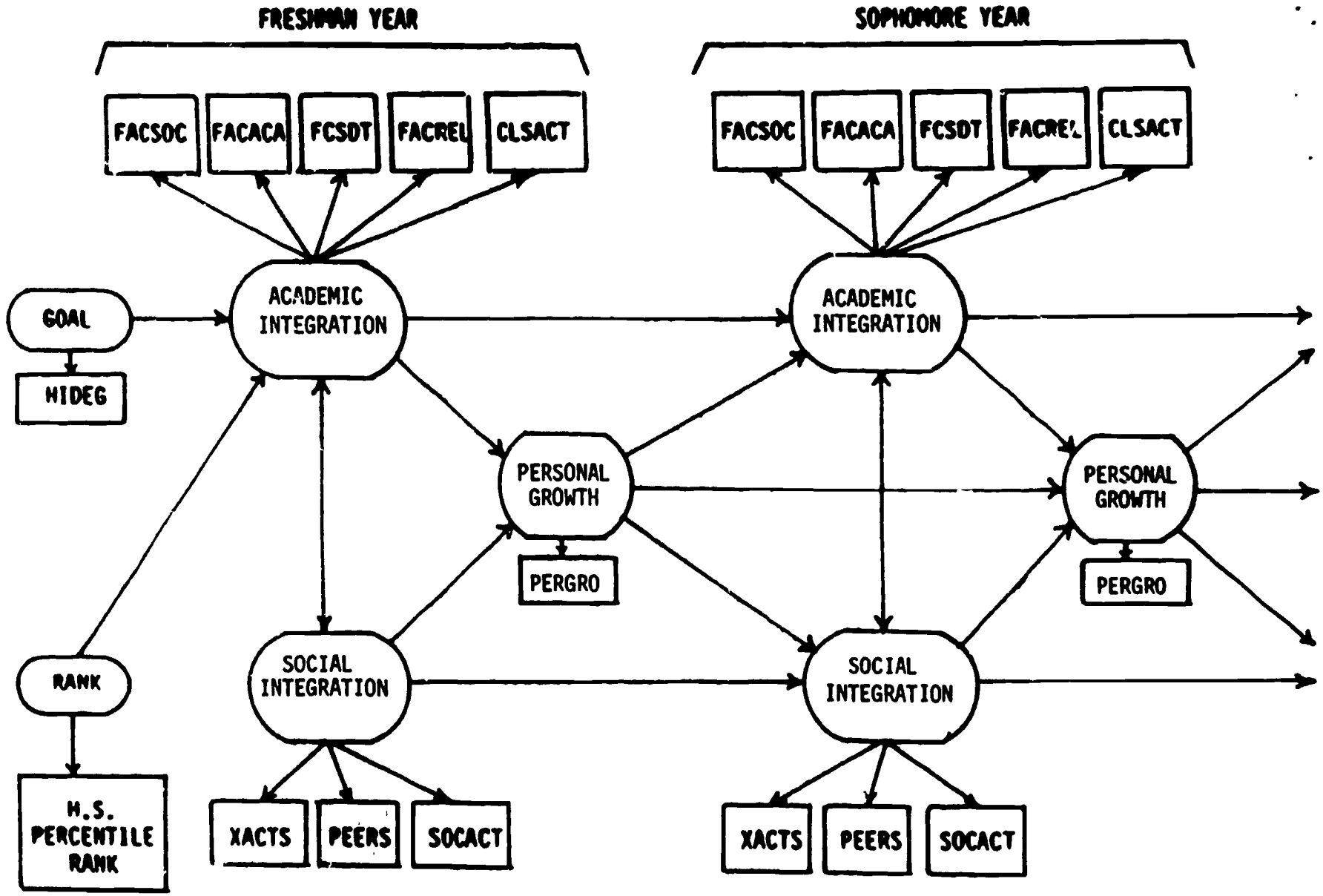

Figure 1. Freshman- and sophomore-year portion of theoretical model of college students' personal growth during college.

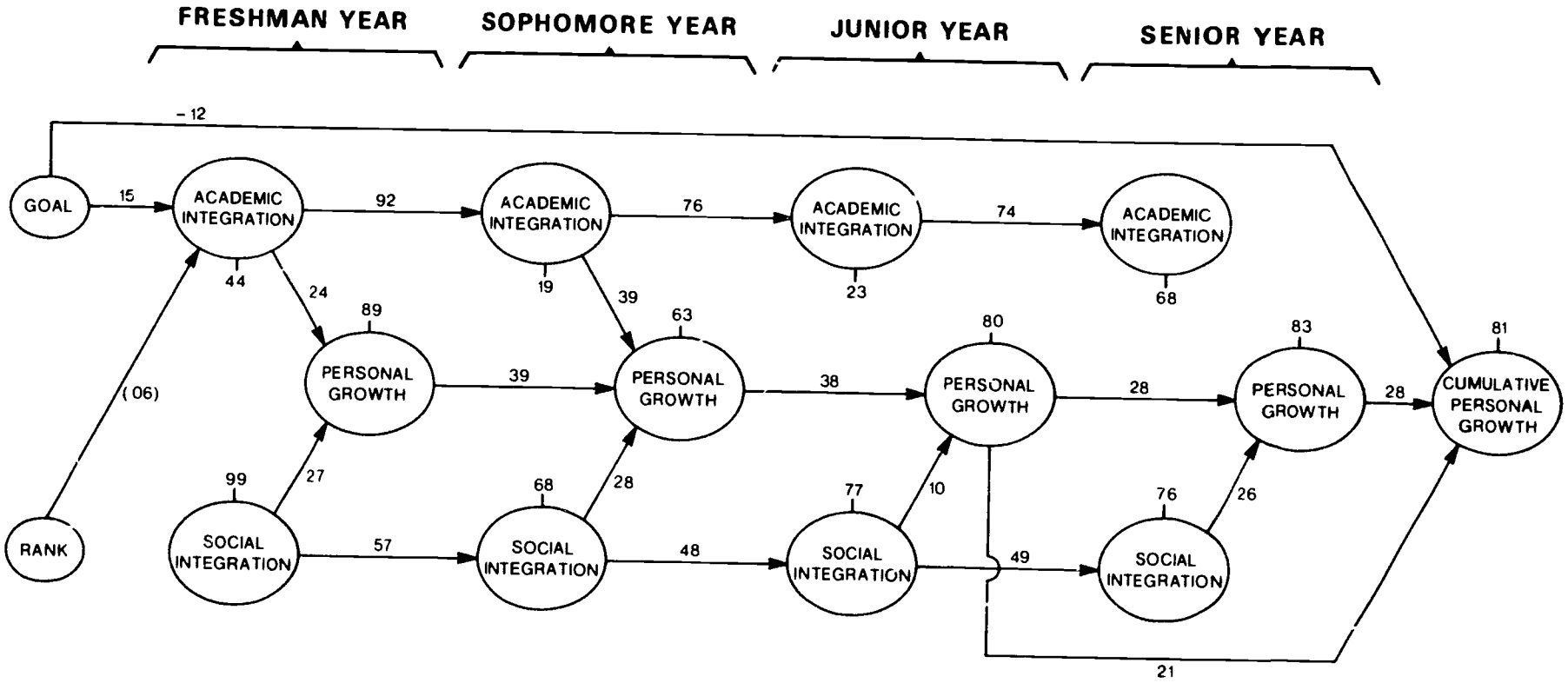

Figure 2. LISREL structural model of students' reported personal growth during four years of college.