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EFFECTS OF PEER, FACULTY, AND PARENTAL INFLUENCES ON STUDENTS' PERSISTENCE

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The literatures on the social influence of referent others suggest four questions that need to be answered: (1) Who are the influential persons? (2) What types of influence are used? (3) What is the nature of the influence process? and (4) Are the effects of social influence substantial and independent of other forces? Data from a longitudinal study of the persistence in college of first-year undergraduates at a large, midwestern state university were analyzed to determine answers to these questions. With ability levels, grades, academic majors, and many other characteristics of students controlled, effects of social influences on students' persistence remained significant. Parents and peers were found to have stronger influences than were the faculty on the persistence of students. Normative influences were found to have stronger effects than were modeling influences, and these two types of influence had both direct effects on persistence and indirect, internalized effects through students' behavioral intentions.

This article examines the effects of social influences on undergraduates' decisions to leave or remain at the university at which they began their higher education. It is organized around four questions: (1) Which persons are likely to influence students' decisions to leave or stay at their college? (2) Through what means do influential persons affect undergraduates' decisions about whether to drop out of school? (3) Does social influence take place because of compliance (or noncompliance) with external influences, or is it a process in which some undergraduates accept and internalize the influences to which they are exposed? (4) What is the relative importance of social influence variables as predictors of students' attrition, in contrast to other variables that are known to affect retention and dropping out, in other words, To what extent does social influence matter in decisions to drop out?

After discussing these questions in more detail, we present hypotheses that were

designed to provide some answers. These hypothesized answers were tested with data taken from a longitudinal study of freshmen at a large, midwestern, state university. We then describe our study, present relevant findings, and discuss the implications of our results for theories and research concerned with social influence and students' persistence.

THE RELEVANCE OF INFLUENTIALS

Earlier research found that three types of persons may affect students' decisions to leave school: peers, faculty, and parents. Of these three, the persons whose influences are most likely to be examined are peers, and various articles have suggested that decisions to drop out of college are affected by peers' acceptance or the degree to which a student participates in peer relationships and forms close friendships (see, for example, Bean 1980; Pascarella and Terenzini 1979, 1980; Spady 1971; Tinto 1975). Unfortunately, empirical studies have failed to provide consistent support for this suggestion. Bean (1980), for example, reported that the degree to which 1,171 freshmen at a state university participated in primary or quasi-primary relationships had no significant effects on their satisfaction, institutional commitment, or dropout rates. Reitzes and Mutran (1980) found that the importance of college friends

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did not affect the educational expectations or college performance of 396 sophomores, juniors, and seniors at a large midwestern university. And Pantages and Creedon (1978, p. 70) concluded their review of studies concerned with peer-group influences by stating that "social isolation is not a significant factor in attrition."

Pantages and Creedon (1978) did not dismiss all forms of peer influence, however. Instead, they suggested that specific qualities of relationships among peers may be important factors in predicting attrition. Among the qualities they mentioned were the values the peer group endorses and the attitudes the group expresses toward the college or toward education as a whole. The notion that peer-group opinions that are directly relevant to attrition may have important effects on decisions to drop out has attracted only limited attention from researchers (see, for example, Anderson 1981). Most studies of attrition that look at peer influences continue to focus on such measures of influence as the number of friends a student has on campus, the time the student spends with other students, and the student's satisfaction with his or her social life at college.

A similar focus characterizes research on attrition that is concerned with the influence of faculty members. The amount of contact the student has with faculty, the student's evaluations of the faculty, and amount of his or her satisfaction with these interactions have been the most common measures used to assess the influences of faculty on the attrition of students. Following suggestions made by Spady (1971) and Tinto (1975), Pascarella and Terenzini (1977) argued that faculty-student contacts are an important component of both the academic and social integration of students, which, in turn, are important predictors of the attrition of students. They supported this argument with findings from several studies conducted at a private university in the eastern United States (Pascarella and Terenzini 1977, 1979; Terenzini and Pascarella 1980), but later research at public universities failed to replicate these findings (Pascarella, Duby, and Iverson 1983; Terenzini, Lorang, and Pascarella 1981). Pascarella, Duby, and Iverson (1983) and Pascarella and Chapman (1983) suggested that these differences in the effects of faculty-student interactions across studies represent real differences among the institutions studied, but it may also

be true that academic and social contacts with faculty at some institutions, especially private ones, have more attrition-related content than they do at other institutions. If so, predictions of the effects of faculty influences on attrition at public universities may be improved by using measures of those influences that are directly relevant to students' persistence.

Unlike measures of peer and faculty influence, parental influences on students' persistence are rarely assessed by measuring the amount of contact students have with parents or students' satisfaction with those contacts. Instead, they are usually evaluated by measuring the status characteristics of parents. In a four-year longitudinal study of 6,660 high-aptitude students, Astin (1964) found that father's education, mother's education, and father's occupation each had significant direct and positive effects on students' persistence at college over a four-year period. In contrast, Reitzes and Mutran (1980), using a larger set of variables and more statistical controls, reported that father's education and family income had no direct effects on the educational plans of undergraduates, although parental characteristics exerted some indirect effects through students' past academic performance. Additional support for claims about the indirect effects of family background came from Aitken (1982), who noted that the academic performance of university freshmen was significantly increased if their parents had college degrees and that the students' academic performance, in turn, had positive effects on their remaining at the university.

Some researchers who are concerned with the attrition of students combine parental occupation, education, and income into a composite measure of social status (see, for instance, Anderson 1981; Munro 1981), and others combine the social status and individual characteristics of students, such as sex, age, ability, and past performance, into even more complex theoretical and operational constructs called "background" (see, for example, Pascarella and Chapman 1983). The difficulties of interpreting results based on these composite measures of background are obvious, but it is also difficult to accept the assumption that family influences are in the past and affect the present behaviors of undergraduates only through such results of earlier socialization as personality characteristics, high school grades, and performance on

standardized tests. It seems more likely that parents continue to be actively involved in the lives of their college-age children and that these children take their parents' expectations and behaviors into account in formulating their own educational goals.

Support for this latter assumption comes from the Wisconsin longitudinal study of social and psychological factors in aspirations and achievements (Sewell and Hauser 1980), which has shown that perceptions of the encouragement of significant others mediate between socioeconomic background variables and educational attainments. Additional support is provided by the National Longitudinal Study of the high school class of 1972, which measured parental influence by asking students to indicate how much education their fathers and mothers wanted them to attain. Using different regression models for the analyses of data from this study, both Anderson (1981) and Munro (1981) reported that parental aspirations had significant effects on students' attrition. These findings about parental influences are consistent with the conclusion that emerged from our review of studies on peer and faculty influences, namely, that one must use measures that are *relevant* to students' decisions to drop out in order to find significant effects of social influence.

NORMATIVE AND MODELING INFLUENCES

Relevant social influences can take different forms, and many typologies of power and influence have been proposed by social scientists. Of these typologies, one of the more theoretically grounded, enduring, and widely used has been the distinction proposed by reference-group theorists who use that concept as a way of expressing the idea that people act within a social frame of reference created by other individuals and groups with whom they identify. The reference-group concept was first used by Hyman (1942) in work on the psychology of status, but it was Kelley (1947) who distinguished between two functions of reference groups: the *normative function* of referent others, to set and enforce group standards for the person, and the *comparison function*, to serve as a standard or comparison point against which the person could make evaluations. This distinction has continued to be used by reviewers of the literature on reference groups (Hyman and

Singer 1968; Schmitt 1972) and by more recent researchers who investigated the impact of these two kinds of reference-group influence on a diverse range of outcomes, including sexual attitudes and behavior (Wilcox and Udry 1986), alcohol use (Biddle, Bank, and Marlin 1980b; Thompson and Wilsnack 1987), and the academic plans and performance of high school and college students (Biddle, Bank, and Marlin 1980a; Scritchfield and Picou 1982; Sewell, Haller, and Portes 1969; Woelfel and Haller 1971).

Some of these researchers prefer the term *significant other*, to *reference group*, but most of them have conceptualized normative influence (sometimes called *defining influences* or *others' aspirations*) in a manner that is consistent with that suggested by Kelley (1947) more than 40 years ago. Norms are defined as prescriptive or proscriptive expectations or standards for behavior, and those who exert normative influence do so by telling others how they should or should not behave.

In contrast, the conceptualization of the comparison function of reference groups seems to have undergone a change since Kelley's time. Following the development by Festinger (1954) of a formal theory of the processes of social comparison, interest in this form of influence came to be increasingly concerned with the impact of referent others on the self-assessments and feelings of individuals, rather than on the individuals' overt behaviors. Persons who served as standards for overt behaviors came increasingly to be called *models*, rather than *comparative others*, a development that forged a link between reference-group theory and research, on the one hand, and literature on imitation and modeling (Bandura 1977), on the other hand. Thus, modeling influence occurs when behaviors performed by one person are copied by another.

The modeling and normative influences of a referent other may or may not correspond. Awareness of a possible lack of correspondence is embedded in the familiar exhortation: "Do as I say, not as I do." Parents often encourage their children to perform behaviors, such as completing college, that the parents were unable or unwilling to accomplish. Even among close friends, it may be recognized that the kind of educational or career goals being modeled by one are not a suitable prescription for the other, and faculty

members whose educational levels are models for persistence may hold norms for some students that favor attrition, at least temporarily or under particular circumstances.

The distinction between modeling and normative influences raises questions about the conditions under which each type of influence is likely to be more effective or less effective. A study of high school students' academic achievement and their drinking behaviors (Bank et al. 1985; Biddle, Bank, and Marlin 1980a, 1980b) found that American parents were more likely to influence their offspring by norms than by modeling relevant behaviors. In contrast, friends of the adolescents had more effects by modeling than by norms. It seems likely that the finding regarding parental influence would be replicated with college students, but it is less likely that these older students would be as strongly influenced by the modeling of peers. With greater maturity would likely come a greater tolerance of differences within friendship networks and a greater realization that what is acceptable behavior in friends may not be relevant or appropriate for oneself. Thus, undergraduates may become more interested in what their friends expect of them and less interested in copying what their friends do.

Norms that the faculty direct toward them are also likely to influence the behaviors of undergraduates. In the case of students' attrition, however, the research summarized by Pantages and Creedon (1978) found that undergraduates were more likely to discuss their educational plans with parents and friends than with teachers, and they often did not meet with faculty members or campus personnel until they had already decided to drop out. Thus, it is possible that the normative influences of faculty members will be less than those of peers or parents, and modeling influences by faculty seem even less likely to predict the attrition of students than do the norms of faculty. At most institutions of higher education, all the faculty members have high levels of education, and students are unlikely to know whether their teachers went through the same undergraduate school in four consecutive years, transferred to another school, or dropped out for a time.

In summary, our review of the literature on influential persons and types of social influence suggests six hypotheses about the effects of social influence on students' persistence in

college. Hypothesis 1 proposes that students' persistence will be positively affected by norms favoring persistence that are attributed to peers. Hypotheses 2 and 3 make the same proposal for norms attributed to faculty and to parents, respectively. Hypothesis 4 concerns modeling influence and predicts that the persistence-relevant behaviors of peers will have significant effects on students' persistence. Hypothesis 5 makes the same prediction for the modeling behaviors of parents. Hypothesis 6 suggests that the normative influences of peers and parents will have stronger effects on students' persistence than will the modeling influences of peers and parents.

PROCESSES OF SOCIAL INFLUENCE

What are the processes by which normative and modeling influences affect behaviors? In theories and research concerned with conformity, socialization, and the sociology of youth, answers to this question have often been based on a distinction between instrumental influence or compliance, on the one hand, and internalization, on the other hand. Peterson, Rollins, and Thomas (1985), for example, argued that adolescents sometimes conform to parents as a means of seeking rewards and avoiding punishments. Labeling this type of conformity "compliance," they contrasted it with conformity based on personal commitment and choice, which they called "internalization." A similar distinction for both peer and parental influences was made by Biddle, Bank, and Marlin (1980a) and Bank et al. (1985), who found that adolescents responded to peer and parental pressures concerning the use of alcohol by internalizing norms, preferences, and intentions regarding alcohol use that, in turn, affected their drinking behaviors.

One would expect support for the internalization process, rather than for direct compliance, to be even greater for undergraduates' persistence in college. The literature reviewed by Pantages and Creedon (1978) suggests that students' decisions about this issue are usually the product of much consultation and thought over a considerable period. Although some studies (see, for example, Anderson 1981; Astin 1964) have shown direct effects of parental aspirations, parental modeling, or peer modeling on the attrition of students, most of them did not use statistical procedures

that allowed them to test whether these effects may have been mediated through a process of internalization. Evidence favoring this mediated process of influence has been presented by those using the Wisconsin model of educational attainment (Sewell and Hauser 1980) and by Munro (1981), whose analysis of data from the National Longitudinal Study similarly revealed that parental aspirations had strong effects on students' aspirations and commitments to goals, which, in turn, had significant effects on attrition.

In his excellent review of conceptual models of student attrition, Bean (1982) reported similar findings from other studies and persuasively argued that models for predicting students' behaviors will be greatly improved if researchers take account of the attitudes and, especially, the behavioral intentions of those students. We expected findings from the present study to be consistent with Bean's argument and with the assumption that social influence is less likely to affect behavior directly than it is to affect behavior indirectly through cognitive processes. Thus, Hypothesis 7 proposes that peer, faculty, and parental influences will affect students' persistence indirectly by affecting their behavioral intentions.

RELATIVE IMPORTANCE OF SOCIAL INFLUENCE

Does social influence really matter in students' decisions to leave a college? Many variables have been proposed as determinants of students' persistence and attrition, and a large proportion of them have significant effects. These effects often disappear, however, when other variables are controlled; thus, a major challenge that researchers face is to determine the necessary and sufficient causes of decisions to leave or to stay in college. Because normative and modeling influences have received so little explicit attention in studies of students' persistence, grounds seem insufficient to generate speculations about the relative importance of these influences when compared with the students' academic performance in high school and college, with other background characteristics, or with other college experiences. Rather than advancing hypotheses about these matters, we propose only that the seven hypotheses already presented will be supported even when these other factors are controlled. In

other words, we believe that the normative and modeling influences of peers, faculty, and parents have unique effects on persistence and attrition that cannot be explained away by personal background, academic performance, or other experiences in the college environment.

METHOD

Setting and Sample

The study was conducted at a large, midwestern state university located in a community of approximately 65,000 people. Early in the fall 1982 semester, 1,240 entering freshmen were contacted in their introductory classes and agreed to participate in our study. Of this group, 103 (8 percent) did not reenroll for the second semester. Of the remaining 1,137, 715 (63 percent) continued to participate in the study during their second semester. And of this remaining group, 173 (24 percent) failed to reenroll for what would have been their third semester in fall 1983.

Of the freshmen who participated during their first semester, 51 percent were male, 92 percent were white, 70 percent were age 17 when the study began, few came from Jewish or other non-Christian homes, and even fewer had parents who were immigrants. The respondents ranked high academically, with 57 percent coming from the upper one-fifth of their high school graduating classes. On all the dimensions examined (except race), the sample closely matched the freshman class from which it was drawn. Even though we oversampled nonwhite students, our sample and the population from which it was drawn lacked the diversity of race, religion, ethnicity, and age that one would find in a representative sample of undergraduates from across the country.

Procedures and Measures

During our first contact with the students, those who agreed to participate were asked to complete both an extensive questionnaire and a permission form authorizing us to obtain materials from their student records. These records, not the students' reports, were the source of information about the students' scores on national aptitude tests, high-school rank, college grades for the first and second

semesters, and reenrollment for their second semester and their sophomore year. The students' records also contained students' answers to the nationally administered survey of the Cooperative Institutional Research Program (1982), and some of those answers were used as control variables in the study reported here.

Included in the questionnaires that students completed in class were questions about their backgrounds, housing arrangements, intended academic majors, and three topics we assumed to be relevant to the persistence and attrition of students: the choice of academically relevant careers, the university at which the study was conducted, and "laying out" of school (a term used in our questionnaire to refer to taking a leave of absence or dropping out temporarily). For each topic, the respondents were presented with a list of four behavioral alternatives and asked to indicate which alternative best indicated their intended behavior. Alternatives ranged from behaviors consistent with remaining in college to behaviors consistent with leaving college. For the topic of careers, for example, the alternative most consistent with remaining in college was, "I now intend to pursue a specific career that requires college," and the alternative most consistent with leaving college was, "I now intend to pursue a career that does not require college." For the topic of the university, alternatives ranged from intentions to remain at that university, through intentions to transfer to various kinds of other colleges, to an intention to drop out of college altogether. And, for the topic of laying out, choices ranged from, "I now intend to finish college without laying out" through alternatives favoring temporary departures from college to, "I now intend to drop out of college at the end of this year and not return." In addition, a respondent could indicate that he or she had not "made up my mind" about each issue, and persons choosing these alternatives were given a "neutral" score for each scale, so that five-category scales were created.

The respondents were also asked to attribute norms for the same three topics to various referent others: their closest female friend; their closest male friend; their favorite teacher, coach, or adviser; their mother, stepmother, or female guardian; and their father, stepfather, or male guardian. To measure attributed norms, we presented the

respondents with the same lists of behavioral alternatives, including the "neutral" alternative, that had been used for behavioral intentions but were now used to indicate the alternatives that each referent other thought the respondents should do. For the purposes of this article, each respondent's answers for his or her closest female and male friends were averaged to arrive at a peer norm for each topic, and the responses for mother and father were averaged to arrive at a parental norm for each topic.

Measures of modeling influence varied across the three topics. For reasons given earlier, modeling by teachers was not measured for any of the three topics. For the topic of careers, no attempt was made to measure peer modeling, but there were four measures of parental modeling for this topic: father's education, mother's education, father's occupation, and mother's occupation. The two measures of education consisted of the respondents' reports of the number of years of schooling each of their parents had completed. The respondents' reports of each parent's occupation were divided into three categories: occupations that required graduate or professional education beyond a bachelor's degree, occupations that required a bachelor's degree, and occupations that did not require higher education. Occupations that could not be reliably coded into one of these three categories were eliminated from the analysis.

It seems reasonable to suggest that parents who completed college and are in occupations that require a college degree are modeling behaviors that are consistent with a student's intention "to pursue a specific career that requires college." Similarly, parents who had little education and are in jobs with few educational requirements can reasonably be said to model behaviors that are consistent with a student's intention "to pursue a career that does not require college." Unfortunately, it is also true that these measures of parental behaviors are the same as those often used to assess social class. There seems to be no obvious way to separate parents' modeling for careers that require different levels of education from the parents' social class, but findings that are based on these measures will necessarily have ambiguous meanings and must be interpreted with caution.

For the topic of the university, four measures of parental modeling were also used. The respondents were asked whether

either or both their parents had attended the university, had attended another university, had graduated from the university, or had graduated from another university. Answers to these four questions were coded into three categories, ranging from a high in which both parents had done what the question asked to a low in which neither parent had done so. To measure peer modeling, the respondents were asked to answer yes or no to questions about whether they had a close friend who decided to drop out of the university, decided to transfer from the university, decided to enroll at the university for the first time, or graduated from the university. Responses to these questions were combined into a single scale with the maximum number of pronouniversity behaviors by close friends at one end of the scale and the maximum amount of antiuniversity modeling at the other end.

For the topic of laying out, there was only one measure of parental modeling. The respondents were asked to indicate whether either of their parents had dropped out of college and then returned. They received a high score on this measure if they answered yes for both parents, a medium score if they answered yes for one, and a low score if they answered no for both. They received a high score on peer modeling for laying out if they indicated that they had a close friend who had recently decided to drop out of the university, a close friend who had dropped out of another college or university, and a close friend who decided to transfer to another college; they received a low score by reporting that no close friend did any of these three behaviors.

Students who had participated in the study during the fall semester but failed to reenroll in the spring were telephoned during that semester and asked to provide information that was used to create two measures of persistence behavior. One measure, called "Does Not Drop Out₁," contrasted students who remained at the university with those who had left and had *not* enrolled elsewhere. The second measure, called "Does Not Transfer₁," contrasted students who remained at the university with those who were enrolled at another institution of higher education.

Students who had completed questionnaires and permission forms in the fall and had reenrolled for the second semester were recontacted early in the spring term and asked to complete a second questionnaire that included the same questions designed to

measure behavioral intentions, attributed norms, and peer modeling that were on the first-semester questionnaire. Thus, the students could indicate changes in these opinions and behaviors over time. Finally, those who completed questionnaires in the spring semester but failed to reenroll the following fall were also telephoned and asked to provide the information used to measure "Does Not Drop Out₂" and "Does Not Transfer₂."

Analysis

Four-stage regression analyses were conducted to analyze data for each semester. For the first semester, background variables were entered as exogenous predictors of respondents' answers to questions measuring normative and modeling influences. Then, background variables and all normative and modeling influences were entered as predictors of the three intentions. Because grades were measured *after* students filled out their questionnaires and grades are known to affect students' persistence, background variables, social influence variables, and intentions were then used as predictors of grades earned at the end of the semester. Finally, background variables and measures of social influence, intentions, and grades were used as joint predictors of the two measures of persistence.

Analyses of data for the second semester were similar except that additional controls were entered for first-semester grades and for normative and modeling influences and behavioral intentions reported during the first semester. Thus, any effects that were found for social influence variables during the second semester are independent of background, grades, and the processes of social influence that occurred during the first semester. Similarly, any effects of intentions that were found during the second semester are independent of background, grades, the processes of social influence, and intentions measured during the first semester.

The results for both semesters were originally displayed as two massive path diagrams, but they were too complex for easy comprehension and were, therefore, reorganized into the tables and simplified figures displayed in this article. Readers who are familiar with regression analyses will realize that the outcome variables in our path analyses ("Does Not Drop Out" and "Does Not Transfer") were dichotomous and

skewed. It is known that ordinary least-squares regression provides biased predictions of dependent variables under such conditions. To assess the degree to which this bias affected our results, we recomputed the estimates using discriminant analysis. Comparing the two forms of analysis, we found little difference in the magnitude of the effects estimated (about a 1 percent difference between the two procedures) when the same deletion strategy was used for missing data.

RESULTS

Table 1 shows the standardized regression coefficients for the effects of background characteristics and grades on our two measures of students' persistence, when the effects of social influence variables and intentions were held constant. As can be seen, of the background variables examined, only centrality of housing had significant effects on the measures of persistence, once social influence variables, intentions, and grades were entered as predictors. In contrast to all the background variables except housing, grades earned at the end of each semester had

significant, independent effects on the behavioral outcomes for that semester.

Findings from the first-semester data that are relevant to our hypotheses are presented in Figures 1, 2, and 3. As was already indicated, these three figures are parts of a single path diagram. Taken together, they show *all* the statistically significant (at $p < .05$) effects of the social influence variables studied on all three intentions and on both measures of persistence when the effects of background variables and grades were held constant. Findings from the second-semester data that are relevant to our hypotheses are presented in Figures 4, 5, and 6. These latter three figures are also parts of a single path diagram and display all significant effects of social influence variables on intentions and persistence indicators, when the impact of background variables, grades, and social influence variables from the first semester were held constant.

As will be recalled, Hypothesis 1 predicts that the persistence of students will be positively affected by propersistence norms attributed to peers. The findings presented in all figures except Figure 1 support this

Table 1. Standardized Regression Coefficients for the Effects of Background Characteristics and Grades on the Persistence Behaviors of Undergraduates

Background Variables	Behavioral Outcome			
	First Semester		Second Semester	
	Not Drop Out ₁	Not Transfer ₁	Not Drop Out ₂	Not Transfer ₂
Age of respondent	.02	.01	.02	.00
Sex of respondent	.04	.03	.04	.02
Race of respondent	.05	.04	.05	.01
Marital status of respondent	.03	.05	.04	.04
Respondent's religious preference	.01	.02	.01	.03
Mother's religious preference	.01	.01	.01	.01
Father's religious preference	.01	.03	.01	.02
Size of family of origin	.04	.04	.02	.04
Distance between home and school	.03	.05	.02	.04
High school rank	.06	.06	-.03	-.01
Ability test scores	.06	.05	-.01	.01
High school grade-point average	.04	.02	.05	.01
Length of time since graduation from high school	.00	.02	.01	.01
University academic major	-.02	.01	.03	.03
Career commitment	-.02	.01	.02	.02
Centrality of housing	.10**	-.04	.12***	-.04
Expressed concern about finances	.04	.04	.05	.03
Political orientation	.01	.03	.01	.02
Ranking of this university among college choices	.02	.01	.02	.01
First semester grade-point average	.16***	.16***	.05	.05
Second semester grade-point average			.31***	.19***

** = .001 < p < .01; *** = p < .001.

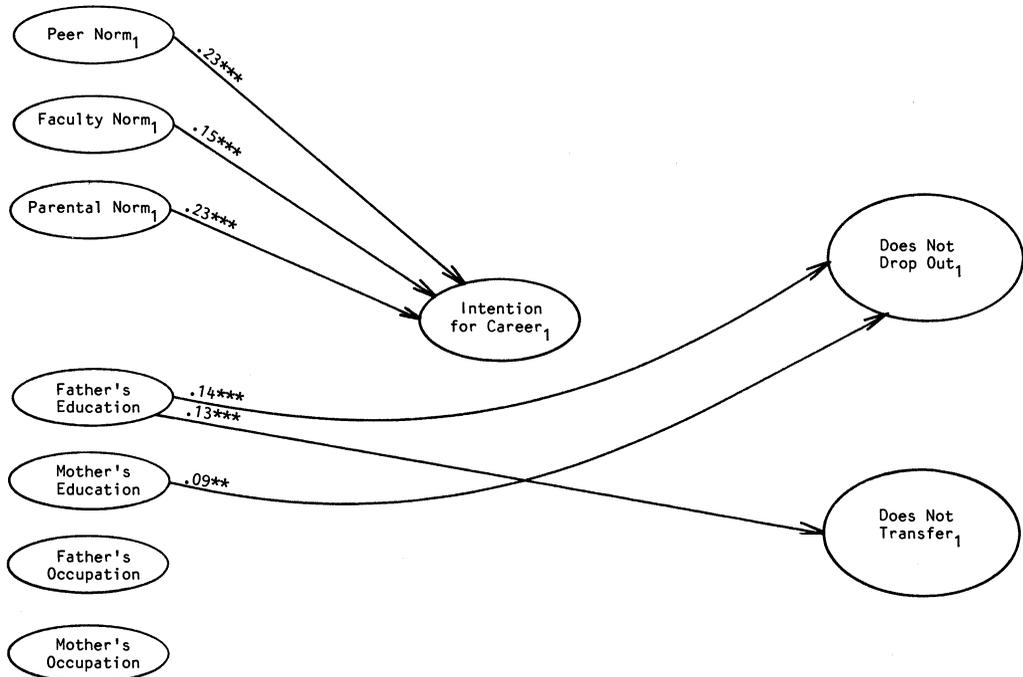


Figure 1. Effects of Social Influences Regarding Careers on Career Intentions and Students' Persistence during the First Semester (** = $.001 < p < .01$; *** = $p < .001$)

hypothesis. Figure 2 shows that peer norms had significant direct effects on the students' persistence, and Figures 2, 3, 4, 5, and 6 reveal that peer norms also had significant indirect effects on persistence by means of behavioral intentions. Only in Figure 1, which indicates that behavioral intentions fail to have significant effects on behavior, do peer norms have no significant effects on behavior even though they had an impact on intention.

Hypothesis 2 predicts that students' persistence will be positively affected by norms favoring persistence that are attributed to faculty. None of the six figures shows that faculty norms have a significant direct effect on persistence behaviors. In both semesters, faculty norms significantly affected students' intentions concerning the university at which the study was done (Figures 2 and 5), and in both cases, these intentions had significant effects on the students' behavior. Although faculty norms also had significant effects on first-semester intentions regarding careers (Figure 1), these intentions did not have a significant impact on behaviors. So, Hypothesis 2 was not strongly supported; faculty influences on the students' behaviors seemed

to be limited to one topic and to be weaker overall than the influences of peer norms.

Hypothesis 3 proposes that propersistence norms that are attributed to parents will have positive effects on students' persistence. In all six figures, parental norms are shown to have a significant effect on students' intentions, and only one of these six figures (Figure 1) indicates that the intentions failed to have a significant effect on behavior. In addition, two of the six analyses revealed significant direct effects of parental norms on behaviors. Figure 5 shows that parental norms regarding the university had significant, direct, positive effects on "Does Not Transfer₂". In contrast, parental norms also had unexpected, direct, negative effects on "Does Not Drop Out₂" regarding careers (Figure 4). In short, the results supported Hypothesis 3 and confirmed the impact of parental norms on persistence behaviors.

Hypotheses 4 and 5 concern modeling influences, with Hypothesis 4 predicting that the persistence-relevant behaviors of peers will have positive effects on students' persistence, and Hypothesis 5 making the same prediction for the persistence-relevant behaviors of parents. As a rule, Hypothesis 4 did

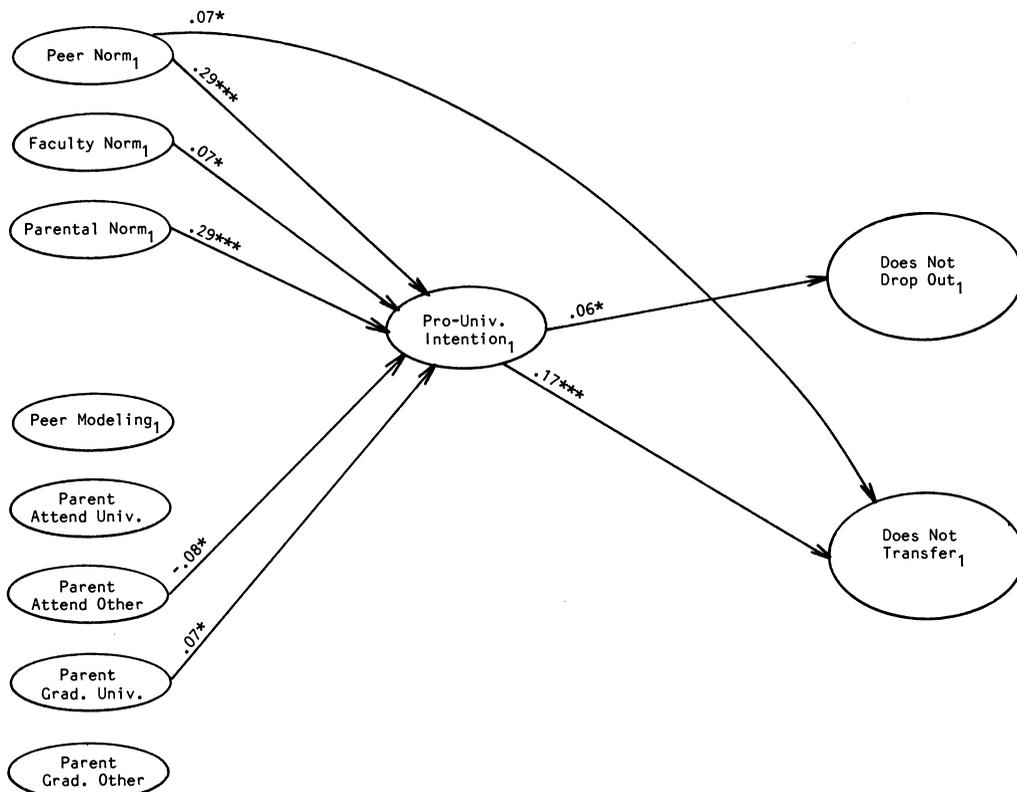


Figure 2. Effects of Social Influences Regarding the University on Intentions to Remain at the University and on Students' Persistence during the First Semester (* = .01 < p < .05; *** = p < .001)

not fare well in our data. No tests of Hypothesis 4 were attempted for the topic of careers because it was assumed that most peers of undergraduates would be too young to serve as models for career-related behaviors. For the topic of the university at which the study was done, Figures 2 and 5 show that peer modeling had no direct or indirect effects on behaviors. Only for the topic of laying out did peer modeling have significant effects on behaviors (Figures 3 and 6), but the effects were the *reverse* of those predicted in Hypothesis 4. The respondents whose peers persisted in their university education were less likely, rather than more likely, to persist in their own education. Perhaps a more meaningful way to state this finding is to note that the respondents whose close friends had dropped out of a university were less likely to drop out than were those whose close friends were still enrolled. Thus, for the topic of laying out of college, friends were more likely to serve as negative role models than as

the positive referent others anticipated in Hypothesis 4.

In contrast to peers, parents did tend to serve as positive role models for the respondents, as predicted in Hypothesis 5. These effects were not strong, however, and they varied across the three topics, the two semesters, and the outcome variables. For both the topics of the university and laying out, parental modeling had significant effects during only the first semester. Figure 2 shows that the respondents were more likely to have intentions to remain at the university at which our study was done if their parents had graduated from that university. In addition, Figure 2 shows that the respondents whose parents had attended a university other than the study site were less committed to their own university than were the other respondents. Figure 3 reveals direct effects of parental modeling on "Does Not Transfer₁" that are not mediated by the respondents' intentions. The children of parents who did

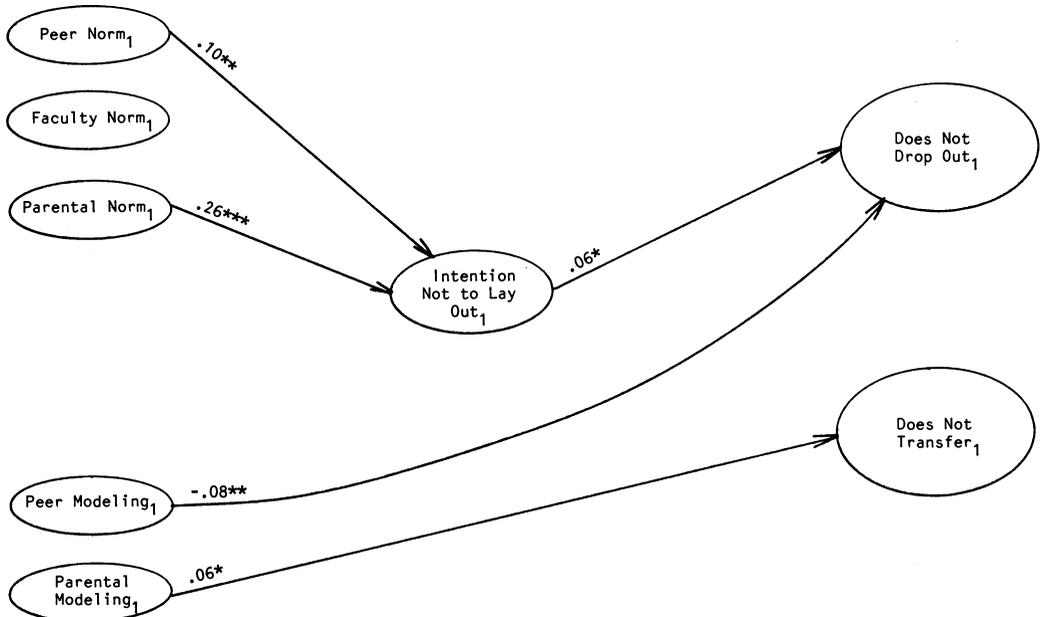


Figure 3. Effects of Social Influences Regarding Laying Out on Intentions Not to Lay Out and on Students' Persistence during the First Semester (* = .01 < p < .05; ** = .001 < p < .01; *** = p < .001)

not drop out of college temporarily were significantly less likely to transfer, but not significantly less likely to drop out, than were the other respondents.

The topic of careers is the only one for which parental behaviors had significant effects on the students' behaviors (but not intentions) during both semesters. These

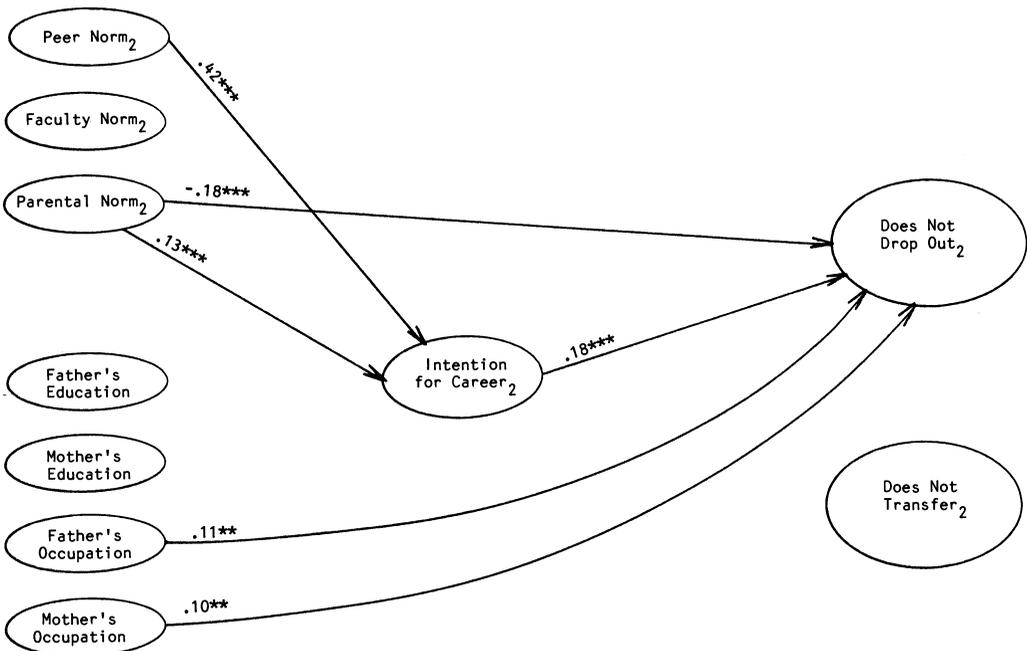


Figure 4. Effects of Social Influence Regarding Careers on Career Intentions and Students' Persistence during the Second Semester (** = .001 < p < .01; *** = p < .001)

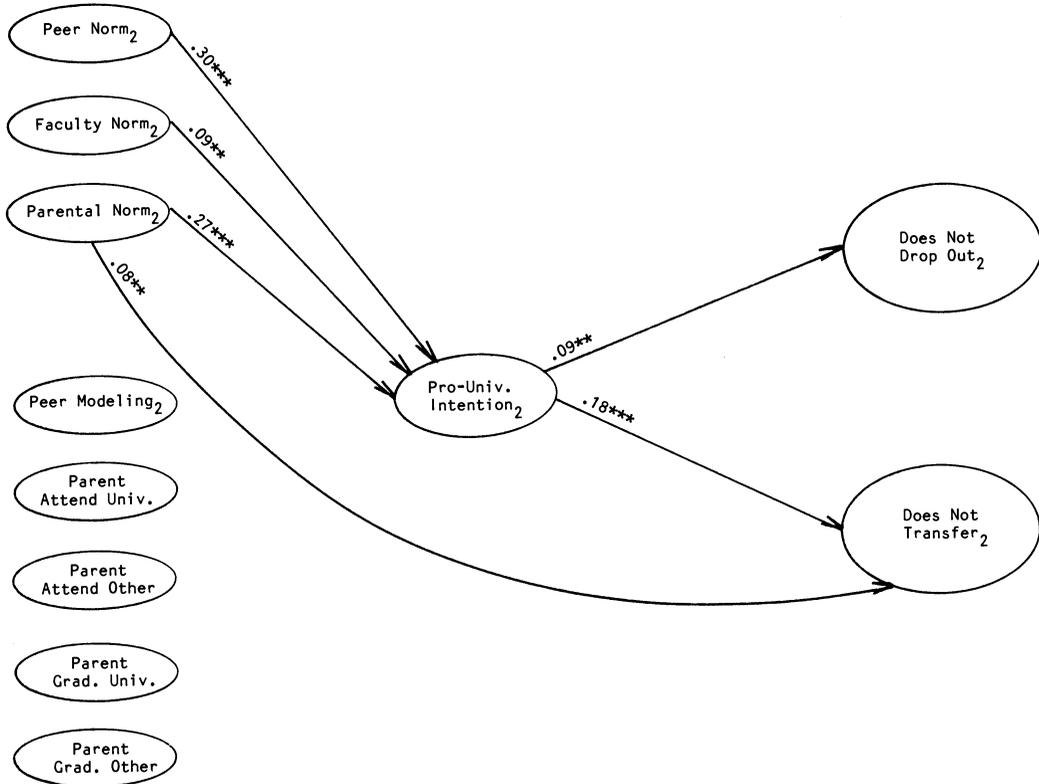


Figure 5. Effects of Social Influences Regarding the University on Intentions to Remain at the University and on Students' Persistence during the Second Semester (** = .001 < *p* < .01; *** = *p* < .001)

effects were somewhat different across the two semesters, however. During the first semester, both father's and mother's education had significant direct effects on dropping out, and father's education also had significant direct effects on transferring. With the effects of parental education controlled, neither father's nor mother's occupation had significant direct effects on the respondents' behaviors during their first semester. By the end of the second semester, Figure 4 shows that both father's and mother's occupations did have significant direct effects on "Does Not Drop Out₂." Our occupational measures were such that these effects can be interpreted to mean that undergraduates who came from homes in which their parents were in occupations that require higher education were more likely to remain at the university than were those whose parents were in occupations that require less education.

The significant effects that appear in Figure 1 for father's education on "Does Not Transfer₁" and for father's and mother's

education on "Does Not Drop Out₁" lost their significance by the second semester. In general, then, our findings provide support for Hypothesis 5 for only certain parental behaviors. Because most of the significant findings in support of this hypothesis were based on parental education or occupation, we cannot rule out the possibility that these findings may reflect the effects of social class, rather than of modeling influence per se.

Hypothesis 6 suggests that normative influences of peers and parents will have stronger effects on students' persistence than will modeling influences of the same referent others. Findings pertinent to this hypothesis are presented in Table 2, which shows the proportions of variance in persistence behaviors that are explained by background variables and grades, social influences, and behavioral intentions during both the first and second semesters. The first row of the table shows that the background variables listed in Table 1 plus grades for that semester had significant effects on dropping out and

Table 2. Proportions of Variance in Persistence Behaviors Explained by Background Variables, Grades, Social Influences, and Behavioral Intentions

Variances	Behavioral Outcome					
	Does Not Drop Out			Does Not Transfer		
	After First Semester	After Second Semester	Difference	After First Semester	After Second Semester	Difference
Explained by background and grades	.04***	.13***	.09**	.03***	.06***	.03
Gain by adding norms of						
Parents only	.01	.03*	.02*	.01	.02	.01
Peers only	.01	.03*	.02*	.02*	.02	.00
Both	.01	.06**	.05**	.02	.03*	.01
Gain by adding modeling of						
Parents only	.02	.02	.00	.02	.01	-.01
Peers only	.00	.01	.01	.00	.01	.01
Both	.02	.02	.00	.02	.02	.00
Gain by adding both norms and modeling	.03*	.08**	.05**	.04*	.05*	.01
Additional gain by adding intentions	.03*	.05*	.02	.04*	.04*	.00
Total explained by background, grades, norms, modeling, and intentions	.09***	.24***	.15***	.10***	.13***	.03*

* $p < .05$; ** $p < .01$; *** $p < .001$.

transferring in both semesters. For dropping out, but not for transferring, the effects of background and grades also significantly increased from the first to the second semester.

The next seven rows of Table 2 present the

findings concerning the effects on persistence behaviors of normative and modeling influences. Norms attributed to faculty were omitted from the analyses because faculty modeling was not measured and could not, therefore, be compared to faculty norms.

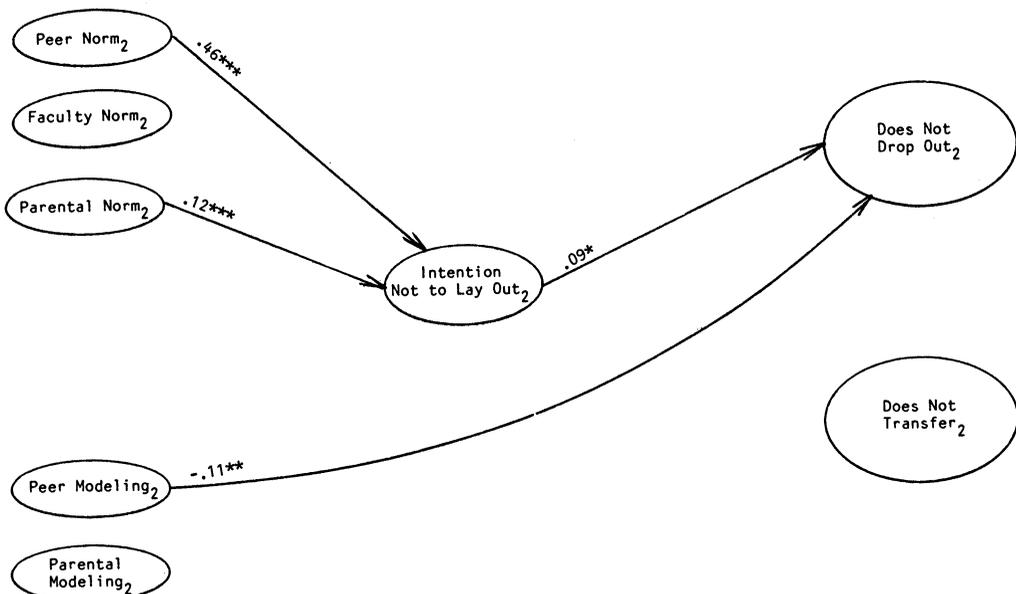


Figure 6. Effects of Social Influences Regarding Laying Out on Intentions Not to Lay Out and on Students' Persistence during the Second Semester (* = .01 < $p < .05$; ** = .001 < $p < .01$; *** = $p < .001$)

Taken together, the findings in Table 2 reveal that the effects of normative and modeling influences did not overlap, that there were no sizable differences in the proportions of variance explained by peer versus parental influences, and that the combined effects of the two types of referent-other influence were significant on both dropping out and transferring during both semesters. Only the second semester data supported Hypothesis 6, however. For both measures of persistence behavior, second-semester normative influence significantly added to the amount of variance explained by grades and background characteristics, but modeling influence did not.

Hypothesis 7 proposes that peer, faculty, and parental influences will affect students' persistence by affecting their academic intentions, rather than by affecting their persistence directly. This hypothesis assumes that students' intentions will have significant effects on behaviors, an assumption that was not supported for career intentions during the first semester (Figure 1). For the other topics and semesters, it was possible to test Hypothesis 7, and an examination of Figures 2 and 5 provides clear support of the hypothesis for the topic of the university at which the study took place. Figures 3 and 6 show a different pattern. For normative influences concerning the topic of laying out, it is clear that peers and parents had more indirect than direct effects. For modeling influences, however, the effects were direct and positive for parents but direct and negative for peers. This latter finding is not

anticipated in either Hypothesis 4 or Hypothesis 7. The findings concerning modeling behavior in Figure 4 are also inconsistent with Hypothesis 7. The effects of parental modeling for careers during the second semester were overwhelmingly direct, rather than indirect, and parental norms for careers also had a direct effect, albeit a negative one, on not dropping out that is as strong as the indirect positive effect on not dropping out that passed through intentions.

In light of these mixed findings across topics, an additional analysis was performed in which the proportions of the total variance in each persistence behavior explained by behavioral intentions were combined across topics for each semester. Although not all the effects of intentions on behaviors can be accounted for by internalized influences (see Table 2), calculating these effects removed from the social influence variables that portion of their effects on persistence behaviors that was due to internalization. It was then possible to calculate whether normative and modeling influences (including normative influences of faculty) explained significant portions of the variance in persistence behaviors that was unexplained by behavioral intentions. The results of these analyses are presented in Table 3. When considered in combination with the findings presented in the figures, the findings in Table 3 support the conclusion that social influences, especially normative influences, had both direct effects on persistence behaviors and effects on those behaviors that were mediated by intentions. These direct effects significantly

Table 3. Proportions of Variance in Persistence Behaviors Explained by Behavioral Intentions and Direct Social Influences (Holding the Effects of Background Variables and Grades Constant)

Variances	Behavioral Outcome					
	Does Not Drop Out			Does Not Transfer		
	After First Semester	After Second Semester	Difference	After First Semester	After Second Semester	Difference
Explained by behavioral intentions	.02***	.08***	.06**	.04***	.04***	.00
Gained by adding direct influences						
Norms only	.01	.03*	.02	.01	.03*	.02
Modeling only	.02	.02	.00	.01	.02	.01
Total direct influence	.03	.05*	.02	.02	.05*	.03
Total explained by intentions and social influence	.05***	.13***	.08**	.06***	.09***	.03

* $p < .05$; ** $p < .01$; *** $p < .001$.

added to the amount of variance explained by behavioral intentions only during the second semester, however. These findings do not provide convincing support for Hypothesis 7.

It is clear from Tables 2 and 3 and from Figures 1–6 that our study produced somewhat different results for the two types of social influence we measured, for the two different measures of students' persistence, for the three different persistence-relevant topics, and for the two semesters of our study. Despite these differences, the findings also supported our assumptions concerning the relative importance of social influence. Although we advanced no hypotheses to this effect, we did propose that normative and modeling influences of peers, faculty, and parents would have unique effects on the attrition of students that would not be explained away by controls for personal background characteristics, academic performance, or other experiences in the college environment. Our results were consistent with this proposal, even though the effects of the social influence variables we studied sometimes differed from those proposed in our seven hypotheses.

DISCUSSION

Like all studies, the research we report had limitations, and it is not clear that our findings can be generalized to other campuses or to different kinds of undergraduates. Bearing these limitations in mind, what conclusions can we reach concerning the effects of social influence on the persistence of the undergraduates we studied? One conclusion is that social influence matters substantially for undergraduates for such issues as decisions to stay in college. Although the amounts of variance in persistence behaviors that were explained by direct and internalized social influences were not large, they were robust enough to persist when ability, academic achievement, and many background characteristics were controlled.

Our estimates of variance should not be taken as "true" indicators of the strength of social influence, however, since two features of our research design may have affected these results. One feature is that our measures of social influence were chosen for their relevance to persistence decisions. Less significant effects on persistence behaviors

might have been obtained if we had used more general measures of social influence (for example, How much contact do you have with these referent others? How much do you like them?), or additional effects might have appeared had we studied other relevant topics as well. Second, it is noteworthy that we found significant effects of social influence even though our measures of social influence and behavioral intention were obtained months in advance of the behaviors they were used to predict. It seems likely that estimates of the strength of these effects would have been larger had measurement of these variables been separated by a shorter time lag.

A second conclusion about the effects of social influence on attrition is that the identity of the influential person makes a difference. We found faculty members to be less influential than were peers and parents, a finding that may reflect their lesser importance to the respondents. In a portion of the questionnaire that was not used in the regression analyses reported here, we asked the respondents to indicate how important the opinions of their favorite teacher, coach, or adviser were to them on a five-point scale ranging from "not important at all" to "extremely important." The same question was asked for the respondents' closest female and male friends and for their mothers and fathers. Whereas 58 percent of the entering freshmen rated the opinions of faculty members very important or extremely important, more than three-quarters gave these two responses for peers and parents. During the second semester, the comparable figures were 45 percent for faculty members compared to 72 percent for peers and 81 percent for parents.

Although parents received higher ratings of importance than did peers, our data do not support a conclusion that parents are consistently more influential than are peers. Nor do our findings support the assumption sometimes made in models for predicting college attrition (see, for example, Tinto 1975) that parental influences have been replaced by social influences on the campus. In contrast to our findings, however, Weidman's (1984) analyses of data from national surveys of American undergraduates done in the 1960s led him to conclude that parental influences on decisions made by students gradually become insignificant as students move through college. Although it is possible that

Weidman's findings about career decisions in the 1960s are irrelevant to students' decisions about persistence at college made in the 1980s, it is also possible that parental influences of the type we studied may be stronger among first-year students than among older undergraduates.

A third conclusion supported by our data is that the distinction made in reference-group theory between normative and modeling influences continues to be empirically important. Each of these two types of influence was found to have independent effects on persistence behaviors. Of the two, normative influence had stronger effects than did modeling, but other findings in the student-persistence and social-influence literatures contradict this result. For example, Vitek's (1986) analyses of data from a national longitudinal study of high school students led her to conclude that the attrition of students is strongly affected by peer modeling, and our earlier study of reported drinking and smoking behaviors revealed that both high school and college students were just as strongly and positively influenced by peer modeling as by peer norms (Biddle et al. 1985). Taken together, these several findings suggest the need for a more developed theory of normative and modeling influence that takes account of age, behavioral domain, and social context. It seems likely that the relative strength of normative influences in comparison to modeling influences will increase as people become more mature, as the behaviors in question provide more long-range and less immediate gratifications, and as contexts provide more time for deliberation before action must be taken.

With regard to internalized versus direct influences, our study supports the conclusion that both processes affect students' persistence in higher education. We found more support for the direct effects of social influence than we had anticipated, but we also found substantial support for the notion that social influences are internalized. We even found a hint in our data of a possible interaction between the two processes of influence and the two types of influence examined in our study. Normative influence may be more likely to exert its major effects through a process of internalization, but modeling influence may have more significant direct effects than internalized effects. Whether subsequent research will support this

possibility or not, it seems clear that undergraduates live in a cognitive world in which they consider what others expect of them, including others like parents who are not present on the campus. These thoughts help undergraduates to form behavioral intentions, and we agree with Bean (1982) that these intentions are important predictors of students' attrition. Not all influences are internalized, however, and even such personally consequential behaviors as remaining in college can sometimes be under the direct control of referent others.

Finally, for those who have practical interests in studying and preventing attrition, we cannot stress too strongly the importance of distinguishing between students who transfer and those who drop out. These behaviors result from substantially different processes of influence and cognition. With regard to the dropouts, we note again that our study lasted only a year. Other studies reviewed by Pantages and Creedon (1978) and Tinto (1982) have provided evidence to suggest that many of the dropouts in studies like ours will eventually complete their education. Had we been able to extend our study in time, we might have arrived at a more complete understanding of the processes of social influence. Despite its limits, however, our study suggests that better prediction and understanding of undergraduates' persistence in college will result from studies that take account of social influences. And educators who are concerned with retaining students may want to look for ways to improve not only faculty advising, but also parents' and peers' involvement in students' decision making.

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