

Students Decided and Undecided About Career Choice: A Comparison of College Achievement and Student Involvement

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The author examined a national sample of over 20,000 undecided and decided students on measures of college achievement and student involvement, investigating nine variables. Although small differences were found for three variables, this study generally supports other research findings that the two groups are more similar than different.

Educationally and vocationally undecided students have been a focus of concern and research in higher education for many years. Although some view indecision as a troublesome condition (Hartman & Fuqua, 1982, 1983; Hartman & Hartman, 1982), others see it as a normal developmental stage for entering college students (Akenson & Beecher, 1967; Grites, 1981; Titley & Titley, 1980). Undecided students comprise an estimated 20-50% of students entering college (Astin, 1977; Berger, 1967; Crites, 1969). Additionally, an estimated 50-60% of students change their initial academic or career choice (Astin; Burns & Kishler, 1972; Gordon, 1976; Hoffman & Grande, 1979). Even if we use the lowest estimates, undecided students comprise a substantial population on any campus. Because significant energy and resources are expended in identifying, counseling, and trying to retain them, understanding these students is important.

Research on undecided students can be traced back to the 1920s, and concern continues. Undecided students were the focus of the Spring 1989 issue of the *NACADA Journal*. Two subsequent national conferences, "Retention Showcase: Focus on the Undecided Student" in 1992 and the "National Forum on the Undecided Student" in 1993, continued this examination. Additionally, in 1994 the National Resource Center for the Freshman Year Experience addressed undecided students in a monograph entitled *Issues in Advising the Undecided College Student*.

Here, I will use the term *undecided* to identify students unwilling, unable, or unprepared to make educational or vocational choices. Other terms have been used to describe this population: *exploratory*, *open-major*, *undeclared*, *general studies major*, *undetermined*, and *special major*. However, I use *undecided* because of its prominent appear-

ance in research and the easy identification with its meaning (see Gordon, 1984).

Research on undecided students has examined a variety of personal variables such as interests, abilities, aptitudes, achievement, family background, risk-taking tendencies, levels of anxiety, and self-identity issues. Some studies have found differences between decided and undecided students; others have not. The research can be characterized as conflicting, contradictory, and confusing. Generally, researchers have concluded that undecided students are a heterogeneous group and that making generalizations about them is difficult, if not dangerous (Baird, 1967; Gordon, 1984; Holland & Holland, 1977).

The lack of strong empirical evidence of differences between undecided and decided students has not stopped institutions from focusing energy and resources on counseling and advising the undecided. For example, the growth of programs and services that target the retention of undecided students has been enormous. Indeed, most institutions provide some sort of program or service to assist this group.

Most studies that have compared undecided and decided students have examined their characteristics prior to entering the institution (e.g., demographics and high school achievement). Once these students have entered the institution, variables typically examined measure college achievement (e.g., cumulative grade point average, credits earned, and persistence). Beyond measures of college achievement, little, if anything, is known about undecided students during their college experience. Additionally, most research has used single-institution samples.

I undertook this study with two purposes in mind. First, because the research findings have at times been confusing and conflicting and because most studies have involved single institutions, I examined college achievement variables for undecided and decided students using a national, longitudinal data source. Second, because so little is known about undecided students once they enter an institution, I investigated college involvement variables for a more comprehensive understanding of undecided students.

Method

Data Source

Data for this study came from data collected as part of the Cooperative Institutional Research Program (CIRP) sponsored by the American Council on Education and the Higher Education Research Institute at the University of California, Los Angeles. Having started over 25 years ago, the CIRP is the longest running national survey of American college students. The CIRP freshman survey annually collects a comprehensive array of student background information using the Student Information Form (SIF). Periodically, groups of these entering freshmen are followed-up using the CIRP's Follow-Up Survey (FUS).

The 1985 SIF was administered during freshman orientation at most colleges in the sample. In some instances it was administered during the first few weeks of fall classes. This survey collected a broad array of information on students' background characteristics, high school experiences, educational and vocational aspirations, attitudinal orientations, and expectations regarding their collegiate careers (Astin, Green, Korn, & Schalit, 1985). About 95,000 students from the 1985 CIRP normative population were selected to receive the 1989 FUS. The FUS collected information on students' collegiate experiences, as well as their educational achievements, values, and self-esteem (Wingard, Trevino, Dey, & Korn, 1991). Participating institutions provided data on students' degree completion and attendance patterns.

The sample was initially defined by excluding two-year college students. Students attending two-year colleges accounted for only 2% of the total sample and were not representative of the two-year college population. The final sample then was a longitudinal data file of 26,665 students attending 322 four-year colleges and universities varying in size, type, and organizational control. All students completed the SIF when they entered college as freshmen in the fall of 1985 and completed the FUS in 1989. Table 1 identifies respondents by institutional type for the final combined sample.

Variables

In this study, students were labeled *undecided* or *decided* based on their response to the "career occupation" item on the SIF. Selecting undecided students presents certain dilemmas. A student can

TABLE 1
Distribution of Institutions and
Respondents in Follow-up Survey Sample
by Institution Type

<i>Institution Type</i>	<i>Number of Institutions</i>	<i>Number of Respondents</i>
Public university	26	7,326
Private university	26	5,826
Public 4-year college	38	3,779
Private nonsectarian college	96	5,132
Private denominational college	122	4,033
Historically Black college	11	579
Total	322	26,665

be undecided about a primary subject to study (i.e., academic major) or undecided about an occupational area to enter upon graduation (i.e., career). A student can be decided about one and undecided about the other or undecided about both. Certainly, all of these possibilities deserve exploration. However, for this study, the dimension of career choice was the focus because most of the relevant literature has been in this direction.

Measures of college achievement and student involvement were the variables of interest for this study. Included as variables were measures of: college grades, persistence, honors participation, attendance patterns, residential living arrangements, peer relations/extracurricular activities, and faculty-student interaction.

The concept of persistence presents certain definitional problems. The simplest approach is to define as *persisters* those students who complete a degree in a specified time period. During the 1960s, among full-time freshmen attending college for the first time, about half earned baccalaureate degrees after four years. This completion rate was similar for freshmen entering in 1966, 1967, and 1968. After five years, degree completion was about 62% (El-Khawass & Bisconti, 1974). More recent studies have found much lower completion rates. Among full-time freshmen who entered college in 1981 and 1982, about one-third obtained the bachelor's degree four years later (Astin, Green, Korn, Schalit, Dey, & Hurtado, 1988). However, it has also been found

that completion rates after 5 and 10 years are 70% and 80% respectively (El-Khawas & Bisconti).

Because so many students do not complete the bachelor's degree in four years, persistence was not defined only as completing the bachelor's degree in four years. Students who completed four years of study without completing the degree were also considered persisters. This operational definition also allows for including as persisters those students who completed the bachelor's degree in less than four years.

College grades was a self-reported measure of college achievement. Honors participation was a self-reported measure of whether the student enrolled in any honors courses. Full-time enrollment was a measure of whether the student was enrolled full-time all four years. On-campus living arrangements was a measure of whether a student resided on campus or in a fraternity or sorority all four years.

Eight FUS items were identified as potential measures of peer relations/extracurricular activities. Because it was impossible to know which of these items were the best measures of peer relations/extracurricular activities, logic suggested that all be included in the analyses. However, this approach can produce results that are difficult to

interpret. Specifically, the potential difficulty with including all of the items is one of highly correlated independent variables. One way to minimize the likelihood of introducing highly correlated independent variables is to search for underlying factors that explain such correlations. For example, rather than eight measures of peer relations/extracurricular activities, fewer factors are more appropriate in an analysis. This not only diminishes the possibility of multicollinearity, but it can also reduce the measurement error (or unique variance) associated with single-questionnaire items.

Following this line of reasoning, factor analysis was employed to explore underlying factors explaining peer relations/extracurricular activities. Out of numerous techniques available, the principal components extraction method was used to extract the factors and the varimax rotation method was used to aid in the interpretation of the factor matrix and its loadings (Bordens & Abbott, 1988; Cattell, 1952; Kerlinger, 1986). The factor analysis revealed three underlying factors, which are presented in Table 2 with loading for each variable, eigenvalue, and amount of variance accounted for.

TABLE 2
Exploratory Factor Analyses: Factor Loadings for Measures of Peer Relations/Extracurricular Activities

<i>Measure</i>	<i>Factor</i>		
	<i>Student-Student Academic Involvement</i>	<i>Student-Student Social Involvement</i>	<i>Student Leadership Political Involvement</i>
Discussed Course Content with Students	.76	-.05	.11
Worked on Group Project for Class	.72	.20	-.15
Tutored Another Student	.54	.04	.21
Member of Fraternity or Sorority	-.08	.79	.02
Student Clubs or Groups	.10	.58	.55
Participated in Intramural Sports	.18	.56	-.04
In Campus Protest or Demonstration	.02	-.24	.72
Elected to Student Office	.11	.19	.64
Eigenvalue	1.86	1.19	1.11
% Variance	23.30	14.50	13.90

The first factor was labeled *student-student academic involvement* because of the high factor loadings on survey items measuring student-student contact in academic settings: “discussed course content with students” (.76), “worked on group project for class” (.72), and “tutored another student” (.54). The student-student academic involvement factor produced an eigenvalue of 1.86 and accounted for 23.3% of the variance.

The second factor was labeled *student-student social involvement* because of the high factor loadings on survey items measuring student-student interaction in social settings: “member of fraternity/sorority” (.79), “student clubs/groups” (.58), and “participated in intramural sports” (.56). The student-student social involvement factor produced an eigenvalue of 1.19 and accounted for 14.5% of the variance.

The third factor was labeled *student leadership/political involvement* because of the high factor loadings on survey items measuring student interaction in leadership and political settings: “in campus protest/demonstration” (.72), “elected to student office” (.64), and “student clubs/groups” (.55). The student leadership/political involvement factor produced an eigenvalue of 1.11 and accounted for 13.9% of the variance.

Thus, the eight survey items were reduced to three factors measuring peer relations/extracurricular activities. These three factors accounted for 52.1% of the variance across the eight survey items. Factor scores were then calculated for each case to be used in subsequent analyses. By generally accepted practice, only items with factor loadings of .30 or higher were used to calculate factor scores (Bordens & Abbott, 1988; Cattell, 1952; Kerlinger, 1986).

Four items from the FUS were identified as potential measures for the dimension of student-faculty interaction. Using the previously outlined reasoning, I used factor analysis to explore any underlying factors explaining the dimension of student-faculty interaction. Principal components extraction and varimax rotation identified one factor, labeled *student-faculty interaction* because of the loadings on items measuring such contact in both academic and social settings: “talked with faculty outside of class” (.70), “been guest in professor’s home” (.67), “assisted faculty in teaching class” (.62), and “worked on professor’s research project” (.53). This factor produced an eigenvalue of 1.60 and accounted for 39.9% of the variance. Thus, the four survey items were reduced to one

factor measuring student-faculty interaction. A factor score was then computed for each case to be used in subsequent analyses. Factor scores were calculated using only those items that produced factor loadings of .30 or higher.

Table 3 presents an operational definition for each variable.

Analyses

To examine differences and associations among variables, two statistical methods were employed. For variables that were measured with nominal data, a χ^2 test of significance determined associations among variables. For variables that were measured with interval or ratio data, a t test of significance determined differences. Because of the large number of cases in the sample, a probability level of $p < .001$ was used for statistical significance.

Results

Students enrolled full-time for all four years accounted for 77% of the sample, and students who lived on campus or in other institution-affiliated housing all four years accounted for 31%. Students in the sample most frequently received grades in the “B” range (36%) with the average falling between “B” and “B+/A-.” Almost half the sample reported enrollment in an honors program.

Several survey items measured interaction with other students. Most students either occasionally (41%) or frequently (59%) discussed course content with other students and either occasionally (50%) or frequently (30%) worked on a group project for class. Only a small percentage (4%) frequently tutored another student. About half the students (44%) participated occasionally or frequently in intramural sports. Although 35% of the sample reported spending 0 hours per week in student clubs/organizations, the average (2.72) was between less than 1 hour and 1-2 hours per week. About one fourth (28%) belonged to a fraternity/sorority, 22% were elected to student office, and 24% reported having been in a campus protest/demonstration.

Several survey items measured formal and informal student-faculty interaction. Most students reported talking with faculty outside of class either for less than 1 hour per week (39%) or 1-2 hours per week (37%); only 8% indicated not talking at all with faculty outside of class. A small percentage reported assisting faculty with teaching

TABLE 3
Measures of College Achievement and Student Involvement

<i>Variable</i>	<i>Definition</i>
Persistence	Dichotomous measure of student persistence—coded “2” = completed bachelor’s degree or four years of study; “1” = all others.
College Grades	Continuous measure of undergraduate achievement—7 levels coded from “1” = D or lower to “7” = A– or higher.
Honors Participation	Dichotomous measure of college achievement—coded “2” = have enrolled in honors or advanced courses; “1” = have not done so.
Enrollment: Full-time	Dichotomous measure of enrollment status—coded “2” = enrolled full-time all four years; “1” = not enrolled full-time all four years.
Living Arrangements: On Campus	Dichotomous measure of college residence—coded “2” = lived on campus or in a fraternity/sorority all four years; “1” = did not do so.
<i>Peer Relations/Extracurricular Activities Factors</i>	
Student-Student Academic Involvement	Factor score that is a continuous measure of student-student contact in academic settings. Each student’s score results from factor loadings for eight items comprising the factor.
Student-Student Social Involvement	Factor score that is a continuous measure of student-student contact in social settings. Each student’s score results from factor loadings for eight items comprising the factor.
Student Leadership/Political Involvement	Factor score that is a continuous measure of student-student contact in leadership/political settings. Each student’s score results from factor loadings for eight items comprising the factor.
<i>Student-Faculty Contact Factor</i>	
Student-Faculty Interaction	Factor score that is a continuous measure of student-faculty interaction in social and academic settings. Each student’s score results from factor loadings for four items comprising the factor.

(16%) and assisting faculty with research (22%). The majority reported never having been a guest in a professor’s home (67%).

Table 4 presents the results of the analyses comparing undecided students (with regard to career choice) to decided students on measures of college achievement and student involvement. Of the nine variables examined, three showed statistically significant ($p < .001$) differences and associations for the two groups: persistence, student-student academic involvement, and college grades.

Undecided students persisted at a rate of 66% compared to 60% for decided students. The χ^2 value for the persistence comparison indicates that undecided students were more likely to persist than decided students ($\chi^2 = 46.39$, $p < .001$). The significant t value for student-student academic involvement ($t = 6.10$, $p < .001$) indicates that decided students had higher average scores (5.19)

than undecided students (5.08). Decided students engaged in academic activities with other students more than undecided students did. The significant t value for college grades ($t = -6.73$, $p < .001$) indicates that undecided students had significantly higher college grades than decided students did ($M = 4.33$ for undecided students; 4.21 for decided students). The variables where no significant differences or associations were found included full-time enrollment, on-campus living arrangements, honors participation, student-student social involvement, and student-faculty interaction.

Discussion

Only three of the nine variables produced significant differences or associations, and so the hypothesis that undecided students would not differ from decided students on measures of college

TABLE 4
Comparisons of Students Undecided and Decided About Career Choice: Measures of College Achievement and Student Involvement

Variable	Career Choice						χ^2	t
	Undecided ^a			Decided ^b				
	M	SD	%	M	SD	%		
Persistence							46.39**	
No			33.6			40.3		
Yes			66.4			59.7		
College Grades	4.33	0.99		4.21	1.03			-6.73**
Enrollment: Full-time							2.26	
No			21.5			22.7		
Yes			78.5			77.3		
Living on Campus							4.50	
No			67.7			69.5		
Yes			32.3			30.5		
Honors Participation							6.88	
No			51.6			53.9		
Yes			48.4			46.1		
Student-Student Academic Involvement Factor	5.08	0.95		5.19	0.98			6.10**
Student-Student Social Involvement Factor	3.68	1.28		3.77	1.31			2.43
Leadership/Political Involvement Factor	3.49	1.15		3.47	1.15			-0.75
Student-Faculty Interaction	4.11	0.96		4.14	1.01			1.37

** $p < .001$

^a*n* varies from 2,573 to 3,643—data missing for some respondents

^b*n* varies from 15,936 to 23,022—data missing for some respondents

achievement and student involvement was generally supported. Undecided students were more likely to persist. This finding contradicts numerous other studies, which have found undecided students to be attrition prone (Abel, 1966; Beal & Noel, 1980; City College of San Francisco, 1975; Daubman & Johnson, 1982; Foote, 1980; Muskat, 1979; Reyes & Withers, 1983; Rice, 1983; Smitherman & Carr, 1981; Titley & Titley, 1980; Wessell, Engle, & Smidchens, 1978). Additionally, undecided students achieved significantly higher college grades. This finding counters studies that found no significant differences (Abel; Ashby, Wall, & Osipow, 1966; Williamson, 1937) and studies that found decided students achieve significantly higher college grades (Anderson,

Creamer, & Cross, 1989; Crawford, 1929; Marshall & Simpson, 1943).

Decided students had higher student-student academic involvement scores. I could find no studies with which to compare this finding or with which to compare the absence of difference on the six other measures.

Although some differences were observed, we must exercise care in interpreting these differences. Finding that a difference is statistically significant does not necessarily mean that the difference is large nor does it mean the difference is important from a research perspective. With such a large sample ($N > 20,000$), small differences can be statistically significant. For example, undecided students had a student-student academic

involvement factor score of 5.08; decided students had a score of 5.19. Standard deviations were 0.95 and 0.98, respectively. For all practical purposes these groups had similar mean scores (only 0.11 difference), yet the *t* test indicated a significant difference at $p < .001$. For two of the other variables small differences also produced significant results.

In some ways these findings only add to our already clouded and puzzling picture of undecided and decided students. Some of these findings contradict previous studies, but much of this contradiction may lie in differing definitions of decidedness. Some studies defined undecided students using an admissions form or survey instrument where students selected from a list of potential majors or careers (Baird, 1967; Chase & Keene, 1981; Elton & Rose, 1971; Foote, 1980; Miller, 1956; Rose & Elton, 1971; Ruskus & Solmon, 1984; Titley & Titley, 1980). Some defined undecided students based on measures from a career decision instrument (Lucas & Epperson, 1988; Taylor, 1982). Some defined them based on students' estimates of the certainty of or satisfaction with their choice (Ashby et al., 1966; Holland & Holland, 1977; Watley, 1965; Williamson, 1937). Some defined them based on a personal interview or personal statement (Abel, 1966; Marshall & Simpson, 1943). Still others defined them as such because they were not pursuing a degree (Smitherman & Carr, 1981; Twining & Twining, 1987). Given this tremendous disparity, conflicting findings are not surprising.

Although some differences were found, this study seems to support what many others have concluded. As Holland and Holland (1977) suggested:

Attempts to comprehend the vocational decisiveness of some students and the indecisiveness of others are characterized by conflicting findings, negative findings, or negligible findings. Although vocationally undecided students have been assessed in many ways and with a vast range of variables, few clear or compelling differences emerge. Instead the most striking outcomes of these studies are that decided and undecided high school and college students are much more alike than different and that the relatively few differences are conflicting and confusing. (p. 404)

The data are consistent and almost overwhelming when examining students who enter higher

education undecided or who change their choices along the way. Combined, these two groups typically represent over 50% of an entering class and 75% is not unusual at some institutions. "Clearly, the time has come to formally recognize in our policies and practices that the majority of entering students are in an undecided mode. Being undecided is not the exception, but rather the norm" (Lewallen, 1992, p. 110).

Most students' initial academic major or career choice should be viewed with some skepticism even when offering services that address their expressed needs. If students are undecided, they may benefit from one of the numerous programs and services have been developed to assist undecided students. Unfortunately, such offerings are often retention efforts rather than efforts to assist students in reaching decisions (Lewallen, 1992).

The literature review and the results of this study suggest that not much is to be gained from continued research comparing undecided and decided students. These groups have been compared repeatedly using a wide array of measures. Even with varying definitions of decidedness, the results point to the conclusion that these two groups are more similar than different.

However, an important area for future research lies in answering: "Who is the undecided student?" Despite considerable research, our understanding of the origins of indecision remains fuzzy. As Gordon (1984) so aptly pointed out, "there are as many reasons for being undecided as there are students" (p. 75). All evidence thus far points to undecided students being fairly typical college students on the surface (e.g., measures of background, ability, and experience). Perhaps, if we are to continue focusing on these students as a group, we need to find out if there truly is "something" about being undecided. Future research that centers on finding what, if anything, distinguishes undecided students would contribute to our understanding. Finding this would also assist in the development of a general definition of decidedness. Until this happens, all research will continue to study types of undecided students based on whatever definition is employed, and making generalizations about these students will continue to be difficult.

Finally, an area of inquiry that has been neglected has to do with differences in institutional practices, policies, and attitudes toward undecided students. Some institutions are extremely supportive; others are indifferent or even nonsupportive. These approaches appear to have the potential to

profoundly influence a student's willingness to declare being undecided. Additionally, these approaches have the potential to influence the college achievement and experiences of undecided students. Research that uncovers these institutional differences might also add to our understanding of undecided students.

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