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Perceived Quality of Academic Advising: The Effect on Freshman Attrition

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Using data from 1,033 freshmen at a public urban university, this study examined the effect of the perceived quality of academic advising on student attrition in a model of the student attrition process. High-quality advising negatively influenced attrition through effects on GPA, satisfaction in the role of a student, the value of a college education for future employment, and intent to leave the university. Low-quality advising was related to greater attrition than was high-quality advising, but, on the other hand, low-quality advising was associated with less attrition than no advising at all. The effect size of the advising variables suggested that a more extensive provision of high-quality advising might be considered as one strategy in a multifaceted institutional effort to reduce freshman attrition.

Colleges and universities are placing a greater emphasis on the retention of students for continued enrollment and on the evaluation of outcomes from programs that serve students (El-Khawas, 1987; Kauffman, 1984; Noel, 1985). Academic advising has been acclaimed by many writers as an essential component in the retention of undergraduate students (e.g., Crockett, 1985; Habley, 1981; Tinto, 1987). Furthermore, improvement in academic advising ranks among the most frequently recommended and implemented interventions for increasing retention (Beal & Noel, 1980; Forrest, 1985; Lenning, Beal, & Sauer, 1980; Noel, 1985; Stadtman, 1980).

Several major reasons appear to underlie the widespread appeal of academic advising as a means of promoting student retention. First, academic advising offers the potential of linking students' goals with institutional resources on a personalized basis. According to some writers (Creamer, 1980; Crockett, 1985; Grites, 1979; Habley, 1981; Kapraun & Coldren, 1982), high-quality advising can help students clarify their educational goals and relate these goals to the curriculum and to future careers;

encourage academic success by assisting students with a selection of course work that is compatible with their interests, abilities, outside commitments, and career aspirations; facilitate referral to other services and programs at the institution; and establish a personal bond between a student and personnel of the college. For students, the linkage of their goals with institutional resources may subsequently create a better appreciation of the benefits of a college education, greater involvement in the institution, increased learning, a more satisfying college experience, and stronger motivation for continued enrollment (Anderson, 1985; Astin, 1984; Creamer, 1980; Forrest, 1985; Habley, 1981).

Second, many surveys have revealed extensive student dissatisfaction with advisement (e.g., Astin, Korn, & Green, 1987; Boyer, 1987; McLaughlin & Starr, 1982). These findings imply that there is considerable latitude for the improvement of advising services, and better advising may increase student retention for the reasons mentioned earlier. Finally, because academic advising is perhaps the most heavily used student service (Boyer, 1987; Carney & Barak, 1976) despite purported inadequacies, improvements may affect a relatively large proportion of the student body and substantially increase retention.

Thus, numerous assertions in the literature and the expenditure of institutional dollars have been based on the belief that academic advising is related to student retention. However, empirical investigations of this relationship have provided equivocal results.

Some studies found a positive relationship between retention and students' indication of the frequency or quality of their advising (Brigman, Kuh, & Stager, 1982; Endo & Harpel, 1979; Louis, Colten, & Demeke, 1984; Meyers, 1981; Pascarella & Terenzini, 1977; Smith, 1980; Taylor, 1982; University of California, 1980). Other studies failed to discover an association (Aitken, 1982; Baumgart & Johnstone, 1977; Bean, 1980; Disque, 1983; Enos, 1981; Kowalski, 1977; Staman, 1980; Steele, 1978).

In these studies, the direct relationship between academic advising and student retention was examined, typically in comparison with other independent variables. However, the outcomes of high-quality advising for students as previously described suggest that advising may have indirect effects on retention through other variables related to retention. For example, academic advising may influence students' college grade average or their perception of the value of their college education for future employment, factors that in turn affect retention. Pascarella (1986) noted the importance of considering indirect as well as direct effects when evaluating the impact of interventions designed to reduce student attrition.

To assess total effects (direct + indirect effects), variables must be arranged in a logical sequence so that the indirect effects through intervening variables can be calculated. Several conceptual models of the student attrition process have been proposed (Bean, 1980; Pascarella, 1980; Spady,

1970; Tinto, 1975). When academic advising was included as a variable in the estimation of these models, total effects were not reported, and academic advising was usually combined with other types of measures that obscured any singular influence of advising on attrition (e.g., Bean, 1980; Pascarella & Chapman, 1983a; Pascarella, Duby, & Iverson, 1983; Spady, 1971; Terenzini, Pascarella, Theophilides, & Lorang, 1985).

In summary, there have been many claims that outcomes of high-quality advising can reduce student attrition, but research has not substantiated the validity of these claims by analyzing the indirect in addition to the direct effects of advising on attrition. Moreover, many intervention programs have been implemented on the assumption that an improvement in advising quality will decrease student attrition. However, empirical investigations have neither thoroughly tested this assumption in the context of the student attrition process nor estimated the magnitude of the total effects on attrition from differences in the quality of advising.

In this study a model of the student attrition process was used to examine the influence of the perceived quality of academic advising on freshman attrition. The purpose of the study was to conduct a more comprehensive investigation of the role of advising quality in student attrition by identifying both direct and indirect effects; to discover if levels of advising quality had different total effects on attrition, thereby indicating whether the provision of better advising would be associated with a reduction in attrition; and to compare the size of the total effects on attrition for levels of advising quality to show to what degree changes in quality would affect attrition. Freshmen were selected as subjects for the study because attrition most frequently occurs during the freshman year (Beal & Noel, 1980; Tinto, 1987) and because freshmen are most likely to use advising services (Kramer, Arrington, & Chynoweth, 1985).

The Theoretical Model

Bean and Metzner (1985) presented a model of the attrition process for nontraditional undergraduate students that was derived from an extensive review of related literature. These students were defined as follows:

> A nontraditional student is older than 24, or does not live in a campus residence (i.e., is a commuter), or is a part-time student or some combination of these three factors; is not greatly influenced by the social environment of the institution; and is chiefly concerned with the institution's academic offerings (especially courses, certification, and degrees) (p. 489).

For a detailed description of the model and the rationale for including the particular variables, interested readers are referred to this source.

According to the model, displayed in Figure 1, students' decisions about persisting in college are affected by several sets of variables arranged in the

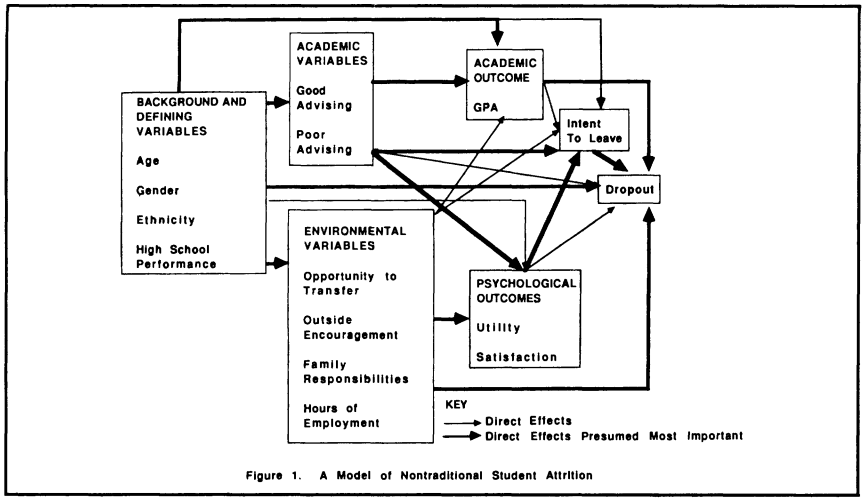

FIGURE 1. *A model of nontraditional student attrition*
Key: ——→ *Direct effects*

⟶ *Direct effects presumed most important*

following temporal order: Background and defining variables describe students' characteristics upon entry to the college; academic variables represent students' involvement with the academic process at the college; and environmental variables are factors external to the collegiate environment that may influence students during their college attendance. On the basis of these three sets of variables, outcomes such as academic performance and attitudes about the college experience (psychological outcomes) are produced. These outcomes result in students' intention to remain or leave the college and their subsequent behavior of persisting or departing from the institution. The interaction effects between the academic and environmental variables and between the academic and psychological outcomes in the conceptual model of Bean and Metzner (1985) were not analyzed in the present study because interaction terms are not suitable in path analysis due to multicollinearity.

Although numerous variables might have been incorporated in the academic variables category of the model (cf. Bean & Metzner, 1985; Metzner & Bean, 1987), only the advising variables were included to provide a more explicit understanding of their influence in the student attrition process. As depicted in Figure 1, the advising variables would be expected to affect dropout mainly through GPA, the psychological outcomes, and intent to leave. It is within the framework of this model that the relationship of advising quality to student attrition was examined.

Methodology

This study was conducted at a primarily commuter public university in a Midwestern city with a population of 700,000. The city contains three small private colleges, a large public vocational-technical institution, and some proprietary business and technical schools, but courses from the vocational-technical institution and the proprietary schools do not apply to degree programs at the university. A community college system has not been established in the state.

The university enrolls 22,000 students. Nearly 40% of the undergraduates entering the university have transferable course work from another institution, which was most likely to have been located outside of the metropolitan area. The university offers a few associate degrees in addition to a considerable variety of baccalaureate and graduate degrees and has professional degrees available in medicine, dentistry, and law.

On the basis of their intended degree program and previous academic work, students are admitted to the schools and divisions constituting the university, such as the School of Liberal Arts or the Division of Allied Health Sciences. Responsibility for academic advising resides with these units, and some diversity exists in the delivery system for freshman advising. Schools or divisions may have departmental faculty advisors, or professional full-time advisors, or both types of advising staff; however, peer (student) advisors are not used. There are no universitywide orientation or advising programs for freshmen, and the university has not initiated a centralized effort to evaluate or improve the quality of advisement.

During a 2-week period late in the 1982 fall semester, questionnaires were distributed according to a random class schedule in all English Composition classes, a course required for each degree-seeking undergraduate. About 15 minutes of the 75-minute class sessions were devoted to the administration of the survey. Questionnaires were completed by 80% of the students currently registered in the composition classes; the remainder of the students were absent from class. Although few instructors confirmed an unusually high rate of absence throughout the period of the survey, subjects in the study were limited to class attenders.

Data were analyzed for 1,033 students who were first-time freshmen, did not live in university housing, and were not international students. This sample included 51.1% of the population of 2,020 first-time freshmen enrolled for the 1982 fall semester. Tests indicated that students in the sample were representative of the population with respect to gender, age, and marital status. Minority students were underrepresented in the sample (11.4% vs. 13.7%) as were part-time students (35.6% vs. 43.3%). An analysis of students' first-semester grade averages showed slightly higher academic achievement for the sample (2.35 vs. 2.27, $A = 4.0$). Thus, the sample compared with the population of first-time freshmen was moder-

ately biased toward nonminority and full-time students and students with better academic performance.

Of the 1,033 students in the study, 745 (72.1%) persisted and 288 (27.9%) did not enroll for the 1983 fall semester. An additional 20 students who did not enroll for the spring semester but who returned for the 1983 fall semester (i.e., "stopouts") were excluded from the study. The sample of 1,033 freshmen consisted of 54% female, 11% minority (83% black students), 36% part-time, 12% married, and 73% employed students (about 23% employed full-time). The mean age was 20.2 years, and 12% of the students were 25 years old or older.

Variables and Measures

All information for this study was taken from the questionnaire except registration data, GPA, and high school rank, which were furnished for the sample by the registrar's office. The development of the questionnaire and the validity of the data have been discussed elsewhere (Metzner, 1984).

Table 1 contains the number and description of the items composing the 15 variables in the model and the mean and standard deviation for each variable. When multiple items were combined to form a variable, all items loaded above .40 in a principal components factor analysis for the construct. The alpha reliability coefficients for these variables ranged from .73 to .92 and appear in Table 1.

Students who had received academic advising rated the quality of their advisement on a 5-point scale from 1 = *very low* to 5 = *very high* (M = 3.30, SD = .90). There was no statistically significant difference in the mean rating of quality according to students' school or division of enrollment.

Ratings of *very low, fairly low*, and *neither high nor low* quality composed the variable poor advising (M = 2.66, SD = .58, n = 395). Ratings of *fairly high* and *very high* quality constituted the variable good advising (M = 4.17, SD = .38, n = 294). A third group, 33% of the sample, had not received advising (n = 344).

So that the differential impact of quality levels on attrition might be more clearly observed, effect coding (Cohen & Cohen, 1983; Pedhazur, 1982) was applied to students' membership in these three groups, which contained all of the options for advising at the university: good advising, poor advising, and no advising. Multiple regression analysis requires that the number of vectors or independent variables be one fewer than the number of groups to allow matrix inversion for a regression. Because the focus of the study was to examine the relative effects on attrition created by good advising and poor advising, no advising was omitted as an independent variable in the regressions.

Consistent with effect coding, however, the no advising group was represented in the coding for the good advising and poor advising variables

TABLE 1
Description of the measures

Variable	No. of items	Alpha	Mean	*SD*	Sample items
Age	1		20.18	4.94	Age at last birthday
Gender	1		.54	.50	Respondent's gender (0 = male; 1 = female)
Ethnicity	1		.89	.32	Racial/ethnic group (0 = minority; 1 = nonminority)
High school performance	1		.64	.23	Rank in high school class ((HSSize-HSRank)/HSSize)
Good advising	1		−.05	.79	Perceived quality of academic advising (1 = *fairly or very high*; 0 = *neither high nor low, fairly or very low*; −1 = *no advising*)
Poor advising	1		.05	.85	Perceived quality of academic advising (1 = *neither high nor low, fairly or very low*; 0 = *fairly or very high*; −1 = *no advising*)
Opportunity to transfer	1		3.49	1.42	Would it be difficult for you to transfer to another college or university campus? (1 = *to a very great extent*; 5 = *not at all*)
Outside encouragement	1		3.45	1.28	Encouragement from close friends to continue at the university (1 = *not at all*; 5 = *to a very great extent*)
Family responsibilities	2		1.43	1.00	Sum of scores on two items: How many children or relatives are living with you for whom you are responsible? (1 = *none*; 5 = *more than 3*) Are you married? (0 = *no*; 1 = *yes*)
Hours of employment	1		2.94	1.76	How many hours per week are you currently employed? (1 = *none*; 6 = *40+*)
GPA	1		2.24	.91	June 1983 cumulative GPA
Utility	3	.92	3.98	.99	How useful do you think your education here will be for gaining future employment, work you would really like, and a well-paying job? (1 = *little or no use*; 5 = *very great deal of use*)
Satisfaction	5	.84	3.66	.78	To what extent are your courses boring? Dull? Three items asking the degree to which the respondent considers being a student unpleasant. Variable was reverse scored. (1 = *very low satisfaction*; 5 = *very high satisfaction*)
Intent to leave	2	.73	1.99	1.15	Do you expect to return to this school next semester? Next year? (1 = *definitely yes*; 6 = *definitely not*)
Dropout	1		.28	.45	0 = *enrolled Fall 1982 and Fall 1983*; 1 = *enrolled Fall 1982, not enrolled Fall 1983*; stopouts excluded

as reflected in Table 1. In the regressions, the referent for each advising variable was the aggregate influence of the three advising groups on the dependent variable (the unweighted mean of each group's mean score on the dependent variable), controlling for the other variables in the equation. An advising variable therefore demonstrated its eccentricity on the dependent variable relative to the combined effect of all of the advising groups. For example, the impact of good advising on dropout was the departure of good advising from the collective influence of the three advising groups on dropout. This coding permitted comparisons between the groups regarding their unique effect on a dependent variable.

Statistical Analyses

To obtain the total effects of the variables on dropout, ordinary least squares multiple regression in a path analytic framework (Heise, 1975) was used for estimating the model. Solution of 11 structural equations was necessary for the estimation in which each variable was regressed on all causally antecedent variables. The variables were included in the regressions by simultaneous variable entry.[1]

Total effects denote the total influence of one variable on another and are the sum of the direct and indirect effects (Asher, 1983). The direct effect between two variables is the path coefficient or path regression coefficient (standardized or unstandardized partial regression coefficient, respectively, Pedhazur, 1982), which is derived from the regression of the dependent variable on the independent variable while controlling for all of the other independent variables in the equation.

An indirect effect is the algebraic product of the path coefficients or the path regression coefficients between (a) the independent variable and the intervening variable and (b) the intervening variable and the dependent variable (Asher, 1983; Cohen & Cohen, 1983). The indirect effects of the variables on dropout were tested for statistical significance with an algorithm developed by Wolfle and Ethington (1985). The total effect of a variable on dropout was examined for significance by regressing dropout on all of the variables in equivalent and antecedent stages of the model. The level for statistical significance in the study was $p < .05$.

Results

Tables 2 and 3 present the results of the estimation of the model. Overall, the 14 variables accounted for 30% of the variance in dropout, a finding that compares favorably with other recent studies of student attrition (Aitken, 1982; Allen, 1986; Anderson, 1981; Munro, 1981; Pascarella & Chapman, 1983a; Pascarella et al., 1983; Terenzini et al., 1985). Based on the standardized total effect coefficients of the variables, dropout was chiefly attributable to college grades (−.41), intent to leave the university (.29), high school academic performance (−.17), the personal value of an

TABLE 2
Standardized and unstandardized regression coefficients in the path model: Dropout, intent to leave, GPA, and psychological outcome variables

Independent variables	Dependent variables				
	Dropout	Intent to leave	GPA	Utility	Satisfaction
Intent to leave	.29***				
	(.11)				
GPA	−.36***	−.17***			
	(−.18)	(−.21)			
Utility	−.05	−.29***			
	(−.02)	(−.33)			
Satisfaction	.03	−.12***			
	(.02)	(−.18)			
Good advising	−.05	−.09**	.07*	.18***	.22***
	(−.03)	(−.13)	(.08)	(.23)	(.22)
Poor advising	.02	.00	.06	−.02	−.10**
	(.01)	(.00)	(.06)	(−.03)	(−.10)
Opportunity to transfer	−.02	.18***	.00	−.07*	.03
	(−.01)	(.15)	(.00)	(−.05)	(.02)
Outside encouragement	−.02	−.11***	.08**	.25***	.15***
	(−.01)	(−.10)	(.06)	(.19)	(.09)
Family responsibilities	−.04	−.03	.02	.03	.11**
	(−.02)	(−.04)	(.01)	(.03)	(.09)
Hours of employment	.07*	.01	−.11***	−.05	−.01
	(.02)	(.01)	(−.06)	(−.03)	(−.01)
Age	.12***	−.04	.26***	.00	.23***
	(.01)	(−.01)	(.05)	(.00)	(.04)
Gender (M = 0, F = 1)	.08**	.01	.01	−.02	.02
	(.07)	(.02)	(.01)	(−.03)	(.03)
Ethnicity (M = 0, NM = 1)	−.02	.01	.22***	−.03	−.02
	(−.02)	(.04)	(.64)	(−.08)	(−.06)
High school performance	−.02	−.02	.34***	.10**	.02
	(−.05)	(−.09)	(1.33)	(.42)	(.06)
R^2	.30	.30	.24	.12	.16

Note. Number in parentheses is the unstandardized coefficient. M = male; F = female. M = minority; NM = nonminority. * $p < .05$; ** $p < .01$; *** $p < .001$.

education at the university for future job opportunities (−.14), encouragement from close friends to continue enrollment (−.12), and the number of hours of employment per week (.12), with each of these coefficients significant at $p < .001$.[2]

Proceeding through the model in Figure 1, gender had a positive effect

TABLE 3
Standardized and unstandardized regression coefficients in the path model: Academic and environmental variables

Independent variables	Dependent variables					
	Good advising	Poor advising	Opportunity to transfer	Outside encouragement	Family responsibility	Hours of employment
Age	.00	−.05	−.18***	−.04	.57***	.21***
	(.00)	(−.01)	(−.05)	(−.01)	(.12)	(.07)
Gender (M = 0,	.07*	.03	−.08*	.12***	.06*	−.02
F = 1)	(.12)	(.06)	(−.21)	(.31)	(.11)	(−.07)
Ethnicity (M =	−.06	−.04	−.04	−.04	−.01	.11***
0, NM = 1)	(−.14)	(−.11)	(−.17)	(−.15)	(−.05)	(.60)
High school per-	−.03	−.06	.00	.01	−.08**	.02
formance	(−.11)	(−.21)	(.00)	(.08)	(−.34)	(.17)
R^2	.01	.01	.04	.02	.35	.05

Note. Number in parentheses is the unstandardized coefficient. M = male; F = female. M = minority; NM = nonminority. * $p < .05$; ** $p < .01$; *** $p < .001$.

on good advising, showing that women compared with men were more likely to have received high-quality advising (see Table 3). The amount of variance in good advising or in poor advising explained by the background and defining variables, however, was not statistically significant. Furthermore, when crossproduct interaction terms were added to the main effects of the background and advising variables, no statistically significant increase in R^2 was evident. Thus, quality of advising was essentially unrelated to students' background characteristics.

The set of background and defining variables accounted for 3.4% of the variance in dropout ($p < .001$). Subsequent entry of both advising variables yielded an increment of 2.3%, $F(2, 1026) = 12.39$, $p < .001$. There seems to be little research about the student attrition process that controlled for student background variables and assessed the degree of impact from possible interventions. The amount of variance in dropout explained by the advising variables, however, was similar to the results for residence hall contextual climate, "the nature of the group with whom a freshman college student lives" (Terenzini & Pascarella, 1984, p. 113).

As can be seen in Table 2, neither good advising nor poor advising had a significant, unique, direct effect on dropout.[3] Good advising, relative to the aggregate influence of the three advising groups, exhibited a unique direct effect on satisfaction (standardized coefficient or beta weight = .22), utility (.18), intent to leave (−.09), and GPA (.07), showing outcomes that were beneficial for students and the institution. Poor advising affected only satisfaction (−.10), indicating that students who had received poor advising

reported less satisfaction in the role of a student and rated their courses as less interesting than the average of all advising groups.

The indirect effects of the advising variables on dropout occurred through the intervening variables of satisfaction, utility, GPA, and intent to leave. According to Table 2, satisfaction, utility, and GPA affected dropout through intent to leave, and GPA and intent to leave produced direct effects on dropout. The indirect effects on dropout through satisfaction and utility were calculated from three multiplicative paths, whereas most of the indirect effects through GPA and all of the indirect effects through intent to leave were obtained from only two such paths.

For good advising, the sum of the indirect effects on dropout was significant ($-.08$, $p < .001$) and was composed of unique effects through GPA ($-.03$), intent to leave ($-.03$), utility ($-.02$), and satisfaction ($-.01$).[4] Thus, compared with the collective influence of the advising groups, good advising had a negative association with dropout based upon the following factors: students' better academic performance (GPA); their belief that an education at the university had greater value for future employment opportunities (utility); more satisfaction with courses and the role of being a student (satisfaction); and less intent to leave the university. These findings are consistent with claims in the academic advising literature, as presented earlier, about the ways that high-quality advising can promote student retention (e.g., Creamer, 1980; Crockett, 1985; Grites, 1979; Habley, 1981). The indirect effect of poor advising through satisfaction was minimal (.004), and the cumulative indirect effects of poor advising on dropout ($-.02$) were not statistically significant.

The total effect is the sum of the direct and indirect effects. Good advising did not have a significant unique direct effect on dropout ($-.05$), but significant indirect effects ($-.08$) were found that constituted the majority of the total effect. Good advising was negatively related to dropout, with a total effect coefficient of $-.13$, $p < .001$.

Poor advising failed to demonstrate significant direct (.02), indirect ($-.02$), or total effects (.00) on dropout and therefore had an influence on dropout equivalent to that of the combined advising groups. Poor advising, then, did not exhibit unique effects associated with an increase in attrition as might have been expected. In summary, levels of advising quality had different total effects on freshman attrition.

The unstandardized coefficient for the total effect of an advising variable on dropout shows the size of effect in the metric of the dropout scale (persist = 0, dropout = 1). For good advising and poor advising, the coefficients representing the total effect on dropout were calculated from the unstandardized partial regression coefficients in Table 2. The coefficient for the total effect of no advising on dropout was obtained by using the constraint that the sum of the unstandardized coefficients for the three advising variables equal zero (Pedhazur, 1982, p. 291).

The total effect coefficient for the unique impact of no advising on dropout was .07, $p < .001$. Compared with the aggregate influence of the advising groups on dropout, a student in the no advising group had a greater chance of leaving the university by 7/100 of a unit on the dropout scale or by 7%. The total effect coefficient for good advising (−.07, $p < .001$) disclosed that a student belonging to the good advising group had a reduced likelihood of withdrawal to the same extent. Poor advising (.00) had no unique relationship with dropout.

Applying the Fisher protected t (LSD) test recommended by Cohen and Cohen (1983, pp. 195, 204, 393), post hoc pairwise comparisons of the total effect coefficients for the three advising variables were performed to determine the statistical significance of differences in the group means for dropout. The effects on dropout from variables in the equivalent and antecedent stages of the model were controlled, as was the case when the total effect of each advising variable on dropout was examined for significance.

The total effect coefficient of good advising (−.07) contrasted with that of no advising (.07) indicated that the mean of dropout in the good advising group was .14 units lower on the dropout scale, $p < .001$. Thus, there was significantly less attrition among the students in the good advising group, with a difference of 14% between the mean rates of withdrawal for the two groups. The comparison of poor advising (.00) to no advising (.07) revealed that attrition was less prevalent in the poor advising group and that the groups had a significant difference of .07 or 7% in the mean rate of withdrawal, $p < .05$. The total effect coefficient of good advising (−.07) relative to that of poor advising (.00) showed that a lower rate of attrition was evident for the good advising group, with a difference of .07 or 7% between the mean rates of withdrawal, $p < .05$.

To illustrate the practical relevance of the total effect coefficients, the predicted mean for dropout in each of the advising groups was computed, adjusting for the effects on dropout from the other variables in causally equivalent and antecedent categories of the model. When the respective total effect coefficients were applied to the adjusted mean of dropout for all advising groups, the predicted mean for dropout in each advising group was as follows: good advising, .21; poor advising, .28; no advising, .35. Membership in the good advising group, then, was associated on the average with a 21% chance of departing from the institution. The rate of attrition for the good advising group was 25% less than that of the poor advising group and 40% less than the withdrawal rate of the no advising group.

Discussion

The purpose of this study was three-fold: to conduct a more thorough investigation of the role of perceived advising quality in student attrition

by considering indirect as well as direct effects, to discover if levels of advising quality had different total effects on student attrition, and to compare the size of the total effects on attrition for levels of advising quality.

Good advising did not have a significant direct effect on dropout, but the indirect effects, which constituted the majority of the total effect, were statistically significant. These results are similar to those for a pre-enrollment student orientation program at a residential institution (Pascarella, Terenzini, & Wolfle, 1986).

The assessment of total effects may be an especially useful procedure for determining the effectiveness of interventions that are an infrequent occurrence of relatively short duration for most students but are broad in their range of possible indirect impact. This analysis affords a more complete evaluation of an intervention's influence, which may be underestimated when a significant direct effect is not found.

In addition, the procedure exposes the process by which an intervention affects attrition, may suggest areas for improvement of the intervention, and identifies intermediate outcomes that may be important in themselves. For example, Habley (1986) and Polson and Cashin (1981) argue that the quality of academic advising should be improved primarily because high-quality advising can provide many benefits to students, only one of which may be greater persistence in college for attrition-prone students. The findings of this study for the unique effects of good advising on the intervening variables confirmed some of the favorable outcomes from high-quality advising.

The advising variables, which represented all of the options for advising at the university, had different total effects in regard to freshman attrition. Good advising was negatively associated with attrition, whereas no advising was positively related. Poor compared to good advising demonstrated a positive association with student departure; however, poor advising had a negative relationship with attrition in contrast to no advising.

Based on the results from pairwise comparisons of the total effect coefficients, the best single strategy for improving retention is to offer good advising to students who would otherwise belong to the no advising group. Providing poor advising rather than no advising or increasing the quality from poor to good advising should also improve retention, but at half the rate of the former strategy.

It is not known why first-time freshmen in this study failed to receive advising; however, explanations would probably involve both self-selection and institutional barriers (e.g., a lack of early communication about the availability of advising services, high student-advisor ratios, or the schedule for advising sessions). Clearly, the reasons for no advising should be investigated prior to the development of any interventions for this group of students.

Controlling for students' background characteristics, the advising variables accounted for 2% of the variance in dropout. Comparisons of the unstandardized total effect coefficients for the advising variables disclosed differences of 7% to 14% between the mean rates of attrition in the advising groups. Although a substantial amount of the variance in dropout remains unexplained, the advising variables did have a measurable impact.

Effects of this magnitude are not uncommon for variables in student attrition research (e.g., Allen, 1986; Pascarella & Chapman, 1983a), reflecting in part numerous individual differences among students in the conditions affecting withdrawal. Furthermore, most of the factors that have usually been examined in attrition research are not amenable to direct institutional modification.

The relatively few studies that evaluated the effectiveness of various interventions for student attrition often employed dissimilar methodology, types of student samples, and assessments of effect size (cf. Blanc, DeBuhr, & Martin, 1983; Dukes & Gaither, 1984; Pascarella & Chapman, 1983b; Pascarella et al., 1986; Terenzini & Pascarella, 1984). According to the most comparable studies that could be found, the magnitude of effect of the advising variables on dropout resembled the findings for a pre-enrollment orientation program (Pascarella et al., 1986) and residence hall contextual climate (Terenzini & Pascarella, 1984). The results for the advising variables were also consistent with reports from some descriptive research regarding other interventions: supplementary instructional assistance (Blanc et al., 1983) and a cluster college program to facilitate students' academic and social integration at a commuter university (Dukes & Gaither, 1984).

Researchers appear to be increasingly concerned about the use of some common measures of treatment effects, such as tests of statistical significance or the amount of explained variance, to determine the importance of an outcome, because these judgments may not correspond to the value of a finding for practical application (see Rosnow & Rosenthal, 1988). With respect to freshman attrition, effects of an intervention such as advising may seem small when the total group of students serves as the basis for evaluation, but a sizable proportion of freshmen are committed to remaining in school regardless of their advising experiences. If only the attrition-prone students are considered, whose behavior might be influenced by advising, the effects are more dramatic as was suggested by the differences in the mean rates of attrition for the advising groups. Finally, even a modest degree of improvement in retention for a large base of students (e.g., a freshman class) may furnish results that are viewed very positively at an institution in terms of the benefits to students and the financial advantages for the college (Beal & Noel, 1980; Levitz & Noel, 1985).

Because institutions vary considerably in the amount of attrition, an

acceptable rate of improvement, and other college characteristics, the feasibility of including better advising as an intervention is perhaps best left to institutional discretion. The size of effect for the advising variables, however, indicates that a more extensive provision of high-quality advising will not be a panacea for freshman attrition. Rather, the findings of this study support the perspective of Habley (1986) and Kapraun and Coldren (1982) that good advising is more appropriately regarded as one element in a multifaceted institutional effort to reduce student attrition.

Limitations and Future Research

The results of this study are limited by the application of a model that contained specific variables and by the use of a sample of freshmen at one public urban commuter university. Future research might examine the relationship between advising quality and attrition at other institutions, particularly those with a more homogeneous student population. Additional studies might be designed to contribute comparable data about the effect size of different interventions in the student attrition process. The role of advising quality in minority student attrition also merits further inquiry.

This study sought to provide a comprehensive investigation of the relationship of advising quality to student attrition by incorporating many variables shown in previous research to affect attrition and by focusing on the influence of advising quality in the student attrition process. Quality of advising, as operationalized in the study, is a global outcome of advisement that can be consistently assessed across academic units that may differ in their advising procedures, but it is a limited measure of academic advising because it does not identify aspects of the advising process. For instance, the criteria that students used for their rating of quality is unknown, and ways to improve advising to increase ratings of high quality cannot be recommended from this study—or even generalized from prior research for the following reason.

Academic advising has traditionally been a responsibility of faculty advisors who helped individual students select a schedule of course work that was applicable to degree requirements, approved registration forms, and monitored student records (Trombley, 1984). Greater complexity now exists in many dimensions of advising, such as the kinds of advising personnel and their function in advisement (Crockett, 1985; Habley & McCauley, 1987; Hines, 1981; Kramer et al., 1985); the content of advising sessions (Crockett, 1985; Gordon, 1984; Kapraun & Coldren, 1982; Kramer et al., 1985; Kramer et al., 1987; Winston & Sandor, 1985); the format and setting for advising (e.g., group or individual advising, Crockett & Levitz, 1983; Gordon, 1982; Kramer, Peterson, & Spencer, 1984; Schubert, Uhlenberg, & Munski, 1985); and the advisor–student relationship (Crookston, 1972; Winston & Sandor, 1985).

To date, there has not been sufficient research about the association of advising dimensions with various outcomes, including students' ratings of advising quality or persistence in college (Habley, 1986; McLaughlin & Starr, 1982; Polson & Cashin, 1981; Srebnik, 1988). Although the present study found that high-quality advising was negatively related to attrition, additional research is needed to learn what factors in advising account for differences in estimates of quality.

In this study, quality of advising was defined solely from the viewpoint of students. Surveys have shown that formal evaluations of advising are not conducted at most institutions (e.g., Crockett & Levitz, 1983; Hines, 1981; McLaughlin & Starr, 1982); however, where systematic appraisals have been undertaken, they involved ratings by students, judgments of administrators, or, less often, advisors' self-evaluation (Crockett & Levitz, 1983; Crockett, 1985; Kramer et al., 1985; Srebnik, 1988; Stickle, 1982).

No student attrition study was located that employed an assessment of academic advising by any means other than the reports of students. Reliance upon the perspective of students in this study is consistent with most published evaluations of advising and with the measures in student attrition research. Even though the perceptions of students, the recipients of advising services, are of considerable importance, the development of additional and perhaps somewhat less subjective indicators of advising quality would be useful for future research. A more complete operational definition of advising quality, composed of multiple indicators related to advising process variables, would have increased practical value and might also afford a more reliable measure that exhibits a larger effect on attrition.

Finally, although the rate of attrition is usually highest for freshmen, research might explore the influence of advising on attrition for undergraduates with a more advanced class standing. Some writers (Kramer et al. 1987; McKinney & Hartwig, 1981; Schubert et al., 1985) have suggested that the frequency of student–advisor contact, the topics discussed in advising sessions, and students' ratings of advising quality may change as students progress through college. Likewise, other predictors of attrition may vary over time.

Notes

[1] In ordinary least squares regression, the use of a dichotomous dependent variable such as dropout violates the assumption of homoscedasticity, which demands equal variability in the dependent variable for the different levels of an independent variable. Although dropout exhibited a skewed distribution of 72% persisters and 28% nonpersisters, Goodman (1976) has indicated that estimates from regression analyses are quite robust for this ratio of a dichotomy in a dependent variable.

[2] To determine if the effects of the variables on dropout were similar across student subgroups of the pooled sample, dropout was regressed on all 14 variables in the model plus a set of crossproduct terms designating the interaction between

a background variable and each of the remaining variables. Addition of a set of interaction terms to the main-effects variables produced a significant increase in R^2 only for ethnicity (increase = .02, $p < .01$), but an estimation of the model for minority students, $n = 118$, resulted in unstable regression coefficients. The model for nonminority students was virtually the same as that of the combined minority-nonminority sample. Although minority students were included in the freshman class, it should not be assumed that the effects of all of the variables on dropout were equivalent for minority and nonminority students.

[3] The failure of good advising to show a significant effect seemed to be related to suppression by intent to leave, an early warning precursor of dropout. Good advising demonstrated a small unique direct effect on dropout (beta = $-.07$, $p < .05$) when intent to leave was removed from the model. No change was apparent for poor advising.

[4] The total indirect effect does not exactly equal the sum of the components because of rounding error.

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