

HOW DO HIGH SCHOOL STUDENTS STRUCTURE AN IMPORTANT LIFE DECISION? A SHORT-TERM LONGITUDINAL STUDY OF THE COLLEGE DECISION-MAKING PROCESS

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This study details the processes students use and the information they consider as they confront what is likely to be their first major life decision. Over the course of a year, 322 college-bound high school students participated in up to three survey sessions in which they described their thinking about college decisions. At each session, students rated the frequency with which they had consulted various sources of information or engaged in different decision-making activities. They also listed and rated the importance of the criteria they were using, and listed the schools they were actively considering. Responses were analyzed as a function of time of survey, level of parental education, academic ability, and gender. Throughout the year, students considered roughly the same number and type of criteria. There were expected shifts in the kinds of information sought and activities undertaken. Higher-ability students listed significantly more criteria and slightly (but nonsignificantly) more schools than did students of other ability levels, especially early in the process. A variety of gender differences emerged in the information sought and the criteria used to make this decision.

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The college decision is one of both practical and theoretical importance for researchers studying real-life decision making. It is an important and difficult life decision, faced by many adolescents and their families. In the United States, over two million students, their families, and relevant school personnel confront this time-consuming and expensive decision each year, spending over 50 hours investigating information about colleges (exclusive of campus visits), and approximately \$1,500 in direct costs of preparing materials and gathering information (Litten, 1991). This decision also has ramifications for family ties, friendships, and vocational and career plans. The choice of college is likely to determine whether the student will live away from home, will need loans, or

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will maintain the same relationships with high school friends. Moreover, one's ultimate choice of college may serve as a "proxy attribute," or indirect measure, of other desired objectives—career opportunities, probability of admission to graduate or professional school, intellectual development, or social status (Boyer, 1987; Fischer et al., 1987; Litten, 1991).

This decision is one that occurs during a well-delimited time period. Few other life decisions of this magnitude occur on such a well-defined schedule, thereby allowing better predictions about where in the process a student is likely to be at any given point. For many students, this is the first major financial, educational, social, and vocational decision for which they have had much responsibility and choice. Finally, like most complex decisions, choosing a college requires the student to seek out and integrate information from various sources.

Some literature on how students choose colleges (see Hossler and Gallagher, 1987, and Litten, 1982, 1991, for reviews) consists of post-hoc recollections of how choices were made. Some studies have examined the effects of various decision aids on the satisfaction with the decision-making process, or how imminence of commitment affects the process itself (Mann, 1972; Wright and Kriewall, 1980). A retrospective study asked college first-year students to rate the helpfulness of various sources of information (Matthay, 1989). An unpublished longitudinal study (Lewis and Morrison, 1975) consisted of interviews with 127 college seniors from six high schools in Pittsburgh every two weeks during their senior year of high school, beginning with the first week of October. This study described points in the year when students were most likely to engage in different activities, for example, consulting a source such as guidance counselor or reference book for information; adding a school to the list of schools under active consideration; applying to a school. Other studies have tried to isolate the factors that students of a particular group (e.g., high-ability students) use in making this decision (Douglas and Powers, 1985). However, no comparison was made between the responses of high-ability and other respondents.

Some studies (reported in Litten, 1982) did use reports from prospective students and analyzed individual differences in responses as a function of several variables, including race, gender, ability level, parents' educational level, and geographic location. Litten (1982) reports racial differences between Caucasian and African-American students in timing of the college-selection process, and in information sought during the process. Gender differences, when they emerged, were smaller in scope than racial differences, but indicative of greater consultation with parents and peers by women. Women were also found in some studies to place more value on residential life than were men. With respect to academic ability, higher-ability students were described as starting the process earlier, considering and applying to more schools, and relying more

heavily on guidance counselors than were middle- or lower-ability students. Students whose parents had some college experience appeared to begin the process earlier, and to rely less heavily on guidance counselors. Few individual differences as a function of geographic location emerged.

The purpose of the current study was to gather responses from students as they experienced the college decision-making process. More specifically, our aim was to be able to describe how the decision-making process unfolds over the course of a year. We looked at the sources of information students consulted, the decision-making activities they undertook, the criteria they used to evaluate information, and the schools they considered at different points in the process. We also examined the data to see if the responses of higher-ability students differed from those of average- or lower-ability students. Additionally, we examined the data for gender differences as well as differences as a function of level of parental education.

In the main, then, the aim of this paper is to provide a description of what students describe themselves as doing as they make the college decision. By detailing the amount and kinds of information considered at different points in the process, and by different groups of students, we hope to provide an updated answer to the question of how high school students confront this major life decision. Moreover, this study will attempt to delineate the types of information students rely upon, and the kinds of factors they consider, as they undertake a decision that may frame other aspects of their adult life.

STUDY DESIGN

This work used a sequential longitudinal design, with up to three survey sessions per student. The first round of sessions took place in April 1991 with a sample of college-bound high school juniors. Many of these students were re-surveyed in two subsequent sessions in their senior year of high school, in October 1991 and April 1992. At each subsequent session, a new sample of students was also recruited, to assess any impact participation in our study might have had on their decision making.

At each session, students described their current thinking and experiences in choosing a college. Specifically, students described the factors (criteria) they were considering and their relative importance, the alternatives they were considering, and how well each alternative rated on each factor.

The project addresses several questions; however, we will have space here to consider only a subset: (1) What source of information do students use in making this decision? (2) What information-gathering activities do students engage in during the course of making this decision? (3) How many criteria do students use in making this decision? (4) What criteria do students use to make this decision? and (5) How many institutions (schools) do students consider while

making this decision? For each of these questions, we were also interested in four issues: (1) how the answers changed as a function of time as the students in the sample moved closer to a decision; (2) how the answers changed as a function of the student's parents' level of education; (3) how the answers changed as a function of the student's academic ability; and (4) how the answers changed as a function of the student's gender.

METHOD

Subjects

A total of 322 high school students (88 males, 234 females) participated in one or more sessions. Students came from 18 suburban or rural public high schools and 1 private high school in southeastern Minnesota. The breakdown of participation is as follows: One hundred and twenty-four students (29 males, 95 females) were originally recruited in spring of their junior year of high school, and participated in the first round of sessions in April 1991. Of these, 101 (26 males, 75 females) participated again in the second round held in October of the senior year (1991), when an additional sample of 99 students (22 males, 77 females) joined the study. Ninety of the original sample who had again participated in Round 2 (24 males, 66 females), and 75 of the second sample (17 males, 58 females) again participated in the final round of sessions, held in April of the senior year of high school (1992), and were joined by a third sample of 99 subjects (37 males, 62 females) who participated in the last round only.¹

Students were recruited through high school homeroom announcements. A letter describing the study and asking interested participants to provide us with their name and phone number was handed out. The letter also asked for written parental consent for students under the age of 18, and requested both the student and the parent to sign a release authorizing the authors to examine school records regarding grades, class rank, and standardized test scores (PSAT, SAT, and ACT). Students received \$5 for participating in each session, with a \$5/session bonus for participating in a second or third session.

INSTRUMENTS AND PROCEDURE

Students participated in a one-hour session scheduled at their high school, either in the evening or after school. Sessions included up to 15 students, but averaged approximately seven. At least two researchers were present at each session to hand out forms, answer questions, scan completed forms to detect errors or omissions, and to pay participants at the conclusion of the session. Participants completed six, seven, or eight (depending on the round of the session) different color-coded forms at their own pace. Some students took as

little as 35 minutes, others took slightly over an hour, but most took about 55 minutes for their initial session, and about 45 minutes for subsequent sessions. Throughout the session, researchers were available to answer questions about the meanings of instructions or other issues of clarification, but otherwise kept interaction with participants (or between participants) to a minimum.

Only four of the eight forms are relevant for the present paper. These are:

1. *Background information sheet* (filled out at the first session in which the student participated only). This asked for name, address, date of birth, year in school, and personal information such as favorite academic subjects; jobs held and hours worked; club memberships, hobbies, or other interests; current career plans; and college subjects the students plan on taking. In addition, students provided information on the number and ages of siblings, the current marital status of parents or guardians, and the educational backgrounds of parents or guardians. The students were also given the option of providing information about family income, religious preference, and racial/ethnic preferred designation.

2. *Information sources/information-gathering activities sheet*. Using 7-point Likert scales (1 = not at all; 7 = extremely frequently), students rated the frequency with which various potential sources of information about colleges (e.g., parents or guardians, guidance counselors, teachers, college guidebooks) had been consulted, and how often various information-gathering or decision-relevant activities (e.g., browsed career center materials, attended college fairs, visited college campuses) had occurred.

3. *Self-generated factors weighting and ranking sheet*. This instrument had several columns. In the first column, students were asked to list the factors (i.e., criteria) they were using in making decisions about college (e.g., cost, location, program offerings). In the second column, students assigned each factor an importance weighting (independent of the other factors), on an integer scale from zero to 10, with 10 being the highest. The next seven columns provided spaces at the top for students to list schools under consideration. In the blanks underneath each school listed, students rated that school on the corresponding factor listed in the first column, again using an 11-point integer scale. A second blank sheet was provided to encourage students to be complete; other blank sheets were also offered if needed.

4. *Overall impressions of schools sheet*. For this instrument, students listed each school under consideration and rated their overall feeling of how good a choice each school currently appeared to be for them, on an 11-point integer scale.

RESULTS

Very few differences in any of the dependent measures described below were found in the three samples of students drawn, so unless otherwise noted, the

results reported are averaged over the three cohorts. The students as a group were largely Caucasian (93 percent), and came from families with both parents alive and living together (79 percent). The average level of parental education was some college attendance, the average level of family income was in the range of \$40,000–\$79,999, and the average number of siblings was two. As might be expected for a college-bound sample, the level of academic ability was high: mean scores for combined SAT Verbal and SAT Mathematical and ACT composite were 1117.26 and 21.03, respectively, and the average GPA at the end of the junior year of high school was 3.26.

Many of the analyses to be reported below used an independent variable called "academic ability." This was measured by equally weighted z-scores of eleventh-grade GPA, eleventh-grade class rank, and standardized test scores (ACT composite scores and SATV + SATM scores were converted to a common scale; students who took both tests had the higher score used). Ability scores were correlated with all of the academic measures, as expected. Moreover, ability was correlated with level of parental education ($r [316] = .29$, $p < .01$) and negatively with the number of siblings in the family ($r [316] = -.19$, $p < .01$). Students were assigned to an ability group based on whether their ability score fell in the top, middle, or bottom third of the sample. For descriptive purposes, we shall refer to these groups as the "higher," "average," and "lower" academic ability groups, although it must be kept in mind that all three groups display a good deal of academic ability. Table 1 shows the means of all of these measures for the three ability groups.

Only one gender difference was found in the demographic variables: males outperformed females on the SATV + M measure ($M = 1184.61$ vs. 1081.76 ; $t[111] = -.329$, $p < .001$). No gender differences emerged for other academic measures, such as ACT composite scores, class rank, or GPA.

For the purpose of subsequent analyses, we divided the sample into three

TABLE 1. Mean Ability Measures by Academic Ability Group

Group		GPA ^a	Class Rank ^a	ACT Composite	SAT V + M ^b
Lower Ability ($n = 105$)	<i>M</i>	2.60	47.87	15.75	955.00
	<i>SD</i>	.42	17.13	8.53	149.27
Average Ability ($n = 108$)	<i>M</i>	3.34	78.13	22.54	1047.50
	<i>SD</i>	.25	9.72	5.68	168.60
Higher Ability ($n = 105$)	<i>M</i>	3.85	94.69	24.90	1187.97
	<i>SD</i>	.15	3.75	9.35	124.98

^aComputed at the end of junior year.

^bThese tests taken by very few of the sample.

groups based on the average level of education of the mother and father. These groups were defined as: average of high school or less; some college or college degree(s); and postgraduate study or degree(s).

Descriptions of the remainder of the analyses will be organized according to the five questions raised in the introduction. Throughout, we will report any significant differences as a function of parental education, ability, or gender.

What Sources of Information Do Students Report Consulting?

Responses to "informational source" items (from instrument [2], described above) were analyzed, and means for the subjects as a whole, by time of session, are presented in Table 2. Somewhat surprisingly, no one source was used heavily by subjects as a group (recall that the rating scale ran from 1 to 7). The four most frequently consulted sources of information were "parents/guardians," "friends," "materials in the guidance center," and "college brochures." Use of most potential information sources remained relatively constant over the year. As the year progressed, however, there was some apparent and expected decline in the use of guidance center materials, and greater apparent and expected use of information from college admissions representatives. We also examined whether the reported consultation frequency changed over time, by using only the data from those respondents who participated in all three survey rounds in within-subjects repeated measures ANOVAs performed separately for each source. The variables showing a statistically significant change, as a function of time, are indicated in the table.

We examined individual differences in ratings. To do this using all of the available data, we ran separate analyses for each source consulted for each round of surveys. Because so many tests were run, we report only those differences found to be statistically reliable for the same source for more than one round of surveys.

First, students differed significantly in their reported use of two informational sources—parents, and employers/supervisors as a function of level of parental education. Table 3 presents the relevant means and inferential statistics. The latter result may be accounted for by the fact that the average number of hours worked weekly varied as a function of level of parental education, again, as shown in Table 3.

Analyzing the data by academic ability, we found four significant sets of group differences. (Again, we are reporting only those sources for which group differences emerged on more than one round of surveys.) These are presented in Table 4. In almost all cases, lower-ability students reported higher reliance on the informational sources than did higher- and average-ability students, as shown by post-hoc Newman-Keuls tests ($p < .05$). Higher- and average-ability

TABLE 2. Sources of Information Students Report Consulting by Time of Interview^a

Sources Consulted	Apr. 1991	Oct. 1991	Apr. 1992	<i>F</i> [<i>df</i>] ^b
<i>Family</i>				
Parents or guardians	5.4	5.8	5.8	
Other relatives	3.1	2.9	3.0	
Brothers or sisters	3.2	3.2	3.2	
<i>Other Adults</i>				
Guidance counselors	3.2	3.7	3.3	3.87* [2,162]
Coaches	1.6	1.7	1.7	
Teachers	3.0	3.5	3.5	4.54* [2,158]
Employers or supervisors	2.0	2.1	2.1	
Career center advisor	—	2.6	2.2	465.02***[1,163]
People with jobs in your field of interest	—	3.3	3.3	
Other adults	3.4	3.6	3.6	
<i>Friends/Peers</i>				
Friends/classmates	4.8	5.1	4.9	
Students presently/soon to be attending college	—	3.9	3.7	
<i>Information from Colleges</i>				
Materials, brochures in guidance or career center	4.4	4.1	3.7	
College admissions representatives	2.0	3.7	3.9	38.62***[2,158]
College brochures, catalogues, etc.	4.7	5.2	4.7	
College fair presentations	2.3	3.1	2.6	5.34** [2,158]
<i>Other</i>				
TV, radio, video programs	2.2	2.1	1.8	
College guidebooks	3.1	3.4	3.0	
Magazine or newspaper articles	2.8	2.6	2.3	7.05***[2,158]
Computer programs/videos/laser discs	—	1.8	1.6	
Other sources	2.2	1.6	1.4	5.19** [2,104]

^aNumbers indicate mean rated frequency [scale = 1–7] of consultation.

^bANOVA results are reported only for those data that show significant differences in ratings, as a function of interview round, from the cohort of students who participated in all three interviews.

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

TABLE 3. Sources of Information Students Report Consulting by Level of Parental Education

Sources Consulted and Time of Interview	Postgraduate	College	High School	<i>F</i> [<i>df</i>] ^a
Parents				
October 1991	5.47 ^a	5.63 ^a	5.00 ^b	11.53*** [2,197]
April 1992	6.14 ^a	6.90 ^a	5.02 ^b	10.45*** [2,261]
Employers or supervisors				
October 1991	1.70 ^a	2.16	2.48 ^b	3.33* [2,197]
April 1992	1.78 ^a	2.05	2.45 ^b	6.42* [2,254]
Hours worked/week	14.58 ^a	18.92 ^b	19.42 ^b	5.30** [2,260]

Note: Means with different subscripts differ significantly at the .05 level, by a post-hoc Newman-Keuls test, for that variable during that round.

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

TABLE 4. Sources of Information Students Report Consulting by Academic Ability

Sources Consulted and Time of Interview	Higher Ability	Average Ability	Lower Ability	<i>F</i> [<i>df</i>]
Materials, brochures in guidance center				
October 1991	3.10 ^a	3.78 ^b	4.41 ^c	8.60*** [2,195]
April 1992	3.03 ^a	3.60 ^b	4.06 ^b	8.63*** [2,258]
Career center advisor				
October 1991	2.41 ^a	2.16 ^a	3.13 ^b	5.39** [2,195]
April 1992	2.00 ^a	2.07 ^a	2.68 ^b	5.47** [2,258]
Employers or supervisors				
April 1991	1.50 ^a	1.95	2.48 ^b	4.10* [2,108]
October 1991	1.71 ^a	2.22	2.42 ^b	3.71* [2,195]
April 1992	1.74 ^a	2.03	2.42 ^b	4.94* [2,254]
People with jobs in field of interest				
October 1991	3.02 ^a	3.03 ^a	3.73 ^b	3.27* [2,195]
April 1992	3.05 ^a	3.15 ^a	3.69 ^b	3.20* [2,256]

Note: Means with different subscripts differ significantly at the .05 level, by a post-hoc Newman-Keuls test, for that variable during that round.

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

students also differed significantly in their reports of use of guidance center materials (April 1992 only).

Using the same criterion (significant group differences on more than one round of surveys), we found three sources showing significant gender differences. Females reported significantly greater consultation frequency of their parents and of friends/classmates during the April 1991 and October 1991 rounds of surveys than did males. In contrast, males reported significantly

TABLE 5. Sources of Information Students Report Consulting by Gender

Sources Consulted and Time of Interview	Female	Male	<i>t</i> [<i>df</i>] ^a
Parents			
April 1991	5.56	4.76	2.31* [112]
October 1991	5.90	5.25	2.68** [198]
Friends/Classmates			
April 1991	4.98	4.27	2.09* [110]
October 1991	5.20	4.56	2.35* [198]
Coaches			
October 1991	1.53	2.13	-2.98** [198]
April 1992	1.61	2.05	-2.54** [262]

^a*t*-test (independent groups) results are reported only for those data that show significant differences in ratings, as a function of interview round, from the cohort of students who participated in all three interviews.

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

greater consultation frequency of coaches than did females during the latter two rounds of surveys. Table 5 presents the relevant means and inferential statistics.

In What Information-Gathering Activities Do Students Report Engaging?

Again using the responses to instrument [2], described above, we analyzed the frequency with which students reported engaging in different activities relevant to this decision. Those data are presented in Table 6. As can be seen, students report moderate frequency of browsing through guidance center materials, talking to guidance counselors, writing for college brochures, arranging to take standardized tests, and visiting campuses.

We first examined whether the reported frequency of different activities changed over time, by using only the data from those respondents who participated in all three survey rounds in within-subjects repeated measure ANOVAs. The variables showing a statistically significant change, as a function of time, are indicated in the table.

Once again, we analyzed for group differences. Because of the number of tests run, we report only those differences found to be reliable for more than one round of surveys. By this criterion, no level of parental education or gender differences and only one ability group difference emerged. The latter was for the activity, "Browsed through materials in guidance/career center" in both the October 1991 and April 1992 rounds of surveys. Consistent with the trends seen in Table 2, higher-ability students reported lesser frequency of this activity than did average- or lower-ability students ($M = 3.10, 3.78, \text{ and } 4.41$ for higher-, average-, and lower-ability students in the October 1991 round; all means differ by post-hoc Newman-Keuls tests, $p < .05$; $M = 3.03, 3.60, \text{ and}$

TABLE 6. Information-Gathering Activities Students Report Engaging in by Time of Interview

Activity	Apr. 1991	Oct. 1991	Apr. 1992	<i>F</i> [<i>df</i>] ^a
Browsed through materials at guidance/career center	3.7	3.8	3.6	
Talked to guidance counselors	3.3	4.0	3.5	6.92***[2,162]
Wrote for college brochures	3.2	3.7	3.2	
Arranged to take tests ACT/SAT/etc.	3.4	3.8	3.3	
Visited college campuses	2.4	3.3	3.6	27.77***[2,160]
Attended college fairs	2.0	2.7	2.5	7.57***[2,160]
Sent in college applications	1.2	2.2	3.5	63.36***[2,158]
Applied for financial aid	1.1	1.4	2.8	51.75***[2,160]
Arranged for interviews with college admissions officers	1.4	2.6	2.7	35.13***[2,160]
Decided not to apply to schools previously considered	1.7	2.9	3.0	

Note: Numbers indicate mean rated frequency [scale = 1–7] of activity.

^aANOVA results are reported only for those data that show significant differences in ratings, as a function of interview round, from the cohort of students who participated in all three interviews.

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

4.06 for higher-, average-, and lower-ability students in the April 1992 round; means for higher ability differ from means from the other two groups by post-hoc Newman-Keuls tests, $p < .05$.)

How Many Criteria Do Students List When Making College Decisions?

Data from the third instrument (self-generated factors weighting and ranking sheet) were used in this analysis. We counted the number of distinct criteria students listed, and analyzed this measure as a function of time of survey, level of parental education, academic ability, and gender. Only one group difference as a function of level of parental education emerged. In the October 1991 round of surveys, the mean number of criteria listed was 8.36, 10.25, and 9.30 for students with an average level of parental education of high school, college, or postgraduate, respectively ($F[2, 197] = 4.41$, $MS_{error} = 14.17$ $p < .05$; the first and second groups differed significantly at the .05 level by a Newman-Keuls test).

We found clearer differences in the number of criteria listed as a function of level of academic ability. Table 7 presents the mean number of factors listed,

TABLE 7. Number of Factors Listed by Ability Group and Time of Interview

Academic Ability Group	April 1991	Time of Interview	
		October 1991	April 1992
Higher Ability	10.11	10.46	9.29
Average Ability	8.80	9.65	8.81
Lower Ability	8.00	8.62	8.43
<i>F</i> [<i>df</i>]	4.54** [2,120]	3.86*	n.s.

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

by time of survey and academic ability group. One-way analyses of variance indicated statistically significant group differences for two of the rounds of surveys, as shown in Table 7. Interestingly, the groups did not list different numbers of factors in the final, April 1992 round of surveys. Moreover, those respondents participating in all three rounds of surveys did not differ in the number of criteria they listed over the different rounds. No gender differences were found on any of these variables.

What Kind of Criteria Do Students Report Using in Making this Decision?

We next analyzed the type of criteria students reported using. After a preliminary reading of the factors students listed, we categorized the factors as shown in Table 8. We next computed, for each student, the percentage of the factors he or she listed that fell into a particular category. Table 8 presents the mean percentage use of each category by round of survey.

We examined the data from those students who participated in all three sessions, to see whether their usage of different categories of factors changed over time, using within-subjects repeated measure ANOVAs. Table 8 indicates statistically significant differences in mean proportion of use for five categories: "Admissions requirements," "Course offerings," "Campus atmosphere," "Class size/student-faculty ratio," and "Financial aid."

We analyzed these data as a function of level of parental education, ability group, and gender. Again, because of the number of tests run, we report only those differences found to be reliable for more than one round of surveys. Using this criterion, we found only one category, "Cost," to differ reliably as a function of level of parental education. For April 1991, mean proportion of use of this category was 11.74, 10.56, and 8.07 for students with an average level of parental education of high school, college, or postgraduate, respectively ($F[2, 120] = 4.22, p < .05$; the first and second groups differed significantly from the third at the .05 level by a Newman-Keuls test). In the October 1991 round of surveys, the mean proportion of use of this category was 12.23,

TABLE 8. Factors Students Report Considering by Time of Interview

Factor	Apr. 1991	Oct. 1991	Apr. 1992	<i>F</i> [<i>df</i>] ^a
<i>Academic Factors</i>				
Academic challenge	2.8	1.9	2.4	
Admissions requirements	4.0	4.1	1.6	4.21* [2,178]
Course offerings	4.3	3.0	3.1	3.43* [2,178]
Faculty quality/credentials	1.4	1.5	1.7	
Majors/programs offered	10.5	11.3	10.8	
Reputation/accreditation	4.1	5.4	5.4	
School policies/regulations	2.2	1.1	1.1	
Success of graduates	3.3	2.3	2.4	
Type of school (e.g., public/private)	6.3	5.5	16.7	
<i>Institutional Factors</i>				
Campus appearance	2.8	2.3	2.6	
Campus atmosphere	2.4	5.0	7.0	8.39*** [2,178]
Class size/student-faculty ratio	3.7	2.7	3.0	3.80* [2,178]
Dorms/residence halls	2.4	3.2	3.8	
Extracurricular programs	6.4	6.2	5.9	
Facilities	1.6	2.0	2.5	
Location	7.5	7.6	7.9	
Physical setting (e.g., rural/urban)	3.5	4.4	4.4	
Size	7.9	8.8	8.9	
<i>Financial Factors</i>				
Cost	10.2	10.2	10.6	
Financial aid	4.6	5.0	4.8	6.14** [2,178]
<i>Personal/social factors</i>				
Distance from home	4.2	3.9	3.8	
Parents'/friends' advice	1.1	1.0	1.1	
Peers/friends at school	2.9	1.7	2.0	

Note: Numbers indicate the mean percentage of all factors generated that fell into a category.

^aANOVA results are reported only for those data that show significant differences in ratings, as a function of interview round, from the cohort of students who participated in all three interviews.

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

10.09, and 8.62 for students with an average level of parental education of high school, college, or postgraduate, respectively ($F[2, 197] = 5.39, p < .01$; the second and third groups differed significantly from the first at the .05 level by a Newman-Keuls test). Interestingly, all group differences disappeared on the third, April 1992 round of surveys.

Using this same criterion (significant group differences in two or more

rounds of surveys), we also discovered two reliable ability group differences. The first was for the category, "Cost," and the second, "Financial aid." Table 9 presents the relevant means.

There were two categories for which a significant gender difference emerged on more than one survey round. The first was for the category, "Success of graduates." Mean proportion of use of this category was 2.34 for females and 6.32 for males in the April 1991 round ($t[33] = -2.02, p < .05$), and 1.85 for females versus 3.57 for males in the April 1992 round ($t[113] = -2.02, p < .05$). There was no significant difference in mean proportion of use of this category in the October 1991 round of surveys. The second category to show a significant gender difference for two rounds was "Dorms/residence halls." Females tended to list a greater proportion of items relating to this category in both the April 1991 round (mean proportion of use of this category was 2.85 vs. 0.86 for females and males, $t[79] = 2.45, p < .05$) and in the April 1992 round (mean proportion of use of this category was 4.26 vs. 2.62 for females and males, $t[262] = 2.13, p < .05$). There was no significant difference in mean proportion of use of this category in the October 1991 round of surveys.

How Many Institutions Do Students Consider When Making College Decisions?

Data from the fifth instrument (overall impressions of schools sheet) were used in this analysis. The number of schools students rated on this sheet was analyzed as a function of time of survey, level of parental education, academic ability, and gender. Overall, those subjects who participated in all three sessions did not list significantly different numbers of schools as a function of round of survey. The mean number of schools listed by round was 4.43, 3.95,

TABLE 9. Factors Students Report Considering by Academic Ability

Factor and Time of Interview	Higher Ability	Average Ability	Lower Ability	<i>F</i> [<i>df</i>] ^a
Cost				
April 1991	8.27 ^a	9.56	12.15 ^b	4.19* [2,120]
October 1991	8.71 ^a	9.96	11.81 ^b	4.19* [2,120]
April 1992	9.26 ^a	10.65	12.12 ^b	4.07* [2,259]
Financial Aid				
October 1991	6.62 ^a	2.75 ^b	5.97 ^a	5.64* [2,195]
April 1992	5.65 ^a	3.34 ^b	5.44 ^a	4.07* [2,259]

Notes: Numbers indicate the mean percentage of all factors generated that fell into a category. Means with different subscripts differ significantly at the .05 level, by a post-hoc Newman-Keuls test, for that variable during that round.

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

and 4.19 for females, and 4.97, 4.65, and 4.40 for males. Independent sample *t*-tests indicated that the only statistically significant gender difference occurred during the October 1991 round ($t [198] = -2.31, p < .05$).

Analyzing these data by ability group revealed a significant main effect only for the data from the April 1991 round of surveys. However, post-hoc Newman-Keuls tests did not reveal any reliable group mean differences. Finally, analyses revealed no significant differences in the number of schools listed as a function of level of parental education.

DISCUSSION

To organize the results, we will first consider general descriptions of the decision-making process, and changes in the decision-making process over time, for the sample as a whole. We will then move on to consider differences in student responses as a function of level of parental education, academic ability, and gender in this process.

General Aspects of the Decision

How do students structure this decision, in terms of the factors and alternatives considered, at various points in the process? The data suggest that, at least numerically, students structure the decision in remarkably similar ways throughout the period of time studied, considering an average of about eight to eleven criteria and four or five schools at any given time. The fact that all groups of students considered the same number of schools at each point in the process may represent an adaptive information management strategy, as it helps to keep in bounds the amount of information to be gathered, evaluated, and integrated at any given time.

The data suggest that one way counselors and teachers can assist students with this decision would be in helping them devise ways of managing information. If in fact students restrict the number of criteria or the number of alternatives they consider simply to avoid information overload, then helping to devise information-management strategies might help students avoid premature closure in their decision making.

Changes in Decision Making Over Time

As expected, students make use of different informational sources as they confront the college decision-making task at different points in the process. They rely most heavily on parents, guardians, and friends, but also consult guidance center materials and college brochures. The use of guidance center materials declines over the year, while use of materials provided by colleges

and universities becomes more important over the year. Activities such as visiting campuses, sending in applications, arranging for interviews, and applying for financial aid also become more frequent over the course of the year.

More interesting to consider are the overall changes in the kinds of criteria considered at different points in the process. For example, the relative frequency of listing criteria relevant to "Admissions requirements," "Course offerings," and "Class size" declines over the year, while the relative frequency of mention of "Campus atmosphere" rises over time. Moreover, students' importance ratings of the following factors declines over time: "Off-campus study programs," "Graduation requirements," "Quality of library," and "Quality of residence halls." At the same time, students as a group increase the importance ratings given to such factors as "Student/faculty ratio" and "On-campus cultural events." In general, it seems that information easily obtainable from a college brochure or catalog (e.g., requirements, procedures, statistical summaries) becomes relatively less important as information about an institution's "character," perhaps obtained from campus visits, is acquired.

These data suggest that students seek out and/or are receptive to different kinds of information at different points in the process. Admissions officers might consider what information to present to prospective students and when to present it. A student early in the process, for example, might need and attend to information about requirements, and might ignore (or "file away") brochures dealing with on-campus cultural events.

Differences in Decision Making as a Function of Level of Parental Education

In his 1982 review, Litten concluded that, "Parental education has stronger effects on the conduct of the college selection process than attributes such as race or gender, with the greatest effects on the way information is obtained" (p. 400). Our data, collected a decade or more later, echo at least some of this characterization. Students with more highly educated parents report greater reliance on their parents as sources of information, especially during the busiest times of the process. In contrast, students with less educated parents were more likely to rely on employers for information to be used in their decision making.

This finding may reflect rationality in decision making. Students who have reason to expect that their parents are relatively knowledgeable about higher education rely more heavily on their parents' opinions and information. Students who rely less on parents might instead turn to supervisors or employers if they believe these individuals have more experience and information relevant to their decision.

Level of parental education also affected perception of cost in making the college decision. Students of less educated parents listed this factor more often

and rated cost-related factors (e.g., financial aid availability, net cost) more highly than did students of more educated parents. This may reflect the significant positive correlation between parental education and family income; cost is likely to be less of a concern for families with more disposable income.

If these interpretations are correct, high school counselors and college admissions officials might need to think about ways of educating prospective students *and* their parents in families where parents have not attended college. These families might be especially in need of information about the admissions process, financial aid, and how to search for ways of financing college.

Differences in Decision Making as a Function of Academic Ability

Students of different levels of academic ability might be expected to differ in how they approach this task. Intuitively, it would seem that those students of higher academic ability might have more options open to them, and thus might face a potentially more complicated decision. Are they better able, or even more likely, to approach this important decision thoughtfully? Do they focus on different criteria as they go through the process?

The data from this study support these ideas, to some degree. Higher-ability students reported significantly more criteria in the first two rounds of data collection than did lower-ability students. There were also trends, most of them not statistically significant, for higher-ability students to consider more schools than did lower-ability students. These findings suggest that higher-ability students may structure this decision in more thorough or complex ways. These findings provide partial replication of some of the findings reported by Litten (1982).

It may be that higher-ability students structure this decision more thoroughly as a reflection of their presumably greater cognitive abilities or proclivities. That is, higher-ability students might structure this decision in more complex ways because they structure *all* or *most* such decisions in these ways. Alternatively, higher-ability students may have more investment in their higher education, and may only think in complex ways about this particular decision. The present data cannot speak to this distinction.

Higher-ability students were also shown to have somewhat different criteria than lower-ability students as they make college decisions. They describe themselves as more autonomous in the process of this decision, relying less on others such as employers, advisors, or guidance center materials to provide them with information. It appears from the data that they care somewhat less about cost, although more about financial aid, than do lower-ability students. Finally, higher-ability students rate factors such as the admissions process or graduation requirements as less important than do lower-ability students, but pay more attention to the issue of academic pace and intensity.

We might again speculate in interpreting these results. It may be that parents recognize the abilities of higher-ability students and grant them greater latitude in this decision. Alternatively, higher-ability students may have greater self-confidence when it comes to making educational decisions, and thus may feel less need to seek out the opinions of others.

Differences in Decision Making as a Function of Gender

Several gender differences emerged in the data. Especially early in the process, females report relying more heavily on parents, friends, and classmates than did males (a finding replicating one reported by Litten 1982), who were more likely to consult with coaches. Females also were more likely to consider "Dorms/residence halls" than were males, who in turn were more likely to list criteria pertaining to the category "Success of graduates." When given a standardized list of factors, females gave significantly higher importance ratings to such factors as "Admissions process," "Off-campus study programs," "Academic calendar," "Racial/ethnic diversity," "Character and size of the student body," "Quality of the residence halls," "Diversity of residential options," "Social atmosphere," "Location" (including geographic location, urban/rural setting, and distance from a major city), and "On-campus cultural events." In addition, factors such as "Distance from family home," "Parents' and friends' advice" were also rated more highly by females than males. The picture that emerges, then, is one in which females more than males think about the setting, atmosphere, and climate of the institution.

Why might females care more about climate? One reason might be a reflection of current gender roles: females are given messages through the culture that they should take an interest in, and promote, healthy interpersonal relationships and tend to details surrounding daily living. In this particular decision, females express this set of interests by paying more attention to such aspects as residence halls and campus climate.

Several questions remain to be addressed in future work. The findings concerning higher-ability students' tendency to structure the decision in more complex ways is worthy of additional investigation to determine whether it reflects complex thinking more generally or not. Questions regarding how students come to adopt particular criteria are also left open. Do students simply adopt criteria from others—for example, parents or counselors—or do they intentionally and explicitly plan how they will proceed through the process? How do students deal with conflicting information? How can students (and their families) be aided so as to improve the quality of decision making, and thus (presumably), the outcomes?

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NOTE

1. An attempt to recruit more equivalent numbers of males and females was not successful; females in all high schools were disproportionately likely to agree to participate.

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