

DETERMINANTS OF PREDISPOSITION TO TRANSFER AMONG COMMUNITY COLLEGE STUDENTS: A Structural Model

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Employing aspects of Tinto's (1975, 1987) theoretical framework, the purpose of this study was to test a model of student transfer behaviors and attitudes with a community college student population. More specifically, this study examined the structural relationships among five constructs: (1) student background factors, (2) initial commitments, (3) social integration, (4) academic integration, and (5) predisposition to transfer. Student background factors were examined to determine their direct and indirect effects on community college students' initial commitments, social integration, and academic integration on three multiple indicators of the dependent variable, predisposition to transfer: (1) number of four-year institutions students planned to apply for transfer, (2) transfer behavior, and (3) transfer perceptions. The study supported utilization of factors identified in the retention literature that are based on Tinto's model to examine transfer attitudes and behaviors among community college students. Students with high levels of social and academic integration tended to have high levels of predisposition to transfer. Ethnic background was found to have no relationship to predisposition to transfer.

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Perhaps no other institution of higher education has been as often embraced and disdained as the community college. Built on the zeal of equal opportunity and egalitarianism, two-year colleges were America's answer to the call for the opportunity to educate masses of people never before served by higher education. Initially, the concept appeared to work. Minorities, students from low social origins, and nontraditional students turned to community colleges and used them as vehicles by which to initiate upward career and social mobility. However, today there is mounting evidence that the very students community colleges purported to best attend are now the students who appear to be least

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served. For instance, retention rates of minority students appear to be slipping and the transfer rate for Hispanics, a minority group that is disproportionately concentrated in community colleges, may be at an all-time low (Rendon and Nora, 1989; Richardson and Bender, 1986, 1987; Bensimon and Riley, 1984; Olivas, 1979).

LITERATURE REVIEW

The future credibility and respectability of community colleges as viable members of the postsecondary enterprise ride on the extent to which these organizations can devise ways and means to preserve the principle of universal access and still provide demonstrable, high-quality outcomes related to student achievement, student retention, and transfer to senior institutions. In particular, a most crucial problem will be not only how the college can facilitate the transfer process for minority and disadvantaged students but how the college can raise far above historic levels the numbers of students who successfully transfer.

Transfer and Enrollment Patterns

Perhaps no other community college function has received as much negative criticism as that related to transfer. Figures on baccalaureate-degree intentions of community college students range from a low of 51% to a high of 74% (Richardson and Bender, 1986). However, it is estimated that only 5% to 25% actually achieve this initial goal (Richardson and Bender, 1986; Bensimon and Riley, 1984). In 1985, less than 15% of the five million students enrolled in two-year colleges transferred to senior institutions (Cubbin and McCrary, 1985). The number who successfully transfer is thought to be around 5% (Cohen, Brawer, and Bensimon, 1985). Six of nine states that have high two-year college enrollments have reported overall transfer declines in recent years (Bernstein, 1986).

Of a total of 5,137 students who transferred from a California community college to the University of California in 1982, only 3.8% were black and 8.3% were Chicano (Mexican American Legal Defense and Education Fund, 1983). In California, community colleges experiencing the largest transfer losses tended to be those with very high proportions of black or Chicano freshmen students (California State Postsecondary Education Commission, 1985; Hayward, 1985).

According to the Commission of the Higher Education of Minorities (1982), one of the most important reasons that Chicanos, Puerto Ricans, and American Indians may be underrepresented in graduate programs is their greater than average attrition from undergraduate colleges, particularly community colleges.

In a survey taken two years after 1980 high school seniors enrolled in college, 48% of the blacks, 50% of the Hispanics, and 48% of the low-socioeconomic-status (SES) whites were not enrolled in college (Lee, 1985). These student types are predominant in community colleges. Data from the 1977 National Longitudinal Study indicate that of the students who entered college in the fall of 1973, 47% of Hispanic two-year college students, compared with 28% of the Hispanic four-year college students, had withdrawn from college by 1977 (National Center for Education Statistics, 1979).

The transfer issue takes on particular significance when applied to Hispanic students. Of all Hispanics enrolled in some collegiate institution in the fall of 1984, 54% attended community colleges. At the same time, however, high attrition rates, deficiencies in student academic preparation, and low levels of transfer to senior institutions have raised serious doubts that the colleges can increase access for Hispanic students (Commission on the Higher Education of Minorities, 1982; Garcia, 1980; MALDEF, 1983; Rendon, 1984; Pincus, 1980). The problem is particularly acute in the U.S. Southwest where the Hispanic population has increased. According to a recent ETS study (Payan, Peterson, and Castille, 1984), between 1970 and 1980 the Mexican-American proportion of the total population in Texas, Arizona, Colorado, New Mexico, and California grew from 17% to 20%. During the same decade, Mexican-American student enrollments in southwestern community colleges more than doubled, from 78,000 to 182,000.

Factors Affecting Transfer for Hispanics

In general, Hispanic students come from low SES families and lack the financial resources that would allow them to enjoy the luxury of attending college on a full-time basis. They share many of the characteristics of the "new students" described by Cross (1981). Consequently, these students are forced to obtain part-time or full-time jobs that provide a secondary income to their household. With this schedule, study habits become poorly developed, commitments to college-level study are postponed, and time management is impeded (Chacon, Cohen, and Strover, 1986).

Further, students with external preoccupations normally do not develop a sense of institutional affiliation critical to retention (Pascarella, 1980; Nora, 1987). Many Hispanics also have poor high school achievement records and need remediation in reading, writing, mathematics, problem-solving skills, and critical thinking. Moreover, Hispanics are mainly first-generation college students. Although Hispanic parents do provide encouragement for their children to go to college, parents lack critical information about college admission, financial aid, and education programs (Olivas, 1986). Consequently,

Hispanic parents are limited in the amount of assistance they can provide to their children attending college (Nieves, 1977; de los Santos, 1980; Cohen and Brawer, 1982; Rendon, 1983).

During community college enrollment, a number of factors associated with Hispanic students' interactions with the institutional environment have been identified as important to student academic success. For example, Hispanic students who received high degrees of encouragement from faculty, counselors, and administrators tend to earn more college credit hours. Further, Hispanic students who come to the college with well-defined goals and strong commitments to study appear to be the most academically successful (Rendon, 1982; Nora, 1987). In another study, McCool (1984) found that the number of credit hours completed, identification of positive and negative reasons for withdrawal, experience perceptions, and goal selection affected Hispanic students' ability to achieve educational objectives.

Further, Nora (1987) found that Hispanic two-year students entering college with high levels of institutional and goal commitments had high levels of academic and social integration, and consequently, high retention rates. A separate study (Nora, 1990) revealed that Hispanic community college students who received high levels of noncampus- and campus-based financial aid were enrolled in more semesters, earned more semester hours, and received some form of college credential. Moreover, Hispanics who received high levels of campus-based resources earned high grade-point averages.

In a study of urban community colleges (Cohen, Brawer, and Bensimon, 1985) it is shown that students who appeared to be indifferent or disengaged from the academic and social system of the college were unlikely to develop high transfer attitudes and behaviors. The study also showed that black and Hispanic students (relative to Asians and whites) were less likely to exhibit high transfer predispositions. In combination, student background factors and variables associated with student interactions with the college environment often determine the academic success or failure of Hispanic students in community colleges.

While research studies of community college transfer students are numerous, many, if not all, specifically compare transfer and native students on variables such as grade-point average (GPA), academic programs, graduation rates, financial aid status, SES, freshman-year aspirations, and attitudes toward enrolling in selective universities (Peng and Bailey, 1977; Anderson and Riehl, 1974; Anderson and Peterson, 1973; Holmstrom and Bisconti, 1974; Hodgson and Dickinson, 1974; Smart and Ethington, 1985; Phelar, Andrew, and McLaughlin, 1981; Volkwein, King, and Terenzini, 1986). Research studies that examine the causal relationships among variables that impact on transfer attitudes and behaviors are nonexistent.

PURPOSE OF STUDY

The purpose of this study was to determine how community college student background characteristics, behaviors, and attitudes exhibited during community college enrollment influenced student predisposition to transfer. To address this goal, the study tested a model of student predisposition to transfer (i.e., student transfer behaviors and attitudes) on a community college student population (see Fig. 1). More specifically, this study examined the structural relationships among five constructs: (1) student background factors, (2) initial commitments, (3) social integration, (4) academic integration, and (5) predisposition to transfer. Student background factors were examined to determine their direct and indirect effects on community college students' predisposition to transfer and the direct and indirect effects of initial commitments, social integration, and academic integration on three multiple indicators of the dependent variable predisposition to transfer: (1) number of four-year institutions students planned to apply for transfer, (2) transfer behavior, and (3) transfer perceptions.

THEORETICAL FRAMEWORK

Tinto's (1975) model of student attrition has provided the theoretical framework for numerous retention studies (Pascarella, 1980; Fox, 1985; Bean, 1980; Wolfle, 1985; Nora, 1987). Tinto's model allows for the examination of direct and indirect effects of precollege variables, institutional/goal commitments, and academic and social integration factors on student persistence. Tinto's explanatory model specifies that upon entering college students bring with them a variety of attributes or precollege experiences and background characteristics that have an impact on determining educational expectations and commitments.

These educational expectations and commitments represent initial institutional/goal commitments by students during a student's stay in a college as a result of the student's normative and structural integration into the academic and social systems of the institution. Decisions to withdraw or remain in college to completion are made as a result of the student's social and academic integration. For some community college students whose educational goals are to transfer to four-year institutions, these same background characteristics, initial commitments, and integration processes could conceivably have an impact not only on retention decisions but also on their attitudes and behavior toward transferring.

This study tested the hypothesis that high levels of congruency between students and their environments lead to high levels of student predisposition to transfer, as defined by transfer behaviors and perceptions. Based on the findings from a previous study (Nora and Rendon, 1990), it was further believed that, for

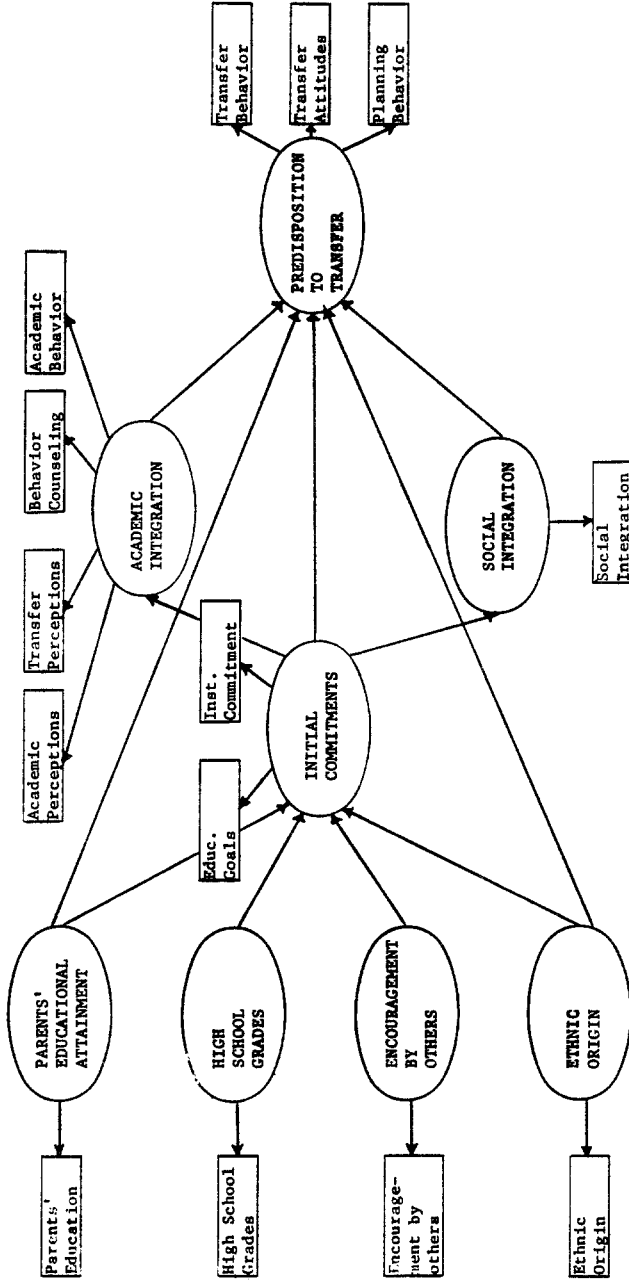


FIG. 1. Hypothesized causal model.

Hispanic community college students, persistence to graduation was associated with an intent to transfer and educational goal commitments. Through a modification of Tinto's (1975) theoretical perspective, the study examined how seven constructs affected predisposition to transfer. These constructs were high school grades, parents' education, encouragement, ethnicity, institutional/goal commitments, academic integration, and social integration. The model examined the direct and indirect effects of background characteristics and initial commitments on academic integration and social integration, the direct and indirect effects of background characteristics and initial commitments on predisposition to transfer, and the direct effects of academic integration and social integration on predisposition to transfer.

Student background factors included high school grades, mother's and father's education, encouragement from significant others, and ethnicity. Initial commitments were represented by the importance students attached to achieving their educational goals and to attending the institutions they select. Social integration factors included faculty contact outside the class, involvement in extracurricular activities, informal conversations with faculty, reading the college paper, looking at bulletin boards for announcements or special activities, and participating in freshmen orientation.

Academic integration was comprised of four multiple indicators: (1) academic perceptions (perceptions of academic experiences and career preparation experiences); (2) perceptions of transfer (perceptions of transfer opportunities on campus, assistance obtained from counselors, special services for transfer students, information about transfer opportunities, encouragement received from faculty to think seriously about transferring, priority the institution gave to increasing the number of students who transfer, and giving students who plan to transfer extra reading assignments); (3) behavior counseling (participation in academic and career counseling and meetings with recruiters from four-year colleges); and (4) academic behavior (participation in study groups and honors programs, using the library to study, making appointments to seek faculty advice, asking faculty for advice, taking class notes, taking notes from assigned readings, asking faculty for additional references, attending campus lectures, and asking instructors for help with writing skills).

The dependent variable, predisposition to transfer, was comprised of three multiple indicators: (1) number planned to transfer (the number of four-year institutions students planned to apply for transfer); (2) transfer behavior (discussing transfer opportunities with friends, seeking information about transfer from counseling office, seeking information about transfer from faculty, seeking information about transfer from friends who planned to transfer and from friends who already transferred, seeking transfer information from a four-year institution, and seeking information from community college catalogs); (3) transfer perceptions (importance attached to transferring, feelings

about the possibility of not transferring, importance attached to getting a job as opposed to transferring, importance attached to transferring after earning an A.A. degree, and perceptions about worrying about transferring in the future).

METHODOLOGY

To acquire data on the variables specified in the theoretical framework, a student survey was constructed from items previously included in two separate questionnaires: the South Texas Student Survey (Rendon, 1982) and a questionnaire used by the Center for the Study of Community Colleges located in Los Angeles, which was administered to a sample of students enrolled in 24 of the Ford Foundation's Urban Community Colleges Transfer Opportunities Program (Cohen, Brawer, and Bensimon, 1985). The students surveyed in this study funded by the Ford Foundation were enrolled in 6 community colleges located along the U.S.–Mexico border in Texas, Arizona, and California known as the Border College Consortium.

A systematic random sample of students was taken from four disciplines where transfer students were likely to enroll: English, math, history, and business. Stratified sampling was used to ensure that appropriate number of elements was drawn from subsets of the population. It was decided to take a random sample of 5% of each institution's spring 1987 enrollments. The 5% enrollment figure was then divided by 25, the approximate number of students per class. This figure yielded the number of class sections to be sampled per institution. To determine the number of class sections to be sampled per discipline, the spring 1987 class schedule of all English, math, history, and business classes was used to count the number of class sections being offered that term for each discipline. This figure was multiplied by 5%, which yielded the number of class sections to be sampled per discipline. This process ensured that equal proportions of students were sampled in each institution. Further, the class section was used as the unit of sampling even though the student was the unit of analysis. Because Hispanics and whites comprised 88% of the respondents, all other students were deleted. A total of 569 usable surveys were selected (422 Hispanic and 147 white) to conduct the analysis of the data.

DATA ANALYSIS

Structural equation modeling and LISREL VI (Joreskog and Sorbom, 1984) were used to examine the parameter estimates of the structural and measurement models of the hypothesized causal model. Measures of goodness of fit were examined to provide indices for the overall fit of the causal model in the study. Covariance structure models combine a measurement model and a structural

(causal) model into a complete model and are analogous to a combination of factor analysis and path analysis. The most powerful aspect of LISREL is that the parameters of the measurement and causal models can be estimated simultaneously, standard errors can be obtained, and the goodness of fit can be evaluated (Bentler and Speckart, 1981; Bentler and Weeks, 1980; Joreskog, 1977; Pedhazur, 1982; Long, 1983).

Because a polyserial correlation matrix was used to analyze the data, a χ^2 goodness of fit was not possible due to the use of an unweighted least square solution. In the present research, the data included one variable (ethnic origin) measured at the ordinal level. The ULS method recommended by Joreskog and Sorbom (1984) for discrete data was used in the data analysis. All other indices for assessing the fit of the model were used, including the total coefficient of determination of the Y variables and the structural equations.

RESULTS

The sample included 422 Hispanics (74%) and 147 whites (26%). Hispanic students were younger; their mean age was 22.77 years compared with 26 years for whites. Hispanic students' parents had less education than white parents. The mean years of schooling received by Hispanic parents were 8, compared with 12 for whites. Hispanic students came from families with lower SES than whites. Only 31% of Hispanics came from families with incomes that ranged above \$20,000 compared with 59% for whites. Hispanics reported earning lower high school grades than whites, although it was interesting to note that more than 50% of both whites and Hispanics reported earning A's and B's. However, 53% of Hispanics compared with 61% of whites reported earning A's and B's.

More Hispanic students (61%) than white students (46%) were enrolled at the freshman level. Similarly, although over half of the sample was enrolled full-time, 76% of Hispanics compared with 61% of whites were attending college full-time. Hispanic females (58%) outnumbered males (42%), but the white sample was evenly divided (50%) between the two genders. Mothers and fathers, as opposed to high school teachers and counselors, provided the most encouragement for students to attend college for both Hispanics and whites. However, Hispanic students appeared to have received more encouragement to attend college from high school teachers and counselors than the white students.

About 49% of the Hispanic households speak only Spanish or more Spanish than English. Whites reported earning higher grades in the community college than Hispanics. About 69% of the white student population reported earning A's and B's compared with 45% of Hispanics. Finally, whites reported earning more (over 40) community college hours (43%) than Hispanics (34%).

The main reason cited by Hispanics and whites for attending their respective community college was to prepare for transfer to a four-year college or university. Other reasons that were cited by more than 50% of white and Hispanic students were that (1) it was cheaper, (2) they wanted to stay close to home, (3) they wanted to take courses for self-improvement or enrichment, and (4) they wanted to be able to work while studying in their home town. Other reasons for attending a community college were cited by less than 50% of the students in the study.

The findings suggest that students were not only interested in transferring but attached importance to transferring. For example, 40% of Hispanics and 39% of whites had plans to transfer but had not yet applied. Only 14% of Hispanics and 10% of whites had no plans to transfer. When asked when they planned to transfer, 51% of Hispanics and 58% of whites indicated they planned to do so after earning an Associate degree, and 25% of Hispanics and 27% of whites planned to transfer before earning an Associate degree. Nearly three-fourths of the sample felt transferring was important. About half felt it was better to transfer after earning an Associate degree.

The measurement and structural model parameter estimates of the causal model are displayed in Table 1 and provide information (parameter estimates) relating the observed or manifest variables to their underlying constructs. Unique variances (residuals) are included to report the amount of each indicator's variance that is not accounted for by the latent variables.

The parameter estimates in Table 1 are each subscripted in order to designate the relationship between latent variables. The two letters in each subscript represent two factors (latent variables). The following letters were used to designate factors in the structural model: (1) H = high school grades, (2) P = parents' educational attainment, (3) E = level of encouragement, (4) O = ethnic origin, (5) A = academic integration, (6) C = institutional/goal commitments, (7) S = social integration, and (8) T = predisposition to transfer. In each subscript for the regression weights, the first letter refers to the dependent variable in a particular equation, and the second letter refers to the predictor variable, with the predictor variable having temporal priority for any two latent variables in the structural model.

Institutional/Goal Commitments

The first equation in the structural model examined the effects of four precollege variables on institutional/goal commitments, a measure of initial commitments to attaining an educational goal and to the institution. Because the exogenous variables were scaled to unit variance and single indicators were used for each construct, the factor loadings were all 1.000. The unique variance for

TABLE 1. Factor-Standardized Parameter Estimates: Measurement and Structural Models

Factors and Variables	Factor Loading	Unique Variance
<i>Measurement Model Parameters</i>		
Parents' educational attainment	1.000	0.0
High School Grades	1.000	0.0
Encouragement	1.000	0.0
Ethnic Origin	1.000	0.0
Institutional/Goal Commitments		
Educational goal	.566	.000
Institutional goal	.263	.931
Academic Integration		
Academic perceptions	.407	0.0
Transfer perceptions	.453	.795
Behavior counseling	.667	.556
Academic behavior	.727	.471
Social Integration	1.000	0.0
Predisposition to Transfer		
Transfer behavior	.982	0.0
Transfer attitudes	.489	.760
Planning behavior	.174	.970
<i>Causal Model Parameters</i>		
Unstandardized Parameters	LISREL Estimates	
Regression Weights		
beta (AC)	.646	
beta (SC)	1.252	
beta (TO)	-.051	
beta (TA)	2.983	
beta (TS)	.308	
gamma (CH)	.052	
gamma (CP)	-.029	
gamma (CE)	.098	
gamma (CO)	-.054	
gamma (TP)	.246	
gamma (TC)	-1.416	
Residual Variances		
Institutional/goal commitments		.300
Academic integration		.032
Social integration		.497
Predisposition to transfer		.335

the indicator variables were all 0.000. The factor loadings for educational goal (.566) and institutional goal (.263) supported the use of these two variables in their measuring of institutional/goal commitments. The R-SQ or proportion of variance explained by the exogenous variables in the equation was 6%.

A comparison of the regression coefficients revealed that only one of the predictor variables, encouragement by significant others, accounted for the variance in initial commitments. Students who received higher levels of encouragement from parents, counselors, teachers, and friends had higher levels of commitments both to their educational goals and to their respective institutions. High school grades, parents' educational attainment, and ethnic origin did not appear to have an impact on initial commitments.

Academic Integration

The second structural equation in the model examined the effects of one endogenous variable (initial commitments) on academic integration, a measure of the students' integration into the academic environment. The squared multiple correlation (R-SQ) for academic integration was .808. Therefore, initial institutional/goal commitments accounted for 81% of the variance in academic integration. Students who had higher levels of initial commitments had higher levels of academic integration. The standard weight of institutional/goal commitments on academic integration was .899.

Social Integration

The third structural equation examined the effects of initial institutional/goal commitments on social integration. The squared multiple correlation (R-SQ) for the endogenous variable social integration, a measure of the students' integration into the social environment at their institution, was .503. Initial commitments accounted for 50% of the variance in social integration. Again, as expected, students with higher levels of initial commitments to their institutions and educational goals had higher levels of social integration.

Predisposition to Transfer

The final structural equation examined the effects of two exogenous latent variables (parents' educational attainment and ethnic origin) and three endogenous variables (initial commitments, social integration, and academic integration) on the dependent variable (predisposition to transfer), a measure of the total number of institutions students planned to apply for transfer, actual transfer behavior, and the importance attached to transferring by students. The

squared multiple correlation for the structural equation was .652 (see Table 2). Therefore, the variables accounted for 65% of the explained variance in predisposition to transfer. The use of the three indicators to measure the dependent variable was supported (lambdas = 1.0 and .498) for two indicators, transfer behavior and attitudes, but not highly supportive of planning behavior (.177).

The regression weights for the two exogenous variables (parents' educational attainment and ethnic origin) hypothesized to have direct effects on predisposition to transfer were .246 and $-.051$, respectively. Students whose parents had higher levels of educational attainment demonstrated higher levels of transfer-related behavior, had more positive attitudes about transferring, and, to a certain extent, contacted and applied to more institutions. Somewhat unexpectedly, however, ethnic origin did not significantly impact a student's predisposition to transfer.

The regression coefficients for academic integration, social integration, and initial commitments were 2.983, .308, and -1.416 , respectively. Students with higher levels of academic and social integration had higher levels of predisposition to transfer. However, higher levels of institutional and educational goal commitments inversely affected levels of predisposition to transfer. Quite surprisingly, until one considers the nature of the student population in two-year institutions, the findings suggest that students with higher levels of commitments do not demonstrate higher levels of transfer behavior nor do they have positive attitudes about transferring, and in fact, have lower levels in comparison to students who are not highly committed to their educational goals and to the institution. The regression coefficient for academic integration was much larger than for all the other variables in the equation.

TABLE 2. Parameter Estimates for Predisposition to Transfer

Variables	LISREL Estimates
<i>Indicators of Predisposition to Transfer</i>	
Transfer Behavior	1.000
Transfer Attitudes	.498
Planning Behavior	.177
<i>Structural Equation for Predisposition to Transfer</i>	
Parents' Educational Attainment	.246
Ethnic Origin	$-.051$
Academic Integration	2.983
Social Integration	.308
Institutional/Goal Commitments	-1.416

Squared multiple correlation for predisposition to transfer: $R^2 = .652$.

Moreover, these parameter estimates reflect only the direct effects of the above factors on predisposition to transfer and not the total effects.

Measures of Goodness of Fit

The goodness of fit index for the causal model was .884, the adjusted goodness of fit index was .844, and the root mean square residual was .13. The total coefficient of determination for the overall model was .192; the squared multiple correlations (R^2) for the latent constructs (institutional/goal commitments, academic integration, social integration, and predisposition to transfer) were .063, .808, .503, and .652. All the measures of the overall strength of the structural model indicated that the modified model in the study represented a plausible model of retention. Figure 2 displays parameter estimates for the full causal model.

DIRECT, INDIRECT, AND TOTAL EFFECTS

The effect coefficients (total effects) for the structural model are included in Table 3. The results indicated that four factors had a significant impact on students' predisposition to transfer: academic integration, social integration, initial commitments, and parents' educational attainment. The total effects were 2.983, .308, .895, and .220, respectively. The negative impact of initial commitments on predisposition to transfer was negated when it was mediated through academic and social integration; the direct effect of initial commitments was -1.416 ; the effect coefficient (direct and indirect effects) was .895. Moreover, the findings indicated that this factor had a significantly larger total effect on predisposition to transfer than social integration and parents' educational attainment.

Other variables in the model that were significant included the direct effects of initial commitments on academic (.646) and social (1.252) integration. More importantly, the direct effects of ethnic origin on initial commitments and predisposition to transfer were not significant ($-.054$ and $-.051$). Even when the direct and indirect effects were combined, the total effects were $-.054$ and $-.099$.

In sum, community college students who had higher levels of initial commitments to the institution and to their educational goals, higher levels of academic and social integration, and parents with higher levels of educational attainment were more likely to have better attitudes about transferring and to have engaged in some form of transfer behavior while at the two-year institution. Moreover, students who had higher levels of initial commitments were more likely to be better integrated both socially and academically at their

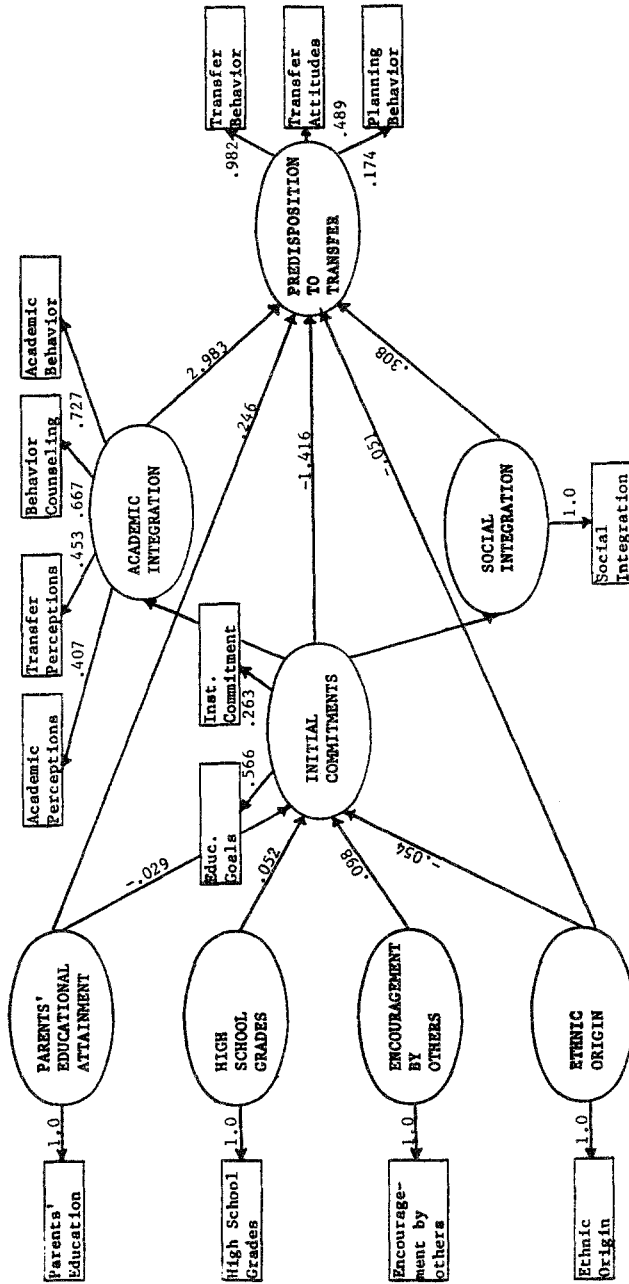


FIG. 2. Full statistical model.

TABLE 3. Effect Coefficients of Exogenous and Endogenous Variables

Variable	Direct Effect	Indirect Effect	Total Effect
Predisposition to Transfer			
Parents' educational attainment	.246	-.026	.220
Ethnic origin	-.051	-.048	-.099
Initial commitments	-1.416	2.311	.895
Academic integration	2.983	*	2.983
Social integration	.308	*	.308
Academic Integration			
Initial commitments	.646	*	.646
Social Integration			
Initial commitments	1.252	*	1.252
Initial Commitments			
Parents' educational attainment	-.029	*	-.029
High school grades	.052	*	.052
Encouragement	.098	*	.098
Ethnic origin	-.054	*	-.054

* No indirect paths hypothesized.

institutions. Of those two-year student populations in the study, ethnic origin was not found to be related to any of the factors in the study.

DISCUSSION

If one accepts the notion that "access to four-year institutions for almost half of all minority students currently participating in higher education requires transfer from a two-year to a four-year institution" (Richardson and Bender, 1987, p. 17), then one does not need much convincing that improving the transfer rates of community college students is an issue of paramount importance. The disproportionate presence of minorities in community colleges emphasizes the issue of the effectiveness of measures that enhance students retention and transfer to senior institutions. Studies that explain the educational experience of students as they flow through the community college must be considered important not only to understand what is happening to students in this sector but to use the research findings to affect practice and policy.

The study supported utilization of Tinto's (1975) model in examining transfer attitudes and behaviors among community college students. Students with high levels of social and academic integration tended to have high levels of predisposition to transfer. Thus, the notion that high levels of congruency between students and their environment lead to high levels of predisposition to transfer is supported by this study. Even though high levels of initial

commitments to the institution and to educational goals were directly but inversely related to predisposition to transfer, the direct effects were negated by the indirect effects of initial commitments through both social and academic integration. Hence, it appears that once the students successfully integrated socially and academically into their educational environment, their commitments to their institutions and educational goals positively affected predisposition to transfer. Further, the study indicated that the hypothesized relationship between ethnic origin and predisposition to transfer could not be substantiated. Being white or Hispanic has no relationship to high or low predisposition to transfer.

While previous studies (Cohen, Brawer, and Bensimon, 1985; Nora, 1987) support the notion that academic and social engagement is connected to retention and predisposition to transfer, it is also important to consider that minority students are less likely to exhibit high predisposition to transfer. This consideration calls to question the effectiveness of institutional programs and climate conditions in facilitating predisposition to transfer. For instance, although students rated academic and career preparation experiences at community colleges highly, and felt that the colleges provided excellent information on transfer opportunities, students did not appear to be taking advantage of precisely those opportunities that enhanced academic or social integration as measured by this study. For example, the vast majority never or seldom participated in academic or career counseling or in meetings with four-year college recruiters.

About half of the sample never or rarely made an appointment with an instructor, asked faculty for advice, attended campus lectures, or asked faculty for help with writing skills. Similarly, about 77% of Hispanic and white students seldom or never saw faculty outside of class. Few participated in extracurricular activities, had informal conversations with faculty, or participated in freshman orientation. Thus, the challenge facing community colleges is how to bring the wealth of information resources, the expertise of the faculty, and the social infrastructures to a much broader pool of students who wish to transfer. Perhaps the critical question to be asked about transfer students is not so much how many actually intend to transfer but what happens to them after they enroll in a transfer program of study.

Further, one has to probe deeper into the finding that ethnicity was not significantly related to predisposition to transfer. Because ethnicity was included in the causal model along with other variables to be tested, conceptually the hypothesis or question being asked was whether ethnicity, in and of itself, had a direct effect on predisposition to transfer. The study did not estimate separate underlying structural patterns for both white and Hispanic student populations. The hypothesis that there are differences in path coefficients for whites and Hispanics was not tested; rather, what was tested was

whether ethnic differences by themselves accounted for differences in predisposition to transfer.

Nonetheless, it is important to note that although both white and Hispanic students are affected by multidimensional factors in much the same way, their effect on Hispanics may weigh more heavily because socialization has not prepared them well to either recognize or take advantage of opportunities. Minorities often are unaccustomed to peer networking or penetrating resource and information networks; and they may find that they are committing themselves to goals they do not fully understand. It is crucial that the colleges recognize that if Hispanics do not enroll in collegiate programs, do not receive academic and career counseling, do not have the resources to carry out their academic work, and do not penetrate networks where useful advice, advocacy, and patronage are dispensed, they will not only begin college with an initial disadvantage but will not successfully integrate into higher education institutions. When one considers that most Hispanics come from families where parental educational attainment is below the twelfth-grade level, thus limiting high levels of transfer behavior, the issue of devising policies and strategies that enhance student academic and social integration takes on significant importance.

The most critical challenge for two-year institutions in the next decade is to provide demonstrable evidence that the numbers of Hispanics and other minorities transferring to other institutions is significantly rising. It will require attention to policies and practices that affect persistence and allowances made for transfer students to engage in the level of learning expected at four-year institutions. For example, there should be greater student/faculty interaction and policies that promote high expectations as well as a curriculum that enhances the development of higher-order learning skills. Early identification of transfer students coupled with a strong counseling and advisement program should be in place.

Similarly, academic alliances among disciplines can be helpful in promoting intersegmental collaboration and facilitating the transfer of credits among the sectors. Of course, colleges need to collect data to document the success of students relative to retention and transfer rates. This procedure is particularly critical given that states such as New Jersey and Colorado are moving toward developing incentive programs to reward institutions that can demonstrate extraordinary success with minority students. Finally, it should be obvious that whatever measures are developed for minority students, they are likely to have a positive effect on all students. Minority and majority students will be better served when community colleges are able to help all students make higher education not only a dream but a reality.

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