

Dropouts from Higher Education: Toward an Empirical Model¹

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Longitudinal data gathered from all 683 first-year students in the College of the University of Chicago in 1965 are used to test the utility of a theoretical model in explaining the undergraduate dropout process. The model as operationalized represents a synthesis and extension of concepts pertinent to balance theory, Durkheim's theory of suicide, and recent work on college dropouts. It regards the decision to leave a particular social system as the result of a complex social process that includes family and previous educational background, academic potential, normative congruence, friendship support, intellectual development, grade performance, social integration, satisfaction, and institutional commitment. Multiple regression analysis is used to assess the independent contribution of each of these factors in the explanation of important outcomes in this process. Although social integration, satisfaction, and institutional commitment can be explained primarily on the basis of the intrinsic rewards associated with interpersonal relationships and intellectual development, the short-run dropout decision is largely influenced by extrinsic performance criteria among the men but less so for the women. Over a four-year period, however, formal academic performance is clearly the dominant factor in accounting for attrition among both sexes. The implications of these findings for institutional policies are discussed.

Les données recueillies sur une certaine période de temps à partir des 683 étudiants de première année au Collège de l'Université de Chicago en 1965, servent à vérifier l'utilité d'un modèle théorique pour expliquer la raison de l'abandon des études chez les étudiants non encore diplômés. Tel qu'il est employé, le modèle représente une synthèse et un prolongement des concepts se rapportant à la théorie de l'équilibre, la théorie du suicide de Durkheim et à une étude récente sur les étudiants démissionnaires au niveau universitaire. Il concerne la décision de s'affranchir d'un système social particulier, cette décision étant l'aboutissement d'une évolution sociale et complexe qui implique la famille et les études faites antérieurement, les possibilités intellectuelles, la conformité normative, le soutien de l'amitié, le développement intellectuel, les résultats scolaires,

l'intégration sociale, la satisfaction et l'engagement institutionnel. On a recours à l'analyse de variables multiples pour évaluer dans quelles mesures chaque facteur intervient dans l'explication des issues importantes de cette évolution. Bien que l'intégration sociale, la satisfaction et l'engagement institutionnel puissent être expliqués principalement à partir des satisfactions intrinsèques retirées des rapports humains et des progrès intellectuels, la décision rapide d'abandonner les études est considérablement influencée par les critères d'accomplissement extrinsèques chez les hommes et à un degré moindre chez les femmes. Cependant, en quatre ans, les résultats scolaires officiels constituent certainement le facteur dominant expliquant l'écrasement subi par les deux sexes. On étudie les implications de ces découvertes relativement aux lignes de conduite à adopter par les établissements d'enseignement.

In my earlier review and synthesis of the literature on dropouts from higher education (Spady, 1970a), I noted the paucity of theoretically based multivariate research approaches designed to explain the interrelationships among factors believed to affect the attrition process. I suggested, in turn, how a theoretical model based on Durkheim's (1951) concept of social integration might be used to synthesize the broad range of findings currently available (see Figure 1).²

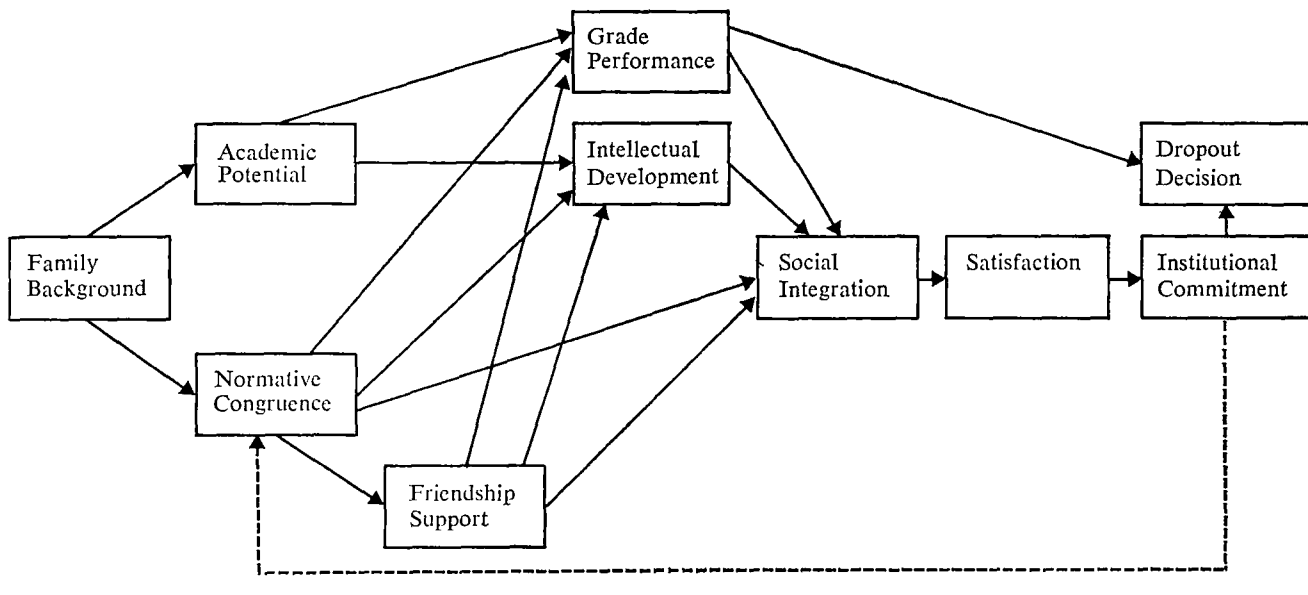
In essence, this model treats the successful assimilation of entering college students into the full life of their institution as problematic rather than as given. According to this view, each student enters college with a definite pattern of dispositions, interests, expectations, goals, and values shaped by his family background and high school experiences. It is assumed that this entire range of experiences and attributes may influence his overall ability to accommodate the influences and pressures he encounters in his new environment.³ The diffuse patterns of interaction that result (a phenomenon

² In order to understand more fully the theoretical basis of the analysis presented here, the reader would be advised first to read my review of the literature.

³ The issue of environmental press and its measurement has become a popular one during the past several years. For a discussion of many of its relevant assumptions and theoretical arguments see Pace (1964) and Pace and Baird (1966). The importance of this notion is also emphasized in critical reviews of the literature by Feldman and Newcomb (1969), Knoell (1966), Lavin (1965), and Stein (1963).

¹ The author wishes to acknowledge the able assistance of Miss Rondo Wood in the preparation and analysis of the data presented in this paper.

Figure 1/A Theoretically Based Model of the Undergraduate Dropout Process



I call normative congruence⁴) may either facilitate or impede the establishment of more consistent and formal patterns of interaction with specific individuals in the college. These two factors, normative congruence and friendship support, parallel the two elements that Durkheim uses to account for high degrees of social integration in the common life of society: moral consciousness and collective affiliations.⁵ Since so much of a college student's social role overlaps with his academic role, however, these two factors in conjunction with

his academic aptitude and previous training (e.g., academic potential) may also influence his intellectual development and formal academic performance. In my view, then, full integration into the common life of the college depends on successfully meeting the demands of both its social and academic systems.

Satisfaction, in turn, can be viewed as an outcome in this multistage process on the one hand and as a direct link to the student's commitment to the institution on the other. Not until the forces that influence loyalty to the institution are understood, I would argue, can the major components in the dropout process be specified with some conceptual adequacy. Although this model is necessarily incomplete, it does provide a theoretical rationale for dealing with both the academic and social systems of the college simultaneously and for linking precollegiate experiences and attributes with later social and academic outcomes.

It is the purpose of the present paper to demonstrate how the variables in this model have been operationalized within the framework of a single longitudinal study and to analyze how their separate components and interrelationships help to explain the undergraduate attrition process. Because of the highly selective ad-

⁴ In more explicit terms, the concept of normative congruence refers to the general degree of compatibility between the dispositions, interests, attitudes, and expectations of the student and the set of behaviors, expectations, and demands to which he may be exposed as the result of interaction with a variety of individuals in the college environment. To the extent that these expectations and influences are highly consistent within a given college context, it is presumed that students whose attributes enable them to accommodate themselves readily to these influences will experience less strain in their general interaction with others, be they fellow students, faculty members, or administrators.

⁵ According to Durkheim, egoistic suicide results when individuals lack sufficient integration in the broader social fabric of society. The process of integration is facilitated when moral consciousness is reinforced by intense patterns of affiliation with others who share similar sentiments.

missions policies employed by the institution used in this study (the University of Chicago), my findings undoubtedly do not reflect patterns of relationships typical of less selective institutions of higher learning. They may, however, have strong parallels among other selective institutions with a national recruitment base and strong research-oriented graduate departments, and should not, therefore, be regarded as unique by definition.⁶ In the course of the data analysis, then, the adequacy of this theoretically based model is tested as its empirical counterpart is generated. Hopefully this new model will serve as a starting point for future researchers concerned with applying an interdisciplinary approach to the problem across a variety of institutional types.

Sample and Methodology

The sample consists of all 683 students who entered the College of the University of Chicago as freshmen in September 1965. Sixty-two percent were men and 38% women. These students were selected for entrance from every region of the United States and several foreign countries on the basis of their demonstrated academic excellence in high school. Two-thirds had attended schools that sent over 50% of their graduates to four-year colleges and universities, and over a third ranked in the upper 2% of their graduating class. In addition, nearly two-thirds of these students scored above the 90th percentile for all American college students on the Scholastic Aptitude Verbal and Mathematical Tests.

Despite their relatively homogeneous academic qualifications, however, these students represented a diversity of ethnic, religious, regional, socioeconomic, and cultural backgrounds. This contributed to a high degree of normative diversity within the class and provided the basis for examining the relationships between a whole range of characteristics, dispositions, and attitudes and a number of college outcomes—including ultimate graduation.

The study was designed according to a standard panel format that required the collection of data on the same sample of respondents at distinct points in time. This strategy enabled me to differentiate between

student attributes measured prior to entering the College, the substance of the student's ongoing college experience, and the outcomes of that experience. Since the focus of the study concerned the effects of social integration and related sociological influences on college attrition, a sample of students was required whose initial formal contacts with the existing college system were minimal. This type of sample would theoretically tend both to maximize and to equalize problems of initial adjustment and social integration for everyone in the sample.⁷ Using entering freshmen satisfied this initial condition.

The Instruments

There were three basic kinds of data used in this study: (1) information about specific respondents provided by informants, (2) information from specific respondents about themselves, and (3) information from specific respondents about the College in general. The first was derived primarily from the student's admissions credentials and college records, the second was obtained from the admissions application and two written forced-choice questionnaires, and the third was obtained from the second questionnaire and from in-depth, semistructured interviews.

Serving as a member of the Committee on Admissions and Awards for two years provided me with access to the entire battery of data used for admissions purposes in the College. These invaluable admissions credentials were classified and analyzed in four main sections: the application, the high school transcript, the high school recommendation inventory, and the admissions interview. Categories, criteria for coding, and numerical codes for each category and criterion were established for each section of the application before the actual analysis of cases began. Thus, information was available for every student in the sample pertaining to his family background, school and work experiences, interests, motivations, aspirations, ability, academic performance, and other personal characteristics.

The first questionnaire consisted of multiple-choice

⁶ Both these findings and the theoretical concepts that underlie them may, in fact, be relevant to any North American coeducational university that not only imposes rigorous academic standards on its students but also admits only those whose demonstrated ability and commitment to academic achievement would seem to assure them of a reasonable chance of eventually receiving a degree.

⁷ The assumption underlying this strategy was that each student in the sample would have had no previous exposure to the actual academic and social demands encountered by Chicago undergraduates until the time of his matriculation. Hence, none of the students in the sample would have had an unfair advantage over others in terms of their having had more or less time to become assimilated into the presumably unique social system of the College.

items directed toward four general areas: the student's high school and family background, his expectations and motivations concerning life and performance at the University of Chicago, self-assessments of his intellectual capacities and personal relationships, and his social and cultural life. This instrument was mailed to students two weeks prior to their Orientation Week in September 1965, with instructions to complete it before coming to the University. Within a week of the arrival of the students, a 97% return was achieved.

The second questionnaire contained a large number of multiple-choice items and self-scoring scales that focused on the student's perceptions of environmental influences, friendship affiliations, reactions and behavior toward both students and parents during the academic year, personal values, interests and attitudes, descriptions of the environment and other students, evaluations of courses, sense of intellectual development and social integration, expectations and satisfaction in diverse areas of life, and time spent in a host of activities. The instrument was distributed to all freshmen at the beginning of April 1966, and after a month 91% had been completed and returned. Through interviews with friends and acquaintances of the non-respondents and by checking advisor reports, usable and reportedly valid information was finally obtained for 97% of the students still in residence in April 1966.⁸

Grade averages for all 683 students were compiled in September 1966, after Summer Quarter examination grades and available Spring Quarter examination grades and permanent Spring Quarter incompletes had been filed. Official Autumn Quarter registration lists were checked against housing and withdrawal lists to ensure that students who did not return to Chicago for their second year were carefully differentiated from those who did. Regular checks of registration and graduation lists were also made over the next few years. The latest, occurring late in January 1970, revealed that after a period of four and a half years, only 51% of this entering class had received a bachelor's degree from the University, although an additional 11% were still registered and presumably planning to receive their degree in the future. In this way, the year of departure for the remaining 38% was also established.

⁸ Of the 23 students who had already withdrawn from the College by April, either actual questionnaire returns or similar supplementary information was obtained on all but four. These four students, however, accounted for only 6% of those who did not return to Chicago for the 1966-67 academic year.

The Variables

Although the model presented in Figure 1 contains only 10 variables, it is obvious from my review article and earlier discussion that several of these variables can be adequately operationalized only by including a number of different components. Since not all of these individual components may be equally responsible for particular outcomes in the college experience, I define each separately here but deal with them mainly in clusters in the analysis that follows.

Family Background

According to my earlier review of the literature, two major clusters of family variables appear to be associated with college attrition. The first, what Gurin, Newcomb, and Cope (1968) call "cosmopolitanism," is defined on the basis of family socioeconomic factors, urbanization, and religious and ethnic background. The second, what I call "family relationships," refers to the quality of interpersonal relationships within the family, and the level of tension, stability, rapport, supervision, and support that the student experienced within his home.

Cosmopolitanism, as operationalized in this analysis, includes five separate variables: (1) religious-ethnic origin (Jewish, Gentile, and other), (2) degree of urbanization (Eastern metropolitan, other metropolitan, and smaller town—localities with a population under 300,000), (3) father's education (divided into four ordered categories ranging from advanced degree to no college), (4) mother's education (coded in the same way as father's), and (5) father's occupation (coded into five categories ranging from professional and major white-collar work to semiskilled or unemployed). All five variables were created from information provided on the admissions application.

Family relationships consists of four separate elements: (1) a measure of parental marital stability, (2) the student's view of the general happiness of his previous home life, (3) his perceived freedom from family rule, and (4) his psychological independence from his parents (based on a two-variable index consisting of a desire to leave home and being unconcerned about achieving in order to elicit parental pride). All four variables were measured from items on the first questionnaire.

Normative Congruence

The term "normative congruence" represents the most

complex and problematic set of factors in the entire model. As suggested earlier, this concept symbolizes not only the entire set of personality dispositions, values, attitudes, aspirations, and expectations with which the student first enters a new social system, but also the influences, expectations, values, and attitudes that he encounters in that system. Students whose personal attributes are compatible with the dominant norms and influences in the college environment should perceive a greater sense of affinity and identity with the college, be more likely to establish close relationships with others,⁹ achieve intellectual and academic success, and feel more tightly integrated into the fabric of campus life.¹⁰ As mentioned in my earlier review, however, the absence of unambiguous system-wide norms may give rise to a variety of subcultures, in which certain attributes and interests are more highly valued and rewarded than others.¹¹ As a result, three widely recognized dimensions of undergraduate life at Chicago have also been included in the analysis, on which individual attributes have been obtained.

Operationally, then, normative congruence contains the individual components of five major clusters of variables: (1) patterns of relationships and expectations generated within the high school context,¹² (2) a number of personality dispositions and characteristics, (3) measures of intellectual, moral, and voca-

⁹ The theory underlying this assumption is predicated on the work of Festinger (1957), Heider (1958), and Newcomb (1961), and is called balance theory. It presumes that a state of cognitive balance exists between two individuals when the network of sentiments connecting them and some third object, person, idea, or belief contains an odd number of positive connections. Mutual attraction between two individuals will, therefore, be more likely if their attitudes or interests are similar. We have extended their triadic model to suggest that the more individuals one encounters in a given social system who share one's values or attitudes, the more likely one is to establish some deep-seated sentiments toward them.

¹⁰ This assumption rests on a similar basis as that discussed in footnote 9. Encountering individuals who share one's interests and sentiments will increase the potential for forming closer interpersonal bonds to the extent that actually formalizing an acquaintanceship may not be necessary in order for the student to perceive a strong sense of social and normative support from his environment.

¹¹ For a discussion and analysis of the notion of "student subcultures" within a heterogeneous college population see Clark and Trow (1966). Newcomb and Flacks (1964), however, provide one of the clearest examples of a "dominant" college culture and analyze the social implications for those regarded as "deviant." For a comprehensive review of this entire literature see Feldman and Newcomb (1969).

tional values, (4) a set of attitudes toward the University of Chicago, and (5) three measures of campus subcultural orientations.

The patterns of "high school experiences" that we regard as relevant to the dropout process include relationships with peers, relationships with faculty members, dating patterns, involvement in extracurricular activities, leadership roles, the size of the school, and a summary measure of its extracurricular and reward structures. Data for the first five measures were obtained from a number of sources in both the admissions credentials and first questionnaire and were summarized by means of principal component analysis.¹³ This technique is designed to extract components from a set of theoretically homogeneous items, the first of which (called the principal component) exhausts the largest possible variance in the data matrix.¹⁴ At the same time, the individual data elements most closely associated with the principal component factor also contribute most to each student's component score. Students with high factor scores will have had close relationships with classmates and teachers, considerable dating experience, major extracurricular responsibilities, and recognized strengths as student leaders.

Principal components were also constructed from both admissions and questionnaire data for all but one of our five measures of "personality dispositions." These include indices of each student's friendliness and interpersonal orientations, achievement motivation, rigidity and inflexibility in facing everyday experiences, and independence and autonomy in handling most situations. Only his feelings of basic psychological security were tapped by a single questionnaire item.

Two of our three measures of general interests and "value orientations" were also constructed by means of principal component analysis. These involve multiple-

¹² This set of variables was developed in order to test the hypothesis that the patterns of expectations and rewards that prevailed in the student's high school served either to facilitate or impede successful adaptation to sets of pressures and demands articulated in the College. According to findings by me (Spady, 1970b), for example, it is clear that the extracurricular and peer status systems of the high school have important influences on the survival chances of students in college, even with major components of academic potential held constant.

¹³ For a detailed mathematical description of the principal component method, see Harman (1960).

¹⁴ In effect this method provides a "best fit" summary measure of the individual elements used in defining the component.

item indices of moral and religious orthodoxy and of intellectual and aesthetic orientations. In addition, the strength and clarity of each student's occupational goals were coded into a single measure from information in the admissions application.

As a part of the first questionnaire each student was asked to indicate how happy he was about having Chicago as his final college choice and how likely he was to receive his bachelor's degree from Chicago. The responses to these two items can be regarded as indicators of optimism and commitment to the college experience measured prior to the student's formal exposure to life in the institution.

The final elements relevant to the concept of normative congruence refer to three distinct but overlapping subcultural dimensions in the University of Chicago College: one political, one extracurricular, and the third academic. Each was measured from items on the second questionnaire and reflect the student's basic orientations or activities. The first is a principal component measure of political attitudes (ranging from strong conservatism to left-wing radicalism), the second taps his degree of involvement in one of two extreme extracurricular camps (athletics or political activism), and the third reflects his field of major interest (humanities, social sciences, or natural sciences).¹⁵

Although virtually all of the variables discussed so far have been coded to test their linear relationship with variables appearing subsequently in the theoretical model, the literature reviewed in my earlier paper is ambiguous about the probable strength of most of these relationships. This ambiguity may result from (1) a lack of systematic research on these variables, (2) the fact that no systematic relationship between these variables and attrition actually exists, and (3) the fact that many of these relationships may actually be curvilinear, yielding linear coefficients close to zero despite a definite pattern in the data. In order to test the third possibility, I have recorded most of the variables associated here with normative congruence so that students falling at either end of the linear dimension were given high

scores in contrast to those near the mean.¹⁶ The analysis that follows utilizes that version of each variable that maximizes its relationship with the dependent variable in question.¹⁷

Academic Potential

Academic potential is a construct based on the student's Scholastic Aptitude Test Verbal and Mathematical scores, a measure of high school class rank, and a principal component measure of high school quality. The latter was built from four items on the September questionnaire including a general rating of high school quality, the severity of its academic standards, and the percentage of seniors going to four-year colleges and/or to highly selective colleges.¹⁸

Friendship Support

The operational definition of friendship support is a principal component based on six items from the April questionnaire that reflect the quality and quantity of the student's relationships with his peers. It is only one of four different measures of the student's contacts with others in the college that is used in the analysis. The other elements in the cluster of variables I call "struc-

¹⁶ The prudence of this strategy is advocated by Feldman and Newcomb (1969) in their extensive review and summary of the empirical literature on college students. Differentiating students on the basis of their distance from the mean of a normative distribution allows the researcher to test the validity of a "consensus" rather than "dominance" theory of group dynamics. Linear or dominance measures presuppose that being at one extreme of a given dimension may have particular advantages compared with individuals at the opposite extreme. The consensus model, however, tests whether these advantages do not, in fact, accrue to those closest to the "mainstream" of the distribution in comparison to those who lie more conspicuously at the extremes, regardless of direction.

¹⁷ A series of preliminary runs were performed in order to establish the strength of association between the linear and curvilinear forms of these variables and each of the dependent variables in the model. The form of the independent variable with the stronger zero-order correlation was used in the final regression analysis in an attempt to allow the most substantively consistent relationships to influence the final outcome. In only a few cases, however, do these curvilinear variables have a statistically significant independent effect on these outcomes.

¹⁵ Each of the three variables just mentioned is regarded by Chicago undergraduates as having clear-cut, readily identifiable stereotypes at its extremes. The items used in building these scales tend to differentiate students in terms of visible symbols such as dress, patterns of affiliation, manners, and attitudes that coalesce in defining distinct subcultures. For a more detailed analysis of the attributes associated with these dimensions, see Spady (1967, Ch. 3).

¹⁸ If we were strictly interested in the strategy of maximizing the "prediction" of college outcomes by using the elements that comprise academic potential, we would enter each element in the regression equation separately and thereby obtain a "best estimate" for each. Since we are concerned primarily with the explanation of relationships among theoretically relevant constructs, however, the combined form of this construct is used in our analysis.

tural relations" include principal component measures of heterosexual relationships and of extracurricular involvements, plus a single item index of faculty contacts.

Intellectual Development

Intellectual development is a principal component construct of four items from the second questionnaire. These items reflect the student's stimulation in his course work, the expansion of his intellectual and cultural perspectives, his ability to think systematically and critically, and his perceived excellence in his academic work.

Grade Performance

Grade performance was computed as in most standard American GPA methods, except that two adjustments were made that helped to reflect the realities of the Chicago work load and grading system. Students taking Divisional (advanced) courses in theoretical mathematics and science were given an extra half grade-point bonus for each unit of math-science work. In other words a C in Chemistry 106 was computed as a 2.5 instead of a 2.0. Similarly students lost a half grade-point for every unit less than a full course load they failed to take.¹⁹

Social Integration

The operational definition of perceived social integration was intended to tap a subjective sense of belonging and fitting in at Chicago, reactions to the general warmth of interpersonal relationships on campus, and the perceived absence of pressures arising from normative differences between the respondent and other students. These data were obtained from eight items in the second questionnaire coded to reflect either a sense of compatibility or dissonance with the University and its students.

¹⁹ Even after making the upward adjustments used in this method, the mean grade-point averages for the men and women in this sample were only 2.5. Despite the very high academic qualifications and previous records of these students, in other words, grading at Chicago operated on the basis of a curve in which the average mark was close to C. One major consequence of such a system, according to Davis' (1966) analysis of a national sample of American college students, is the deflation of aspirations for advanced study in arts and science fields by high ability students at high quality institutions, largely because graduate school admissions chances (not to speak of recommendations from professors) are believed to depend more on within-institution than on between-institution performance comparisons.

Satisfaction

The student's satisfaction with his college experience was measured from a single item in the second questionnaire. Students were asked to indicate how satisfied they were with the year so far by responding on a five-point scale ranging from very satisfied to very dissatisfied.

Institutional Commitment

Our measure of commitment to the institution was taken from a single forced-choice item in the second questionnaire. Students were asked to indicate how important it was to them to graduate from Chicago, given the nature of their social and academic experiences as freshmen. The alternatives ranged from "a great deal" to preferring to receive their degree from another institution.

First-Year Dropouts

Students in this entering class were classified as dropouts if they did not return and register for courses in October 1966. Those who applied to take a formal leave of absence because of family circumstances or years abroad were placed in an intermediate category. For purposes of coding and analysis, returnees were assigned a 1, special cases a 2, and the volitional withdrawals a 3.²⁰

Graduation

As indicated earlier, a thorough check of graduation and registration lists late in January 1970 revealed that 51% of these students had earned a bachelor's degree by that time.²¹ All of those students were coded 5 on this variable. Students who had completed at least three years at Chicago were given a 4, those who left before the fourth year received a 3, and those who withdrew before their third year were coded 2. The remainder, the first-year dropouts, were coded 1.

²⁰ Although very few of these students received grades in the failing range, a number were low enough (i.e., having a C- average) to be placed on academic probation. Under such circumstances continuation beyond the first quarter of the second year is contingent on a marked improvement in academic performance between September and December of that year. In view of the stringent grading standards, however, large-scale improvements are not frequent. This situation may account for the fact that more students left Chicago between September and May of their second year than left during the entire 12 months that constituted our definition of the first year, i.e., 12% and 10% of the sample respectively.

The Analysis

Although the major concern of this paper involves the specification of variables that have the greatest influence on the dropout process per se, the analysis that follows is predicated upon the broadest possible view of that process. Accordingly, attention is focused not only on first-year attrition and eventual graduation but also on each of their presumed determinants: friendship support, intellectual development, grade performance, social integration, satisfaction, and institutional commitment respectively. By applying multiple-regression techniques to the analysis of each of these major components in the theoretical model, we can isolate those variables that have a sizable, independent bearing on each successive stage in the dropout process. The size of the multiple R^2 (percentage of explained variance) for each dependent variable indicates how well the variables used in the analysis can account for systematic differences in that outcome. The higher the R^2 , the greater the explanatory utility of the variables in the model under consideration.²²

Specifically, I analyze the contribution of each cluster of variables in the model to the explained variance in a given dependent variable in two ways. First, I attempt to simulate the longitudinal ex post facto prediction of the dropout process by entering each cluster of variables into the analysis in a specific order. The utility of this *stepwise procedure* rests on the tenability of the assumption that each cluster of variables in the model is either logically or temporally dependent on certain other factors on which information is avail-

able.²³ As each cluster is sequentially added to the regression equation, it accounts for a certain proportion of the variance in the dependent variable above and beyond that already explained by prior factors.²⁴ As a result, it is possible to estimate the prediction of a given college outcome as if only certain kinds of data had been available. It is assumed, for example, that the demographic and socioeconomic elements contained in the measure of cosmopolitanism are determined earlier than, and cannot be explained by, any other variables in the model. As a result, this particular cluster of variables is considered first in the stepwise procedure. It is further presumed that the nature and quality of relationships within the family are influenced by these demographic and socioeconomic factors. Together, these family-based variables are assumed to underlie the entire range of school experiences that the student has. His academic potential rests, in turn, on the nature and quality of both his home and school experiences. It is further presumed that all of these factors have helped to shape the student's general personality dispositions (as measured toward the end of his high school career) and that both these experiences and dispositions underlie his more specific normative and value orientations. Together, these antecedent factors are likely to have some bearing on his attitudes toward entering the University of Chicago and, consequently, on his orientations toward its various subcultures once he becomes a student. It is further assumed that the patterns of interaction and personal relationships that develop within the campus social structure are influenced by this entire set of orientations, expectations, and experiences.

The second analytical approach involves the deletion of each variable cluster from the otherwise

²¹ In relation to the longitudinal data provided by Trent and Medsker (1968, p.79) it would appear that this percentage is *somewhat* lower than that typical of completion rates at private nonsectarian universities: 52% of the students in their sample graduated within a straight four-year period. However, according to the results of a private survey of completion rates at other *highly selective* institutions conducted by a special University of Chicago faculty committee in 1967, it is *considerably* lower (the details of this survey are not available for citation or publication). It is important to remember, however, that the definition of the dropout used in these studies is predicated primarily on intra- rather than interinstitutional concerns. Essentially it is a reflection of what I called Definition 1 in my earlier paper: retention at a given institution as distinct from survival in the system of higher education as a whole.

²² Readers who are not concerned with the technical aspects of the analytic procedure or the specific details of the results may wish to turn directly to the Conclusions, where the main features of the findings are summarized and interpreted.

²³ Although this technique rests on many of the same assumptions as path analysis, the introduction of entire clusters of variables rather than single elements departs considerably from path analytic procedures (unless one were to create single hypothetical variables from the elements in each cluster for which path coefficients could be generated).

²⁴ This strategy of analysis is appropriate to a model in which the availability of predictor information is assumed to develop sequentially. The data reported in the tables that follow show, for example, how much of the variance in a given outcome can be accounted for by including the information pertinent to a particular stage in the sequence after the information gathered from antecedent stages has already been taken into account. The increment is the change in the multiple R^2 (percentage of explained variance) that occurs when the new cluster of variables is added to the regression equation.

full regression model and the calculation of the drop in explained variance that results. The difference between the proportion of variance explained by the full model (e.g., when all logically possible independent variables are included in the regression equation) and by the restricted model (when a specific set of variables is excluded) is the *unique contribution* of the excluded set of variables.²⁵ These quantities reflect the loss in explanatory power that would result if particular kinds of information were deleted from the analysis altogether. More specifically, *these differences are a reflection of the proportion of variance in the dependent variable that is shared uniquely with a specific independent variable (or cluster of variables), net of all other predictor variables.* The greater the contribution, the greater its measured influence on the dependent variable. It is important to remember, however, that the statistical significance of a given contribution depends on both its magnitude and on the number of independent variables in the cluster. In general, the greater the number of separate variables in a cluster the lower the chance of a given contribution being statistically significant.²⁶ Furthermore, under most con-

²⁵ Basically this technique rests on the same assumptions that govern the stepwise procedure except that it ignores temporal order and simply treats every cluster as if it were the last possible one to be entered into the regression equation. In this way it isolates the proportion of variance in the dependent variable that is shared with a given cluster of independent variables but not with *any other possible* independent variables in the equation (rather than with any other *temporally antecedent* variables as in the stepwise procedure).

²⁶ The reason this proposition holds is that the formula for computing the *F* ratio is used in testing the statistical significance of each contribution, and the magnitude of the numerator in this formula is of particular importance. The formula can be represented in terms of the discussion by using the following notation:

$$F = \frac{(R_f^2 - R_r^2) / (vf - vr)}{(1 - R_f^2) / (n - vf)}, \text{ where } R_f^2 = \text{the explained variance in}$$

the full model; R_r^2 = the explained variance in some particular restricted model (i.e., a model in which a given cluster of variables is missing); vf = the number of variables in the full model; vr = the number of variables in the restricted model; and n = the number of individuals in the sample. In order for the *F* ratio to be high and significant, the numerator of this equation must usually be a few times larger than the denominator. The latter is easily kept small when n is very large; but the magnitude of the numerator depends on both the size of the contribution of the missing set of variables ($R_f^2 - R_r^2$) and on the number of individual elements ($vf - vr$) that comprise the missing cluster. Since $(R_f^2 - R_r^2)$ is divided by $(vf - vr)$ to form the numerator, the smaller the latter the better.

ditions the unique contributions are lower than the stepwise results, owing to the greater amount of common variance among variables in the full rather than incomplete model.²⁷

Friendship Support

The data in Table 1, showing the major determinants of friendship support during the freshman year at Chicago, further clarify the procedures. As we move from the top to the bottom of the left-hand column in the table, we find the proportion of the variance in friendship support for the men in the sample that is accounted for by adding a particular set of variables to the regression equation containing the variables higher on the list. The five variables included in cosmopolitanism, for example, together explain only .39 of 1% of the variance in friendship support. Adding the four variables subsumed under family relationships increases the total R^2 by 1.06%, but the largest stepwise contribution, 9.71%, is made by then introducing the seven different elements that comprise high school experiences. These results further indicate, however, that after all other variables have been included, the student's patterns of structural relations in the College (i.e., his extracurricular involvements, dating patterns, and contacts with faculty members) together explain an additional 7.03% of the variance in friendship support. When isolated from the total model, these three factors also make by far the greatest unique contribution to the explanation of friendship support among the women (6.09%) as well as among the men.

It may not be surprising, of course, to find that close friendship patterns are more closely associated with other independent measures of interpersonal contact than with any other predictor variables in the model, but the relatively weak unique contributions of the latter variables have major sociological implications. For the men in this sample, interpersonal success in college can be linked to only two other significant clusters: high school experiences and value orientations. For the women, however, there are no other

²⁷ For example the seven elements in high school experiences enter the stepwise equation with only nine other elements (with which they might share variance in common) already present, five belonging to cosmopolitanism and four pertaining to family relationships. When these seven elements are removed from the total model, however, there are as many as 33 other independent elements in some parts of this analysis with which they might share a portion of the variance in the dependent variable.

Table 1/The Stepwise and Unique Contributions of Major Variable Clusters to the Explained Variance in Friendship Support, by Sex

Variable	Men		Women	
	Stepwise contribution	Unique contribution	Stepwise contribution	Unique contribution
Cosmopolitanism	.39	.73	1.50	1.79
Family Relationships	1.06	.15	2.66	.37
High School Experiences	9.71**	3.12*	4.01	1.60
Academic Potential	.12	.47	.00	.01
Personality Dispositions	3.11*	1.75	4.48	3.51
Value Orientations	.97	1.78*	1.97	1.73
Chicago Dispositions	.24	.09	1.18	.58
Subcultural Orientations	.04	.12	1.89	1.67
Structural Relations	7.03**	7.03**	6.09**	6.09**
Total explained variance	22.64 ^a		23.79 ^a	

^a The discrepancies between these figures and the actual column totals result from rounding error.

* Significant at the .05 level.

** Significant at the .01 level.

statistically significant unique contributions in the table. In other words, for students of either sex, establishing close relationships during the first year of college appears to be strikingly unrelated to the possession of particular clusters of dispositions, values, attitudes, or previous experiences. Given the diversity of backgrounds and normative attributes within this entering class, then, opportunities for developing strong friendships with other students are apparently not constrained by the distribution of individual characteristics within the sample.²⁸

An examination of the beta weights for specific variables in these equations does reveal, however, that the friendship process does not operate randomly for either sex. Two factors, dating and basic psychological security, are common elements for both sexes. Among the men, for example, the development of extensive friendship ties is most closely associated with heterosexual contacts (.298), followed by having entered college with more orthodox values (.153), having had

more successful peer relationships in high school (.126), enjoying a basic sense of psychological security (.116), and coming from a high school in which social life and athletics were dominant forces (.094).²⁹ In other words, exposure to more conventional and socially oriented experiences during high school coupled with a basic sense of security and capacity for making friends do help to facilitate the friendship process for these men. Aside from dating frequency (.221) and psychological security (.132), however, the pattern for women is somewhat different. Women with strong peer relations entered Chicago with more friendly and outgoing dispositions (.188) but had less well-educated fathers (-.175) and better-educated mothers (.146). In addition, they rejected both the activist and athletic subcultural extremes in the College (-.146). Although there may be some temptation to force an ad hoc interpretation on these findings, attempting to integrate the implications of the two family variables into an explanation could be very misleading. It would be safe to suggest, however, that women with

²⁸ This finding may come as some surprise in view of my earlier discussion of balance theory (see footnote 9). If balance theory assumptions do hold in this context (i.e., that close friendships will emerge between persons with strong common interests and sentiments), then it would appear that students with all kinds of normative orientations have fairly equal probabilities of establishing close friendship ties in the College because of the heterogeneity of the Chicago student body (i.e., the general availability of similar and compatible students within the campus social structure regardless of one's particular orientations).

²⁹ The reader should exercise caution in interpreting these beta weights since they do not necessarily denote either the direction or magnitude of the original zero-order relationships. They represent the percentage change in one standard deviation unit of the dependent variable that would result from a one standard deviation change in the independent variable, with all other variables in the regression equation held constant. The larger the beta weight the stronger its independent relationship with the dependent variable.

strong friendship ties are apparently more secure, more interpersonally oriented, and more attractive to and involved with men than are their counterparts. Perhaps as important is their location within the mainstream rather than at either extreme of one of the major sub-cultural dimensions of campus life.³⁰

Intellectual Development

The question remains, of course, whether or not the concern with interpersonal relationships as an important component of the dropout process is actually warranted by the data at hand. According to the assumptions made in the theoretical model (Figure 1), for example, friendship support was presumed to have a direct influence on both the intellectual development and grade performance of students at Chicago, net of the influence of normative congruence and academic potential. The data in Table 2 show that relationships achieved within the social structure of the College have a significant bearing on the intellectual development of all students, but their influence appears to be particularly great among the women. Structural relationships by themselves not only account for nearly 10% of the explained variance in intellectual development for the women, they represent the only statistically significant cluster in the stepwise process. Examination of the specific beta weights reveals that women with high development have enjoyed close faculty contacts (.249), have higher socioeconomic backgrounds (.222), are more involved in campus extracurricular activities (.145), and (perhaps surprisingly) are somewhat more likely to come from broken homes (.145). In addition, however, they entered Chicago with stronger intellectual and aesthetic orientations (.136), had developed leadership capacities in their high schools (.135), and came from smaller towns rather than large metropolitan centers (.132). In short, intellectual development among these women seems to be associated with a capacity for involvement both with faculty members and in the range of available campus extracurricular activities. Together these opportunities appear to

facilitate and stimulate previously developed intellectual interests, particularly for those from higher status families in small towns whose earlier opportunities for cultural and intellectual development may have been more limited.

Although the data in Table 2 suggest that structural relationships have less bearing on the intellectual development of men than of women, the individual beta weights derived from the full equation suggest that the structural patterns that facilitate intellectual development for these men also revolve primarily around faculty contacts (.182) and extracurricular participation (.139) rather than close friendships per se (.076). Although personality dispositions such as psychological security (.154) and leadership orientations (.112) are also independently associated with their development, family background has only a minor bearing on this stage of the attrition process. Perhaps one of the most important data in this table, however, is the relative unimportance of academic potential as an independent predictor of intellectual development. Its unique contribution to the explained variance in development is very low for both sexes, suggesting that opportunities for achieving high intrinsic rewards within the college academic system are not contingent upon either previous training or measured aptitude. Instead, they appear to rest primarily on the student's ability to establish relationships with faculty members and to involve himself in activities that provide exposure to stimulating ideas and experiences.

Grade Performance

According to the figures in Table 3, however, success in achieving extrinsic academic rewards is minimally dependent on one's personality dispositions and structural relationships within the College, but glaringly contingent on one's academic potential—even though these students had to possess very high aptitude and performance credentials in order to be admitted.³¹ Re-

³⁰ This point refers directly to the discussion in footnote 16 regarding the importance of "dominance" versus "consensus" variables. The finding just cited suggests that women are more likely to have close friends if their interests and activities lie within the normative mainstream of campus life rather than at either its political-activist or athletic poles. The zero-order relationship between this dimension and social integration suggests, in fact, that students at the pro-athletic extreme have the lowest integration, those at the activist end the next lowest, and those in the middle are the highest.

³¹ This finding clearly suggests that the elements that underlie our measure of academic potential (high school grade performance, high school academic quality, and verbal and mathematical aptitude) have a major bearing on the academic success of students in the College, despite the restricted range of these variables within our sample in relation to college students as a whole. It also suggests, however, that lowering the correlation between these two variables can be accomplished only by a further restriction in the distribution of student academic credentials, narrowing the distribution of grades offered by the College, and/or implementing a major change in the criteria on which grading is based.

Table 2/The Stepwise and Unique Contributions of Major Variable Clusters to the Explained Variance in Intellectual Development, by Sex

<i>Variable</i>	<i>Men</i>		<i>Women</i>	
	Stepwise contribution	Unique contribution	Stepwise contribution	Unique contribution
Cosmopolitanism	1.29	.64	3.66	3.68*
Family Relationships	1.05	.52	2.57	2.20
High School Experiences	3.66*	.50	4.88	1.59
Academic Potential	1.43**	.55	.89	.28
Personality Dispositions	8.38**	4.24**	1.81	3.02
Value Orientations	.28	.37	2.15	1.90
Chicago Dispositions	.59	.28	.31	.66
Subcultural Orientations	1.36	1.56*	.74	.52
Structural Relations	5.91**	5.91**	9.88**	9.88**
Total explained variance	23.95 ^a		26.89 ^a	

^a The discrepancies between these figures and the actual column totals result from rounding error.

* Significant at the .05 level.

** Significant at the .01 level.

Table 3/The Stepwise and Unique Contributions of Major Variable Clusters to the Explained Variance in Grade Performance, by Sex

<i>Variable</i>	<i>Men</i>		<i>Women</i>	
	Stepwise contribution	Unique contribution	Stepwise contribution	Unique contribution
Cosmopolitanism	2.73	2.29*	3.91	.81
Family Relationships	.36	.40	4.21*	1.30
High School Experiences	3.32*	.72	3.41	3.01
Academic Potential	21.39**	14.77**	18.87**	13.06**
Personality Dispositions	4.00**	3.83**	5.95**	4.74**
Value Orientations	.25	.27	1.87	1.12
Chicago Dispositions	.24	.08	.98	1.16
Subcultural Orientations	.23	.21	1.07	1.24
Structural Relations	2.45**	2.45**	3.09*	3.09*
Total explained variance	34.97 ^a		43.38 ^a	

^a The discrepancies between these figures and the actual column totals result from rounding error.

* Significant at the .05 level.

** Significant at the .01 level.

moving potential from the full regression equation would reduce the proportion of explained variance in grade performance from 34.97% to 20.20% for the men—a reduction of over 40%—and from 43.38% to 30.32% for the women. In both cases the beta weights for academic potential exceed .400 with all other variables in the model held constant.

Further interpretation of the largest beta weights for the men suggests that academic success can be explained by a few basic elements: very high academic potential (.416), lacking (or perhaps renouncing) an active social life (−.187), having only modest leadership orientations (.133), and being Jewish (.128). In other words, superior aptitude and high school aca-

ademic training, a Jewish family, the ability to renounce outside distractions such as women, and avoiding extremes in one's leadership orientations independently facilitate academic success among these men. For the women, however, the pattern of independent relationships is more complex. Although academic potential is also their most important single determinant of grade performance (.404), several of the other significant variables are more difficult to interpret. In general, high grade performance is also associated with minimal extracurricular participation (-.182), having a moderately flexible approach to life (.136), having had less satisfactory relationships with high school teachers (-.127), being less enthusiastic about entering Chicago (-.125), and having strong leadership orientations (.122). Although the renunciation of nonacademic campus involvements and having a moderately flexible style of handling new situations and experiences both make some sense intuitively, the other variables just mentioned do not provide a readily comprehensible basis for interpretation.³²

Social Integration

The extent to which academic potential dominates the academic achievement process for both sexes, however, is rivaled only by the critical role of structural relationships in the social integration process. According to the data presented in Table 4, interpersonal relationships alone account for over 12% of the explained variance in social integration for the men and nearly 20% for the women. A closer examination of these figures suggests, in fact, that interpersonal relationships are so important to these students that only 20% of the variance in social integration for either sex could be explained without taking them into account. If anything, these figures also suggest that this process is more monolithic for the women than for the men.

Support for this interpretation can be found by comparing the number of variable clusters with statistically significant magnitudes for each sex. For the women only Chicago dispositions and academic potential also have a unique independent bearing on social

integration. Among the men, however, successful integration is influenced by four significant factors in addition to structural relations: personality dispositions, high school experiences, subcultural orientations, and intellectual development. For neither sex is the hypothesized relationship between grade performance and social integration of any consequence at all.³³

The beta weights for individual variables also confirm this general interpretation. Friendship support is by far the dominant link to social integration for the women (.453), followed in order by academic potential (.148), happiness in choosing the University of Chicago (.147), having a mother with a limited educational background (-.127), having successful dating relationships at Chicago (.122), and enjoying a basic sense of psychological security (.119). Close friendships are also most important for the men (.325), but personal security (.162), fitting into the mainstream (rather than the athletic or activist extremes) of campus subcultural life (.162), having a father with limited formal education (-.157), high intellectual development (.121), and frequent faculty contacts (.111) also independently help to facilitate the integration process. In some respects, then, successful social integration is the product of similar elements for each sex: having close friends, being a basically secure individual, and having a parent of the same sex with somewhat limited education.³⁴ For the men, however, relationships with faculty members, intellectual development, and subcultural congruence all suggest that the integration process involves an unambiguous synthesis of components from both the social and academic subsystems of the College. There is no systematic dependence on academic or intellectual experiences among the women, however, save the somewhat greater sense of belonging felt by those with high academic potential. Instead, their relationships with men and initial dispositions to-

³³ In other words, feeling a high degree of compatibility with the College social system seems to depend on the range of intrinsic and consummatory factors in the theoretical model but not on one's ability to compete successfully for scarce extrinsic rewards. This finding is particularly surprising in view of Durkheim's emphasis on the centrality of the occupational (in this case studentship) role in generating meaningful ties to the social collectivity.

³⁴ Again the implication of the negative beta weights on parental education are difficult to interpret theoretically, particularly since one might assume that a form of anticipatory socialization toward adapting to college would take place among students whose parents had already been to college. This process, if anything, would presumably yield positive rather than negative coefficients.

³² One could conjecture, of course, that the caliber of student capable of earning top marks at Chicago may have been (1) more critical of rather than acquiescent toward his high school teachers, and (2) less than enthusiastic about entering Chicago because of a presumably thwarted desire to have been accepted at a university with outstanding social as well as academic prestige (e.g., Harvard, Radcliffe).

Table 4/The Stepwise and Unique Contributions of Major Variable Clusters to the Explained Variance in Social Integration, by Sex

Variable	Men		Women	
	Stepwise contribution	Unique contribution	Stepwise contribution	Unique contribution
Cosmopolitanism	2.62	1.91	1.01	1.94
Family Relationships	2.14*	.51	4.75*	1.68
High School Experiences	2.57	2.70*	1.27	2.32
Academic Potential	.54	.25	1.00	1.36*
Personality Dispositions	6.40**	2.77*	4.73	2.77
Value Orientations	.07	.18	.37	.51
Chicago Dispositions	1.20*	.46	5.17**	2.31*
Subcultural Orientations	2.59**	2.58**	1.50	.99
Structural Relations	14.76**	12.18**	20.45**	19.74**
Intellectual Development	.95*	1.47*	.06	.14
Grade Performance	.05	.05	.33	.33
Total explained variance	33.89 ^a		40.64 ^a	

^a The discrepancies between these figures and the actual column totals result from rounding error.

* Significant at the .05 level.

** Significant at the .01 level.

ward the College also affect their sense of integration, irrespective of academic or intellectual matters.

Satisfaction

In view of the conspicuous variability between men and women that we have noted so far, the comparative uniformity in Table 5 may seem somewhat surprising. Nonetheless, these findings, showing the unique contributions of each variable cluster to student satisfaction with the first year of college, reveal a definite parallel between the sexes. Essentially satisfaction depends directly on one's social integration, grade performance, and intellectual development and only secondarily on one's specific patterns of relationship. On balance, the two factors associated with academic and intellectual life appear to be relatively more important for the men, while social integration itself is definitely the dominant variable among the women. Since each of these three is a single-element variable, the relative sizes of their unique contributions generally parallel the magnitudes of their respective beta weights. For the men grade performance is the most important variable (.306), followed by social integration (.282) and then by intellectual development (.271); but among the women grades (.251) are not as important as integration (.332), although both are again more power-

ful than intellectual development (.235). The extent to which these three variables dominate the explanation of student satisfaction is demonstrated by the fact that only one other variable in the entire model yields a beta weight greater than .100 for either sex.³⁵

Institutional Commitment

The independent determinants of satisfaction, in other words, can be reduced to three critical elements, each of which is an integral component of our original theoretical model.³⁶ Between the sexes they differ only slightly in both their absolute and relative magnitudes, with formal academic performance being somewhat more important for men than women. The question

³⁵ This variable, achievement motivation, has a beta weight of $-.108$ among the women, suggesting that happiness is, among other things, doing well academically in the College without really trying—or the converse—that unhappiness is trying hard but not reaping the benefits.

³⁶ Although the unique contributions of the college-based variables in Table 5 account for only 18.0% and 16.6% of the explained variance in satisfaction for the men and women, respectively, the unique effects for the precollege variables sum to only 4.6% and 5.5%. The stepwise contributions show, in fact, that the five college variables account for 29% of the explained variance for both sexes, even with the effects of the seven prior factors already taken into account.

Table 5/The Stepwise and Unique Contributions of Major Variable Clusters to the Explained Variance in Satisfaction With the Year, by Sex

Variable	Men		Women	
	Stepwise contribution	Unique contribution	Stepwise contribution	Unique contribution
Cosmopolitanism	.78	.76	.49	.27
Family Relationships	2.51**	.93	1.91	.23
High School Experiences	.91	.51	2.85	1.70
Academic Potential	4.24**	.08	1.29	.01
Personality Dispositions	5.92**	.71	5.12*	2.08
Value Orientations	.23	.27	.69	.43
Chicago Dispositions	.51	.32	.79	.76
Subcultural Orientations	2.76**	.95	.83	1.05
Structural Relations	3.64**	1.55*	11.87**	1.78
Intellectual Development	12.40**	4.90**	7.00**	3.80**
Grade Performance	5.01**	5.39**	2.60**	3.32**
Social Integration	5.25**	5.25**	6.63**	6.63**
Total explained variance	44.16 ^a		42.07 ^a	

^a The discrepancies between these figures and the actual column totals result from rounding error.

* Significant at the .05 level.

** Significant at the .01 level.

remains, of course, whether or not these three variables influence institutional commitment and the actual drop-out decision in the same manner. According to the data in Table 6, they do not. At first glance, in fact, these figures suggest that institutional commitment may be influenced to a modest degree by social integration and intellectual development, but *academic performance has virtually no bearing on the process at all.*³⁷ As in most of the previous tables, however, there are both similarities and differences in the patterns of relationship between the sexes, but in this case there are more significant variables for the women than for the men.

On the basis of the unique contributions in Table 6, it would appear that for these women commitment to the University of Chicago late in the first year is influenced most by the cluster of attitudes and expectations toward the College that they bring with them in

September. These dispositions are apparently complemented by high school and family experiences, satisfaction with the freshman year, and—to a lesser degree—by their value orientations, intellectual development, and social integration as well. An examination of the individual beta weights suggests, in fact, that the generation of commitment to the institution is a very diffuse process that is responsive to a wide variety of moderately strong factors. On the whole, the most important of these appears to be satisfaction with the year (.224), followed by general dependence on one's family (.216), satisfaction with the initial choice of Chicago as a college (.188), social integration (.174), intellectual development (.154), being either extremely active or inactive in high school extracurricular participation (.154), and faculty contacts (.129). In general, this set of variables suggests that commitment for these women is influenced by a series of subjectively based criteria associated with both social-psychological and intellectual phenomena. Women with low commitment are clearly dissatisfied with their first year, having entered the College with some skepticism about its virtues, regarded themselves as strongly independent of (perhaps even alienated from) their families, and been at one extreme or the other in their interest in intellectual

³⁷ Given the important role of grade performance in the explanation of first-year satisfaction, its failure to account for virtually any of the variance in institutional commitment (not to speak of social integration) is indeed surprising. The major implication of this finding appears to be that grades provide extrinsic satisfactions for students without influencing the more intrinsic and subjective aspects of their relationship to the social and academic systems of the College.

Table 6/The Stepwise and Unique Contributions of Major Variable Clusters to the Explained Variance in Institutional Commitment, by Sex

Variable	Men		Women	
	Stepwise contribution	Unique contribution	Stepwise contribution	Unique contribution
Cosmopolitanism	1.60	2.22*	3.68	1.90
Family Relationships	2.40*	1.27	4.80*	3.55**
High School Experiences	2.95	1.87	6.38*	3.62*
Academic Potential	.01	.17	.14	.27
Personality Dispositions	1.11	1.46	1.38	.49
Value Orientations	1.03	.93	2.75*	1.97*
Chicago Dispositions	4.25**	2.10**	8.58**	4.46**
Subcultural Orientations	1.62	1.03	1.02	.65
Structural Relations	3.68**	.30	6.22**	1.33
Intellectual Development	4.66**	.98*	3.77**	1.62*
Grades	.02	.16	.04	.23
Social Integration	6.43**	3.31**	3.47**	1.55*
Satisfaction	4.29**	4.29**	2.91**	2.91**
Total explained variance	34.04 ^a		45.14 ^a	

^a The discrepancies between these figures and the actual column totals result from rounding error.

* Significant at the .05 level.

** Significant at the .01 level.

matters but moderate in terms of past extracurricular involvements. In addition, both their sense of intellectual development and social integration are low, although neither seems directly complemented by more objective factors such as few friends or poor grades. They are also unhappy with their opportunities for contact with faculty members.

Although men with low commitment can be characterized somewhat similarly, the bases of their alienation are more difficult to specify and interpret. Except for satisfaction with the year (.277) and social integration (.234), there are only four other variables with beta weights greater than .100 in the total regression equation: psychological security (-.132), intellectual development (.126), an optimistic assessment of graduation chances before entering Chicago (.117), and coming from a high school that stressed serious and responsible student contributions (.112). Of these four, only the second and third resemble the female pattern. Nonetheless, there is also a conspicuous absence of objective criteria associated with their findings as well, suggesting that for both sexes institutional commitment rests on strongly emotional and psychological factors that can be only indirectly traced to one's formal role as a student. The question that remains,

of course, is how firmly this subjectively based phenomenon underlies students' decisions to remain at the University for at least a second year. The answer, according to the data in Table 7, is that *institutional commitment is by far the most powerful determinant of attrition among the women but not among the men.*

First-Year Dropouts

The lists of unique contributions in Table 7 show that deleting institutional commitment from the full regression model would deplete the explained variance in first-year dropouts 12% for the women but only 2.52% for the men. The relative impact of grade performance for the two sexes is reversed, however: grades account for 5.91% of the explained variance for the men but only 1.26% for the women. Further comparison of these lists also suggests, though, that the dropout process among the women may not be as monolithic as it is among the men, despite the apparent dominance of institutional commitment as an explanatory factor. Cosmopolitanism, high school experiences, personality dispositions, Chicago dispositions, subcultural orientations, structural relations, intellectual development, and institutional commitment all have larger unique contributions among the women, whereas only family rela-

Table 7/The Stepwise and Unique Contributions of Major Variable Clusters to the Explained Variance in First Year Dropouts, by Sex

<i>Variable</i>	<i>Men</i>		<i>Women</i>	
	Stepwise contribution	Unique contribution	Stepwise contribution	Unique contribution
Cosmopolitanism	.45	.22	3.18	1.33
Family Relationships	1.54	1.67*	.84	.66
High School Experiences	2.91	1.61	4.10	2.17
Academic Potential	1.62**	.21	1.28	.31
Personality Dispositions	2.22	.50	3.47	2.87
Value Orientations	.63	.88	2.85	1.39
Chicago Dispositions	.19	.16	.09	.57
Subcultural Orientations	1.61	1.06	2.75	3.62**
Structural Relations	5.64**	1.82*	5.03**	2.92*
Intellectual Development	4.00**	.32	.12	1.92**
Grade Performance	6.06**	5.91**	1.28	1.26*
Social Integration	1.89**	.81*	1.03	.01
Satisfaction	.02	.06	.79	.02
Institutional Commitment	2.52**	2.52**	11.97**	11.97**
Total explained variance	31.32 ^a		38.79 ^a	

^a The discrepancies between these figures and the actual column totals result from rounding error.

* Significant at the .05 level.

** Significant at the .01 level.

tionships, grade performance, and social integration are larger among the men. This general interpretation also appears valid on the basis of the size and number of beta weights greater than .100 for each sex. When the influence of all variables in the model are considered simultaneously, grade performance ($-.336$) is clearly the most important component of the dropout process for the men, followed in order by institutional commitment ($-.195$), social integration ($-.118$), extremes in independence from one's family (.109), friendship support ($-.107$), and majoring in a natural science rather than humanities field (.105).³⁸ For the women, however, institutional commitment has by far the most consistent net effect on first-year attrition ($-.462$). It is followed by being a natural science major (.212), having high rather than low intellectual development (.175), earning low grades ($-.154$), having unsatisfactory faculty contacts ($-.138$), being Gentile (.121), having extreme intellectual interests (.114), and reflecting extreme dispositions toward personal autonomy (.104).

On balance, then, the dropout process for the men can be primarily explained by their inability to accumulate adequate extrinsic rewards within Chicago's aca-

demically system, and only secondarily by their structural relationships, integration, and commitment to the social system of the College. On the other hand, the process among the women is mainly influenced by the more subjective variables, with institutional commitment playing a conspicuously strong role. The net effect of grade performance is only the fourth strongest variable in the model, however, although other academically

³⁸ Most of these beta weights are negative because the numerical values of the dependent variable are reversed. This fact means that being low on the independent variable is associated with dropping out rather than with returning to Chicago for a second year. In view of the prodigious literature that documents the relationship between grade performance and attrition, these findings may come as no surprise. But large numbers of Chicago upperclassmen firmly predicted during intensive personal interviews that grade performance would have little bearing on the dropout process in the College. On the basis of their hypotheses about the model tested in this analysis, intellectual development, social integration, and institutional commitment should have emerged as the most important determinants of first-year attrition. It is important to remember, of course, that both their explanations and our analysis have a strong intra-institutional bias. On the basis of the best information available, for example, nearly all of the students classified here as first-year dropouts actually transferred to other institutions (usually large public universities in their home state) as opposed to leaving higher education altogether.

related variables such as major field, intellectual development, and faculty contacts also have an independent bearing on ultimate attrition. When these other factors are held constant, however, intellectual interests too have some bearing on this process, but their impact is not consistent with commonly held beliefs regarding the importance of intellectualism on the Chicago campus.³⁹ Among these women at least, dropouts are more likely to come from the ranks of both the highly intellectual and the nonintellectual, rather than from the latter group alone. This set of beta weights seems to suggest, in fact, that interest in pursuing a career in the natural sciences and mathematics may override many other factors, including intellectual interests and development, in accounting for those who leave Chicago after only a year. The stringent standards and rigorous competition in these fields (complemented by less excessive demands in the social sciences and humanities) apparently induce women in particular to consider leaving Chicago for institutions in which their survival chances in science would appear to be greater, regardless of their expressed commitment to Chicago or initial academic success.⁴⁰

Graduation

Whether or not these same factors continue to account for attrition at the later stages in the undergrad-

uate career can only be inferred from the findings in Table 8. Although there are several conspicuous differences between these data and those in Table 7, there are both methodological and theoretical grounds for interpreting these differences with some caution. The first relates to the assumption that graduation should be considered statistically as an ordinal rather than nominal (dichotomous) scale, reflecting both the chronology of the dropout process as well as one's graduation status four and a half years after matriculating. As it stands, the dependent variable in Table 8 both represents the length of each student's career at Chicago and differentiates between those who received a degree and those who merely remained in the College for more than three years without graduating. From a slightly different perspective, it measures both the student's persistence and ability to earn a degree within a slightly longer than "normal" amount of time.

The second major consideration that must be made in comparing the data in Tables 7 and 8 involves the assumption that the effects of the independent variables measured during the freshman year continue to have an impact on the attrition process in ensuing years. Since independent measures of structural relations, intellectual development, grade performance, social integration, satisfaction, and institutional commitment obtained during the latter stages of the undergraduate career were not used in this analysis,⁴¹ the relationships reported in Table 8 reflect the extent to which each of these variables has a long-term bearing on the dropout process. In general, the larger the relationship the more likely were students who ranked high on the independent variable to remain at Chicago for the duration of their undergraduate careers. The converse, of course, is also true: the lower one's rank on the independent variable as a freshman the more likely he was to leave Chicago after a relatively short time.

When viewed in this light, then, the differences between Tables 7 and 8 are more understandable, and according to the unique contributions in Table 8, in fact, long-term persistence is directly linked to only three significant components for each sex, the largest of which in each case is early academic performance. Among the men grades continue to dominate the ex-

³⁹ This belief is strongly supported by Chicago students in personal interviews and in response to questionnaire items describing the environment of the College. Over 80% of this sample describe themselves as either very or moderately intellectual. The distinctiveness of this emphasis on intellectualism in the College has also been well-documented in earlier work by McKinlay, Rossi, and Davis (1962), Stern, Stein, and Bloom (1956), and Pace and Stern (1958).

⁴⁰ The rationality of such a decision is underscored by Davis' (1966) findings that suggest that students of roughly comparable ability have a more difficult time earning high marks at high quality institutions. His data also show that the independent effects of grades and school quality on one's chances of retaining natural sciences career choices over the course of the undergraduate career definitely favor grades, but the effect of school quality on this decision is positive. The conclusion, then, may be that students with strong interests in scientific careers may be making a rational choice by leaving an institution whose academic standards in the sciences are extremely high in order to attend an institution in which their chances of achieving at a high level (and thereby receiving recommendations and encouragement from faculty members) increase markedly. However, these data do not speak to the issue of the independent effects of school quality and grade performance on one's actual chances of being accepted for graduate study in these fields, and that in the long run would appear to be the acid test of such a strategy.

⁴¹ An extensive questionnaire tapping each of these variables was distributed to this sample during the latter part of their third year in the College. The results of this data collection, however, have not been employed in the present analysis.

Table 8/The Stepwise and Unique Contributions of Major Variable Clusters to the Explained Variance in Graduation, by Sex

<i>Variable</i>	<i>Men</i>		<i>Women</i>	
	Stepwise contribution	Unique contribution	Stepwise contribution	Unique contribution
Cosmopolitanism	6.06**	2.60**	3.32	2.86
Family Relationships	1.68	1.50	5.26**	3.15*
High School Experiences	2.59	.79	6.32*	3.64
Academic Potential	2.58**	.30	3.45**	.14
Personality Dispositions	4.13**	.30	3.63	2.18
Value Orientations	.42	.62	2.48	1.13
Chicago Dispositions	.50	.26	.12	.14
Subcultural Orientations	1.38	.69	1.61	1.62
Structural Relations	2.29*	.43	3.50*	1.82
Intellectual Development	4.80**	.44	.32	.14
Grade Performance	8.43**	7.81**	4.61**	4.30**
Social Integration	2.04**	1.22**	.60	.06
Satisfaction	.04	.00	.33	.03
Institutional Commitment	.61	.61	3.50**	3.50**
Total explained variance	37.55 ^a		39.05 ^a	

^a The discrepancies between these figures and the actual column totals result from rounding error.

* Significant at the .05 level.

** Significant at the .01 level.

planation of ultimate graduation,⁴² followed by cosmopolitanism and social integration; but the significant impact of family relationships, institutional commitment, and structural relations on first-year attrition (Table 7) are apparently short-lived. Among the women, however, institutional commitment seems to lose a considerable portion of its early potency over time⁴³ along with subcultural orientations, structural relations, and intellectual development, whereas the most

conspicuous gainers over the long run are grade performance and family relationships.

Nonetheless, a closer examination of both these unique contributions and the individual beta weights for each sex reinforces our earlier interpretation regarding the relatively greater complexity of the attrition process among the women; this complexity is evident in both the short- and long-term cases. First of all, in 10 of 14 comparisons in Table 8 the unique contributions of the women are larger than those of the men, reflecting a more even distribution of larger influences within the entire set of predictor variables. Second, there are only four beta weights greater than .100 for the men, compared with 11 for the women. For these men persistence can be primarily explained by high grade performance during the freshman year (.387), being Jewish (.160), having high freshman social integration (.145), and having a father with a lower-prestige occupation (-.118). Within the context of these findings it would appear that the much abused cultural stereotype of the ambitious and persistent lower-middle-class Jewish boy may have some genuine validity, particularly if one allows that strong achievement orientations are a

⁴² A direct comparison of the contributions in Tables 7 and 8 shows, in fact, that freshman grade performance affects long-term persistence more than it influences first-year attrition. Apparently marginal first-year academic performance continues to plague those who return for a second year to the extent that their chances of leaving are considerably higher than returnees with strong freshman records.

⁴³ Since the size of this relationship in Table 8 is much lower than in Table 7, it is possible that the former is merely a statistical artifact of the latter. In other words, the magnitude of the long-term relationship is clearly dependent on the fact that there were so many early dropouts with low institutional commitment. Therefore, institutional commitment may appear to influence long-run persistence solely because of its particularly potent effect on the early stages of the process.

very important component of early academic success beyond the demonstrated influence of academic potential.⁴⁴ In addition, it is somewhat surprising that other theoretically relevant variables such as intellectual development, institutional commitment, and the numerous indicators of normative congruence failed to have an independent bearing on the attrition process beyond the first year. Although the conspicuous importance of extrinsic academic rewards in accounting for systematic differences in male persistence seems well established by these data, the findings in Table 8 do not suggest that the remaining attributes and experiences considered in this analysis are completely unimportant or irrelevant, since grades and cosmopolitanism uniquely account for less than a third of the total explained variance in graduation, leaving the sizable remainder to be explained by the other variables in the model.⁴⁵

Nonetheless, among the women these two variables account for less than a fifth of the variance explained by the total regression model, while family relationships, high school experiences, personality dispositions, value and campus subcultural orientations, and institutional commitment are all more powerful than among the men. Of the individual beta weights affecting female graduation, that of freshmen grade performance is the largest (.283), although it is barely larger than that for institutional commitment (.250). The other independent determinants of persistence for the women include being Jewish (.166), having had a happy homelife (.163) despite somewhat unsettled parental marital stability (-.142), having personality dispositions that are neither unusually rigid nor flexible (-.140), having had no experience with organized politics during high school (-.125), having a father with no college experience (.117), majoring in the humanities rather than natural sciences (-.114), entering Chicago with moderate rather than extreme intellectual interests (-.113), and having satisfying faculty contacts as a freshman (.108). Although academic performance,

ethnic origins, family socioeconomic status, and some measure of integration or commitment are relevant variables for both sexes, this list definitely suggests that the precollegiate experiences, dispositions, and intellectual orientations of these women also account for important systematic differences in their persistence as undergraduates.

Conclusions

While the data just examined reflect on the adequacy of the theoretical model proposed at the outset, they do not provide an unambiguous basis for revising the model in some particular way, nor do they automatically resolve many of the ambiguities and inconsistencies in the literature cited in my earlier paper (Spady, 1970a). Because the set of variables used in the model have not been operationalized and analyzed empirically before, synthesizing these findings is problematic for two major reasons: they lack comparability with other research efforts, and they often differ appreciably between the men and the women. Despite these anomalies, however, it is possible to modify the structure of the original model to conform to the most general and consistent features of the data and to suggest that this new model be used as a point of departure in future interdisciplinary research on this topic. In addition, these findings provide a basis for drawing necessarily limited implications about a number of relevant and often problematic policy issues.

The revision presented in Figure 2 hardly reflects the relatively simplistic elegance of the largely theoretical synthesis depicted in Figure 1, but it is an accurate reflection of the complex pattern of relationships that emerged empirically in the analysis. The solid arrows (paths)⁴⁶ indicate that for both men and women at least one element in a given component has a direct, statistically significant independent bearing on the dependent variable to which it leads.⁴⁷ The other major modifica-

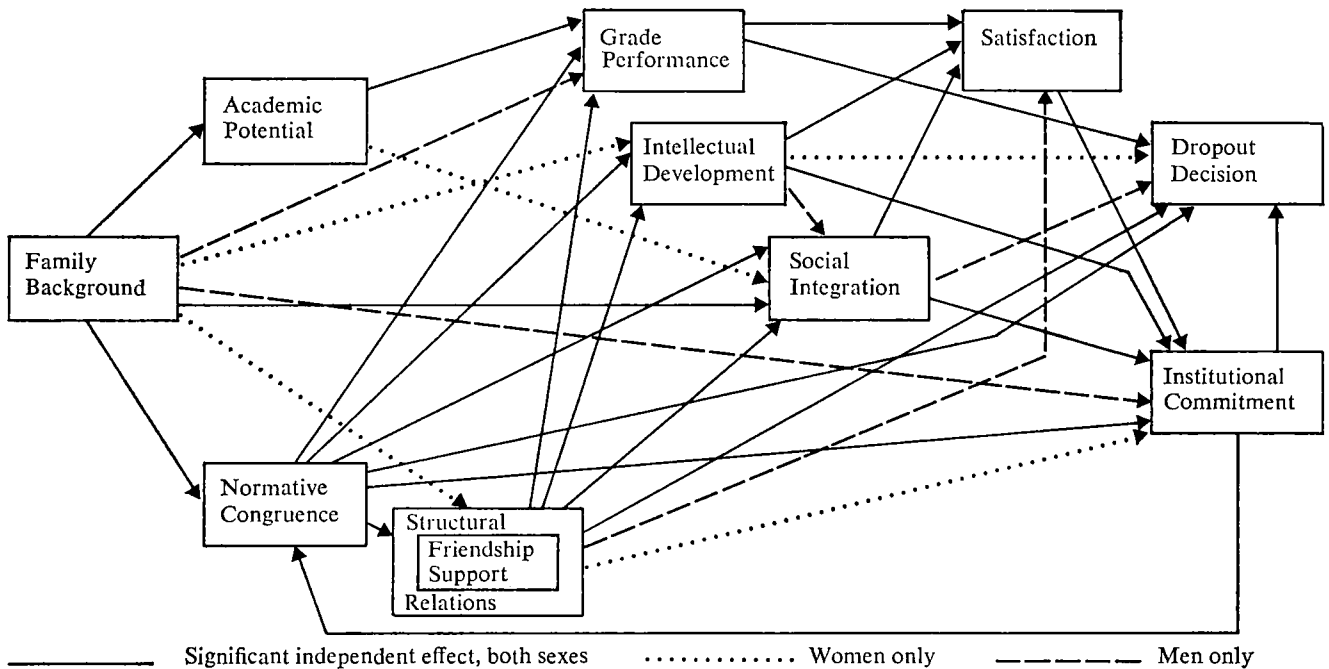
⁴⁴ The zero-order correlation between achievement motivation and grade performance for these men is .216, and their partial correlation, controlling for academic potential, is .106. Achievement orientations, in other words, has a positive bearing on academic success above and beyond that associated with academic potential, but its magnitude is not large. Its influence on persistence controlling for grade performance is also positive, but again fairly low: .056.

⁴⁵ A portion of this remaining variance may, of course, be shared in common by these two components and the other variables in the model, but it is not variance that can be attributed to cosmopolitanism or grade performance alone.

⁴⁶ Although these paths describe graphically the set of empirically derived, statistically significant independent relationships between specific variables in the model, this model should not be confused with a formally derived and tested path (analysis) model. For a fundamental explication of the assumptions that underlie the development of path analysis and path models, the reader is advised to consult Duncan (1966) and Land (1969).

⁴⁷ This does not mean, however, that the same element in that component operates in the same fashion for both men and women. Instead it merely indicates that for each sex there is at least one element within the cluster that has an independent bearing on the dependent variable.

Figure 2/An Empirical Model of the Undergraduate Dropout Process



tion in the earlier model involves the diagrammatic fusion of structural relations and friendship support. The paths leading from it to the other dependent variables denote merely that any one or more of the four elements that comprise structural relations may underlie the relationship being specified.

Substantively the revised model indicates that friendship support for the women is directly dependent on elements in both the family background and normative congruence clusters. Chiefly, however, strong friendships for both sexes evolve out of other patterns of campus interaction, notably extracurricular participation and involvements with members of the opposite sex. Beyond these, friendships patterns for either sex can be traced to the possession of only a very few personality dispositions, value orientations, or previous experiences.

Among the men, though, our data indicate that students with more "conventional" values, attitudes, and more socially oriented high school experiences are also more likely to establish close relationships with multiple

peers than are their less conventional colleagues. Whether these attributes are indicators of stronger interpersonal capacities (as opposed to interpersonal orientations) is not altogether clear, but they do suggest that men with more critical views of society and less personal security and social success in high school do have fewer close friends in college. Greater psychological security and stronger interpersonal orientations are also characteristic of socially successful women. On the whole, then, these findings would appear to support a recruitment policy that, in concerning itself with the social welfare of prospective students, was more sensitive to their demonstrated social capacities and orientations than to their specific interests, values, or attitudes.

Although a number of findings reported earlier clearly reflect the importance of friendship support in the general structure of the dropout process, our data also suggest that intellectual development varies much more with faculty than with peer relations. The largest individual beta weight for each sex involves faculty con-

tacts, while extracurricular participation—often involving contacts with both faculty and peers—is also of some importance for both sexes. Among the women, in fact, structural relationships of all kinds appear to facilitate the development of intellectual resources more consistently than they do among the men, particularly when the patterns of interaction are accompanied by their having stronger intellectual orientations and small town (perhaps less culturally stimulating) origins. Of even greater theoretical significance, however, is the minimal impact of academic potential on this important outcome: *the subjective intellectual growth of both men and women appears to be virtually unrelated to their previous high school performance and measured intellectual capacities.* What really matters, apparently, is having an initial orientation toward intellectual and cultural material as well as having opportunities for contacts with faculty members and extracurricularly involved students through whom one's horizons are broadened and capacities for critical thinking stimulated.

To the extent that the intellectual development of its students is a primary goal of any undergraduate college, three important implications emerge from these findings. First, intellectual and cultural growth appears to be greatest for those students with strong intellectual orientations to begin with, particularly if their hometown was small and presumably lacking in cultural resources. Second, while much of this growth undoubtedly takes place as the result of exposure to the general curriculum, outside contacts with faculty members and opportunities for channeling these interests extracurricularly seem to be very important. Third, intellectual development is not contingent upon the measured intellectual resources of the student. Attitudes toward learning appear to be more important than the quality and amount of previous academic-intellectual experience on the facility of one's cognitive capacities.

Although intellectual development and grade performance are correlated .371 for the men and .245 for the women, their major determinants are wholly different. Academic potential, for example, has no bearing on the presumably unconstrained distribution of intrinsic rewards within the academic system of the College, but it is centrally related to the successful acquisition of scarce extrinsic rewards earned within the context of the highly competitive academic system. In other words, the more academically competitive one's high school, the stronger his performance there, and the higher his

mathematical and verbal aptitude, the greater are his chances of successfully meeting the formal academic demands of the College, even though these same factors have hardly any bearing on his intellectual development. Furthermore, the relationships between structural relations and grade performance, though sizable, are nearly all negative for both sexes, in contrast to the positive effects on intellectual development just noted. Except for dating relationships among the women, interpersonal contacts apparently operate to inhibit rather than facilitate high academic performance, although none of the measures used in this study directly tapped dimensions of collaborative academic effort. Nonetheless, the data do suggest that academic and interpersonal rewards are inversely related within the University of Chicago College as if distributed according to a zero-sum scale in which success in one area were generally won at the expense of forsaking opportunities in the other.

It seems intuitively obvious, of course, that academic success in virtually any university context would favor those with the highest ability and strongest preparation. That these indicators would be so powerful within such a highly selected cohort may seem surprising unless one remembers that at this point in time grades in the College were distributed in most courses on a curve whose mean was very close to C. Since most of these students had at least A—averages in high school, large numbers were destined to perform comparatively poorly in the College by definition. Those determined enough to excel, even by Chicago standards, were fortunate if both their intellectual aptitude and their ability to forego social and extracurricular involvements were exceptional. If they were not, the quantitative and qualitative demands of the standard course load were generally such that high-level performance was at best unlikely.

The paradox of this situation, however, is that the academic rewards gained by renouncing extensive interpersonal contacts do not serve to facilitate the student's sense of integration in the College, irrespective of his sex. On the other hand, friendship support and dating relationships both serve to cement these social bonds, as do a number of normative and background characteristics. Since neither grades, intellectual development, nor faculty contacts play a significant role in the integration process for the women, it would appear that their assimilation in the College is almost completely independent of variables in the academic system, whereas successful

integration among the men depends on a clear synthesis of normative, academic, and social-system variables.

These findings certainly suggest that some modification of the theoretical assumptions underlying our original theoretical model is in order, particularly in relation to the women. Our original hypotheses were derived from the belief that developing a strong sense of identity and affinity with the College would be contingent upon the student's success in both the academic and social spheres of activity. Although the intrinsic (intellectual development) aspects of one's academic role do influence the integration process among the men, the overwhelming factors for both sexes involve the quantity and quality of relationships with one's fellow students, complemented by faculty contacts, feeling basically secure as a person, and minor influences of family and normative variables. Hence, social integration is very much a social-system-determined phenomenon for these women, although it reflects a more comprehensive, intrinsically based state of affairs for the men.

The greater importance of academic-system variables for these men is also evident in most of the remaining relationships in the model. Grade performance, for example, is their most important determinant of satisfaction, followed in turn by social integration, intellectual development, and then structural relations. For the women the same variables dominate the explanation of satisfaction, but social integration replaces grade performance as the strongest predictor (and the net effect of structural relations is nonsignificant). In other words, the intrinsic gratifications symbolized by high social integration and intellectual development are more important in characterizing the overall satisfaction of these women than are the extrinsic rewards embodied in the formal evaluation of their academic work. For the men, however, these extrinsic rewards outweigh the intrinsic in importance although the margin of superiority is quite small. Nonetheless, these findings clearly suggest that satisfaction is based mainly on the academic, intellectual, and social experiences that occur during the first several months of college, and is influenced only indirectly by the dispositions and characteristics that students bring to those experiences.

Contrary to the findings just mentioned and to the hypothesis specified in Figure 1, however, it appears that commitment to the institution is largely generated at the *early* stages of the dropout process, although modified to some extent over time as the result of one's experiences during the first year. As in our earlier find-

ings, there are considerable differences between the men and the women in this regard, with men more apt to modify their initial dispositions toward the College on the basis of their (subjective) intrinsic satisfaction with the intellectual and social aspects of life in the College. The women, on the other hand, are more likely to sustain their initial orientations throughout the first year irrespective of their reactions to the immediate environment, although a number of personal characteristics and subjective reactions to experiences in the College do serve to modify these initial views somewhat. It is particularly significant, however, that in neither case does academic performance have any bearing on one's sense of loyalty and commitment to the institution. It is as if the extrinsic reward system were incapable of permeating the boundaries of what is clearly an intrinsically based subjective set of attitudes. The implications for institutional policy would also seem relatively clear: given that the admissions process is imperfect and that students will enter college with varied attitudes toward the institution, *greater commitment can be generated, if at all, by providing them with experiences that affect the intrinsically meaningful spheres of their lives as human beings* (as opposed to as just students) *rather than by attempting to modify the academic reward structure itself.*

If retention of students is of primary concern, however, the findings clearly suggest that modification of both the intrinsic and extrinsic reward structures of the College may be in order, but again the area of major emphasis is contingent on the sex of the student. Among the men grade performance is the primary determinant of the dropout process, although it is complemented by both institutional commitment and social integration. But among the women the decision to remain or leave is influenced very strongly by one's general commitment to the College and only secondarily by academically related variables. For both sexes structural relations, family experiences, and normative orientations also play a direct role in the dropout process, but their contributions are generally minor compared to those just described.

In effect, the substantial differences that emerge between these men and women with regard to the ultimate dropout decision merely reflect a more extreme version of an already established pattern in the development of the empirical model. More often than not, the reactions and behavior of the women have rested on primarily intrinsic, subjective, and social criteria, with

academic and performance factors playing a more secondary role. The decision to leave the College before the second year is pragmatic and rational to the extent that many women lack the intrinsic and emotional inducements necessary for sustaining commitment and participation in a largely (subjectively evaluated) ungratifying social system. In this respect their role as a "producer" of academic output is definitely of secondary importance, while their current, short-run interpersonal needs appear to dominate the decision-making process. Not only is academic performance a less important component of their overall satisfaction in the College, they also seem more capable of adjusting to the realities (and deprivations) of the grading system.

The men, on balance, reflect a greater sensitivity to their roles as achievers within the formal academic system. Although they seem relatively more willing to endure the short-run socioemotional deprivations that the women find so disturbing, these men base their decisions to remain or leave primarily on extrinsic rather than intrinsic "pragmatic" grounds. What counts most is their ability to meet the formal performance standards of the faculty, irrespective of the more intrinsically based social and intellectual factors discussed earlier. With few exceptions, those who can meet these standards return for at least a second year, no doubt with the hope of maximizing their future graduate study and career opportunities by capitalizing on Chicago's distinguished academic reputation. Those whose work is less distinguished face the dilemma of facing the rigorous standards for a second year (with no guarantee of greater success) or trying to improve their overall credentials by transferring to an institution whose standards and competition for outstanding marks are less demanding (according to "reports" from friends at other schools). The actual horns of the dilemma involve second-guessing the future policies of graduate and professional school admissions boards: which is more impressive, an undistinguished record at an outstanding university such as Chicago, or distinguished performance at a second- or third-rate school? Second, are the long-term academic and career gains worth the short-run social costs?

The answer among both sexes appears to be that persistence and academic achievement become more synonymous over time. Those who remain at Chicago and receive a degree differ from early dropouts more on the basis of their initial performance in the College than on any other set of factors. This parallel shift toward

greater academic dominance for both sexes results in a highly restricted set of explanatory variables among the men in which survival is associated with the academically successful lower-middle-class Jewish student who has some degree of integration in the social system of the College. But for the women, the early dominance of the subjectively based commitment criterion is gradually replaced by both academic performance and a variety of background and normative factors, suggesting the operation of a more complex and diffuse social process throughout the undergraduate career.⁴⁸

On the whole, then, long-term survival at the University of Chicago depends increasingly on the student's ability to meet the challenge of the formal academic system, despite the fact that first-year performance neither serves as an important link in the social integration process nor helps to generate commitment to the institution. Given that formal success seems to demand some degree of renunciation of interpersonal contacts as well as a very high level of intellectual aptitude and formal training, persistence becomes the hallmark of those whose orientations toward the undergraduate experience emphasize the instrumental over the consummatory, particularly among the men. Although early attrition among the women can be explained by both kinds of criteria, their ultimate graduation chances also come to depend more on their ability to compete academically than to fulfill themselves interpersonally and intellectually.

Whether the extrinsic rewards justify these intrinsic costs, however, only the survivors of this process can judge, but the intensive period of turmoil on campuses throughout the world clearly suggests that the presumed social and material rewards commonly associated with academic survival are inadequate inducements for guaranteeing student commitment. Frustration and demands for institutional change are, in no small way, centered around the nature and meaning of the student role and the legitimacy of curricular content, formats, and evaluation procedures. Universities such as Chicago find themselves in the uncomfortable position of attempting to stimulate and educate on the one hand while sorting and selecting on the other, since the range of experiences and resources that facilitate the former are by no means wholly compatible with the latter. The former set

⁴⁸ There is also evidence that suggests that the women who complete a degree are also more likely to have lower-status Jewish parents, but the relative importance of these two variables in their case is considerably less than among the men.

of experiences define the student role primarily in terms of involvement and participation in both the formal and informal curriculum of the institution and its environment. It is clear from our findings that the intrinsically rewarding aspects of these activities, plus the establishment of personal contacts with faculty as well as peers, are fundamental components of student integration, satisfaction, and commitment. That these same factors have much less bearing on the dropout process itself, particularly among the men, suggests that the certification-selection functions impose a set of pressures on students that relegate the intrinsic aspects of their role to a clearly subordinate status. What really matters in terms of long-term survival is the ability to produce high quality output over an extended period of time. The sacrifices that must be made in the process are presumably considered a natural part of academic work demands. That men in particular are caught in this bind is a tragic aspect of the relationship between higher education and the stratification system of the larger society.

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