DOCUMENT RESUME

ED 095 257 CE 001 780

AUTHOR Baird, Leonard L.
TITLE Careers and Curricula: A Report on the Activities and Views of Graduates a Year After Leaving College.
INSTITUTION Educational Testing Service, Princeton, N.J.
SPONS AGENCY Association of American Medical Colleges, Washington, D. C.; Graduate Record Examinations Board, Princeton, N.J.; Law School Admission Test Council, New York, N.Y.
PUB DATE Apr 74
NOTE 268p.

EDRS PRICE MF-$0.75 HC-$12.60 PLUS POSTAGE
DESCRIPTORS College Attendance; College Environment; College Programs; College Role; Educational Environment; Educational Experience; Educational Quality; Financial Support; *Graduate Students; Graduate Study; *Graduate Surveys; Participant Characteristics; Predictor Variables; *Professional Continuing Education; Student Attitudes; *Student Experience; *Student Reaction; Student Role

ABSTRACT

This study of graduate and professional school students attempted to find out how students enter graduate and professional school and to assess their reactions to their experiences there. Following an introduction, the report includes: (1) a description of the sample students and how their current activities were related to their plans as seniors, (2) an account of variables affecting the rate of attendance, (3) an account of various influences on the students' attendance, as assessment of their activities and their descriptions of their schools' environment and professors, (5) an evaluation of student reactions to their schools, (6) students' reactions to some proposed reforms in advanced education, and (7) a comparison of the experiences of men and women and of blacks and whites. Also considered were the special characteristics and reactions of scholarship recipients, older students and married students. Conclusions about the meaning and significance of the findings for each field were drawn. Also included are a six-page bibliography, two appendixes, predictor variables list, a college graduate survey form, and a college senior survey form. (Author/BP)

CAREERS AND CURRICULA

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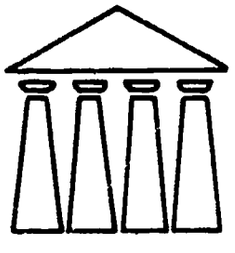

A REPORT ON THE ACTIVITIES AND VIEWS OF GRADUATES A YEAR AFTER LEAVING COLLEGE

CAREERS AND CURRICULA: A REPORT ON THE ACTIVITIES AND VIEWS OF GRADUATES A YEAR AFTER LEAVING COLLEGE

by

Leonard L. Baird

Educational Testing Service
Princeton, New Jersey

April 1974

The research reported herein was cooperatively sponsored by:

Association of American Medical Colleges
Graduate Record Examinations Board
Law School Admission Council

Educational Testing Service is an Equal Opportunity Employer.

ACKNOWLEDGEMENTS

Many people have been involved in this study and deserve our thanks. Most deserving are the thousands of graduates who completed the surveys. Without their help we would not have been able to carry out the work. We also thank the conscientious people who administered the Graduate and Professional School Survey in their departments and schools.

We wish to thank the Association of American Medical Colleges (AAMC), Graduate Record Examinations Board (GREB), and the Law School Admission Council (LSAC) for their support of this project. These groups provided not only financial support but also provided continuous help and advice on the project. We would like to thank the members of the advisory committee who provided their advice and assistance for many aspects of the research. These include, from AAMC, Ayres G. D'Costa, Associate Director of the Division of Educational Measurement and Research, and James B. Erdmann, Director of the Division of Educational Measurement; from GREB, Joseph L. McCarthy, Dean of the Graduate School, University of Washington; and Michael J. Pelczar, Vice President for Graduate Studies and Research, University of Maryland; and from LSAC, Frederick M. Hart, Dean of the University of New Mexico School of Law; and William D. Popkin, Associate Professor, Indiana University, School of Law.

Many within Educational Testing Service have helped. Those who should receive our special thanks include, from the Programs Division: Robert Altman, Program Director, GRE and GSFLT Programs; Richard L. Burns, Director, College and University Programs; Charles E. Consalus,

Secretary, Board of Trustees, LSA Council; Maryann Lear, Assistant Program Director and Secretary to the GRE Board; Winton Manning, Vice President, General Programs; Peter Winograd, Director of Law Programs; and John Winterbottom, Associate Director, General Programs. We thank the staff of the Western Office of ETS for their excellent work with the questionnaires and their distribution and scoring, particularly Inge Chwang, Administrative Assistant; Evelyn Manley, Department Head, Scoring; and Richard Minard, Director, Data Processing. Within the Research Division we wish to thank Alfred B. Carlson, Assistant Director for his help on the endless details; Frank Evans, for his useful advice; Rodney Hartnett for numerous suggestions; Inge Stiebritz, Research Assistant for her programming; Sue Chirico, Secretary and, especially Marian Helms, Secretary, for their excellent and endless work.

As with The Graduates, I wish to again thank all these people for their grace and good humor throughout a long and difficult research effort.

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This is a report on a study of graduate and professional school students. The study attempted to find out how students enter graduate and professional school and to assess their reactions to their experiences there. The eight sections of this report include: an introduction, a description of the sample of students and how their current activities were related to their plans as seniors, an account of variables affecting the rate of attendance, an account of various influences on the students' attendance, an assessment of their activities and their descriptions of their schools' environment and professors, an evaluation of student reactions to their schools, students' reactions to some proposed reforms in advanced education a comparison of the experiences of men and women and of blacks and whites. Then we consider the special characteristics and reactions of scholarship recipients, older students and married students. Finally, we attempt to draw some conclusions about the meaning and significance of the findings for each field.

Introduction

Graduate and professional schools are an increasingly important part of American higher education and American life. As our society has become more technical and complex, the needs for people with advanced training have constantly increased. In recent years people have also turned to those with advanced training seeking ways to make our impersonal technology more humane, and to simplify the complexities we have created in our lives. Our way of life requires biological and physical scientists and engineers to maintain its technological progress, physicians to help our bodies to keep pace with our tools, lawyers to sort out the tangled web of our relations with one another, social scientists to seek better ways for us to organize ourselves, and artists, writers and philosophers to show us visions of our past and future. These demands have resulted in the creation of the large social institutions of our university graduate and professional schools.

Graduate and professional schools are a relatively recent development in America. They emerged as truly major institutions within the twentieth century. Today, they are called upon to meet America's needs for lawyers educators, scientists, physicians and architects. These needs have required advanced education to become a large and diverse enterprise. This diversity occurs in many ways. The institutions which award a doctorate vary greatly, from Adelphi to Yeshiva, from Alaska to Florida, and from Hawaii to Maine. Productivity ranges from Cooper Union, which awarded only five doctorates in its history to 1970, to Columbia, which awarded over 19,000. Degrees vary from the traditional MA and Ph.D. to such specialized forms as the MLS-Master of Library Science, MSW-Master of Social Work, DF-Doctor of Forestry, and DSM-Doctor of Sacred Music. The breadth of curricula ranges from the single

doctoral program at the Lawrence College Institute of Paper Chemistry, to the more than 150 fields in which the university of California awards advanced degrees. Postbaccalaureate education is as impressive in its size as in its variety. In 1970 there were about 820,000 graduate students and 170,000 professional school students enrolled in the United States. If the present rate of increase continues, there will be 1,500,000 persons enrolled for advanced degrees by 1975. There are now over 320 institutions which award some form of the doctorate and over 550 institutions which grant a Masters or second professional degree.

Graduate education has grown very rapidly, especially in the recent past. The statistics on the number of doctorates awarded are the fastest rising statistics in Office of Education reports. From 1861 to 1970, 355,000 doctorates had been awarded in the United States, 212,000 had been awarded since 1958 (60 percent of the total); 79,000 since 1968 (22 percent of the total); and nearly 30,000 in 1970 alone. The institutional character of graduate school has also changed, of course. Originally small adjuncts to the undergraduate college, graduate and professional schools have become large independent units. As students have come to be concentrated more and more in large universities, the number of large graduate and professional schools has increased considerably. This change is reflected in the proportions of students concentrated in particular graduate schools. In 1925, the five most productive institutions awarded 50 percent of all the doctorates in the country. Today the five most productive award less than 20 percent.

The purpose of citing so many figures has been to remind the reader that advanced education is a force of increasing importance in our country, and to

convince him or her of its vitality and growth. As the economics of our system force us to become an educated society, advanced education will become increasingly important, and graduate and professional students will form a significant group of citizens.

What do we know about graduate students, then, except that there will be more of them? There are relatively few studies which deal directly with graduate students, but they offer some insight into their role. One result of the research is the generalization that the institutions that train students for the intellectual and social tasks that our civilization requires--our graduate and professional schools--are only partially organized to provide training for the ultimate tasks. In the process of preparing students for their fields the schools create their own culture with their own pressures and expectations. The folkways and demands of the schools do not always relate to the preparation of students for their ultimate roles.

There is evidence that there are roles of "graduate student," "law student," "medical student," etc. which require responses and behavior due to the specific pressures, rewards and sanctions of graduate and professional schools (Baird, 1969, 1971). For example, Becker, et al., (1961) concluded that, although the lives of medical students are oriented around the goal of becoming a doctor, much of their behavior was in response to the organization of medical school. The definitions of required behavior in graduate or professional school may have little to do with the ultimate professional role. For example, those who will later be teachers must now engage in research, and the psychologist must engage in work unrelated to the clinic before he can become a clinician. Their behavior, for the most part, is a response to the definitions of role performance which are given in the

graduate or professional school. These definitions may be ambiguous or unclear for several reasons. For example, the ultimate role is clear in many fields but the tasks required to enter the field may be vague. The nature and clarity of the expectations can have sizable effects on the lives of graduate and professional students.

Of course, graduate and professional school students often have other, nonacademic roles. They are workers, spouses, parents, citizens and church members as well as students. The demands of these other roles may affect students' academic roles. However, as reported by Heiss (1964) the demands of graduate or professional school often affect other life decisions, and the quality of personal relations. Thus, it is important to understand the interplay of students' multiple roles, as well as the formal demands.

Some problems may be "built in" to the structure of graduate and professional schools. The graduate and professional school is a system of socialization to an ultimate role. It has some characteristics which make it unique among such agencies. Several institutions, such as the clergy or the military, use what Goffman has called "total institutions" as an interim agency for socialization. Graduate and professional schools share some of the characteristics of total institutions at a less intensive level. They use a number of techniques to socialize their students to the professional role. Sherlock (1966), Sherlock and Cohen (1966), and Secord and Backman (1965) have discussed some of these devices.

Many graduate and professional schools use one of the devices, rigorous selection procedures, to allow entry only to the best qualified, and to increase motivation and commitment among the students who are accepted. There is in addition a considerable degree of self-selection, as we saw in

The Graduates. High selection standards lead to committed students in many professional schools. In contrast, the surveys by Davis (1963), Miller (1963), and Heiss (1964) suggested that many students enter graduate school without either strong degree goals or high commitment to their field. Some professional schools use attrition during the years after admission to select committed bright students. The attrition rate in graduate schools is also fairly high. However, attrition serves no such rational purpose in many departments and schools. That is, students drop out for reasons often unrelated to their ability or commitment. Many schools feel some commitment in return to their students, i.e., they will make an effort to see that the institution does not lose its investment in the student. In other schools there is relatively little of this concern for the students but individual professors may show such concern, suggesting the importance of relations with the faculty in graduate and professional school.

A second method, used in professional schools, is sequestration. (Dornsbush, 1955; Becker et al., 1961; and Sherlock, 1966.) The students are isolated by both physical and temporal means. All instruction and work goes on in a confined area. The work typically requires students to attend classes all day, and there is often evening and weekend work. This limits the amount of contact and concern with other interests and people, thus making the present role demands the central concern in the lives of the students. Graduate schools usually do not use sequestration. Students may undertake as much or as little work as they like, work anywhere, and spend their time in private pursuits with little regard to the department. This means that the demands of the department and commitment to the

ultimate role must compete with the other demands on the energies and commitments of the students. This may be quite important when, as Heiss' (1964) results suggest, the role of graduate student is less rewarding than the roles outside the university.

Students' relations with one another are also very important. In some professional schools students are admitted as a group, they meet the demands of the faculty as a group, take their exams at the same time, and spend great amounts of time together working on common problems. The class becomes an important reference group, and allegiances and loyalties develop among the students (Janowitz, 1960). In contrast, although some graduate departments admit a "crop" of students who take the same classes in their first year, most of the graduate career is carried out by separate individuals, as it was designed to be. While this provides individualized instruction, it tends to deprive the graduate student of the social support of other students. It also deprives him of peer information about the nature of the role demands of the faculty and of peer's judgments of the best way to meet them. (Mechanic, 1962, showed that such communication plays a crucial role in defining demands and performance.) The individualized approach of graduate school also lessens the likelihood of the formation of student groups which will support and generally reinforce commitment to the field. In any case it is important to gauge the kinds of relations students have with each other.

Many professional schools offer some form of "apprenticeship" instruction. This practice not only offers the student training and valuable skills which will be useful in his ultimate role, but also allows him to develop the values

and attitudes of the profession. It provides experiences which alter his self-conception and leads to a sense of professional identity. Graduate students have to seek such training in other ways--(Davis, 1962; Heiss, 1964). A research assistant sometimes participates in the crucial aspects of research--designing a study, forming hypotheses, creating instruments, writing, drawing conclusions, and submitting an account for publication. Some teaching assistantships require that the student assume the duties of a professor. However, many students are removed from the exercise of professional duties. Students may spend more effort in pleasing the faculty than in acting as professionals (Mechanic, 1962; Becker, et al., 1961). The character of assistantships and nonacademic training can have an important effect on students' progress.

The characteristics of graduate and professional schools thus have many effects on the kinds of students who enter, on their commitment, on the nature of student life, and on the student's readiness to assume a professional position. The degree of structure and emphases of the curriculum seem to strongly affect graduate performance. For these reasons, it is important to study the differences among fields.

This study was designed to provide information about graduate and professional school students' progress and their reactions to the demands and characteristics of graduate and professional schools after they were in attendance for a year. We were particularly concerned with their reactions to the policies and demands that affect their educational career, their relations with professors, their relations with other students, their reactions to facilities and the effects of their training on their self-esteem and their opinions about possible reforms in advanced education.

We will examine the reactions and opinions of students in different graduate and professional fields, because these fields have basic differences, and since a comparison of the fields may suggest some insights into their environments and educational effects. We will also study the potentially critical differences between the experiences and reactions of blacks and whites and men and women. First, we will describe the sample and then examine some of the influences on attendance in advanced study.

Part One: The Students, Their Activities and the Relation of Their Current Activities to Their Senior Plans

This part of the report describes the samples used in this study, and details what the sample of college seniors was doing a year later. The activities of the sample are described for the whole sample, and separately for men and women and for students of differing ethnic backgrounds. Then we examine the relation of students' plans as seniors to their activities a year later. We were particularly interested in the extent to which students follow through with their plans for graduate or professional school. We analyzed the degree to which students follow through with their plans for the entire sample and then examined the degree to which sex, ethnic group membership, religion, socio-economic status and academic performance were related to the implementation of plans. Finally, we examined the reasons some students did not continue their educations, first for the entire sample, then for men and women and blacks and whites. Similar analyses were conducted of these graduates' plans for future study and the financial obstacles to further education they feel they face.

Chapter 1 -- Data and Description of The Activities of Students A Year After College

The Sample

This study is based on a follow-up of a national sample of 21,000 college seniors who replied to a questionnaire, the College Senior Survey, in the spring of 1971 (Baird, 1973). The distribution of the sample of 94 colleges met the requirements of a sampling frame quite well, and the characteristics of the colleges were close to the national averages on the environmental scores developed by Astin (1965). Analyses of the sample of students indicated it is probably a good sample of seniors who are oriented toward further education but somewhat less representative of students who did not plan advanced education.

The College Senior Survey covered 15 areas: (1) biographical information; (2) students' ratings of their characteristics; (3) work values; (4) academic and vocational history; (5) nonacademic and creative accomplishments; (6) students' perceptions of their colleges; (7) perceptions of five careers (medicine, law, etc.); (8) perceptions of five types of postgraduate schools (medical, graduate schools of arts and sciences, etc.); (9) influences and information in planning postgraduate careers; (10) finances; (11) plans; (12) application experiences and attitudes; (13) reasons for choosing a graduate or professional school; (14) test scores; and (15) grades. Analyses of the responses of the seniors were described in an earlier report, The Graduates (Baird, Hartnett and Clark, 1973).

A year later, in the spring of 1972, a follow-up questionnaire was mailed out to ascertain students' current activities, and, if they were

attending a graduate or professional school, their reactions to their schools. Follow-up questionnaires were mailed to home addresses of all the 7968 students who had planned to attend graduate or professional school in the fall. In addition, questionnaires were mailed to a one-quarter sample of the students who had not planned further education the next fall. After the students who had not given their home addresses or who had given incomplete addresses were excluded, a total of 10,680 questionnaires were mailed. A follow-up reminder was sent out a few weeks later. A total of 7,112 usable questionnaires were mailed back to Educational Testing Service, or approximately two-thirds of those sent out. However, several hundred questionnaires were returned because of inaccurate addresses or because students had moved without leaving forwarding addresses. Some others seem to have been lost in the mail. In addition a number of parents and friends wrote that they were holding the questionnaires until the student returned from a trip, etc., at a time later than our cutoff date for scoring questionnaires. Finally, nearly a hundred questionnaires were returned in poor condition. Altogether, it appears that approximately 10,200 questionnaires actually reached the people they were intended to reach. The returned questionnaires represent approximately 69.7 percent of this number.

A postcard concerned with students' current activities and grades in graduate or professional school was mailed out with the reminder. A student who did not wish to complete the entire questionnaire could fill out this card. The data from the card would at least give us the essential information about current activities and academic performance.

Some 840 of these cards were returned by students who had not completed the questionnaire. Thus, we had some information on 7952 of the students who were sent follow-up questionnaires, or approximately 78 percent of those who had received them. This sample was used for most of the analyses in this report.

Analyses which compare the characteristics of students who responded with students who did not are reported in Appendix A.

Augmented sample. In addition to the sample just described, an additional sample of first year graduate and professional school students was obtained in selected fields. This sample was to be used to allow certain analyses in the fields of law, medicine, chemistry, biology, English, history, economics, and psychology. Some 2474 students from 105 departments and schools completed the same survey used in the follow-up of the senior sample. In this report their responses will be used for certain analyses, and as a check on the representativeness of the replies of the follow up sample. The procedures for obtaining this sample are reported in Appendix B.

Comments Sheets. Comments were encouraged from students in the augmented sample. Students were provided with blank sheets of paper with their questionnaires. They were asked to comment on any aspect of graduate or professional education they cared to write about. These comments were analyzed for content, and proved to be quite useful in understanding some of the results.

What the Seniors Were Doing a Year Later

What do contemporary seniors do after they leave college? Do men and women enter professional schools at the same rate? Do the activities of blacks and whites differ? Since we followed up only a sampling of the students who had not planned to go on to graduate or professional school, we could not completely answer these questions. However, by weighting the responses of students who responded to the follow-up, we were able to obtain approximately correct values, and to answer the questions.

The results of our weighted figures which show how the results would appear if we had followed up all the seniors in our original sample are shown in Table 1.1. The follow-up questionnaire allowed students to indicate more than one activity, so the percentages add up to more than 100. A small number were still seniors. Most of the graduates were working full-time a year after graduation. Some 33.9 percent were working full-time on jobs they intended to make their careers, and 24.5 percent were working full-time on jobs they did not intend to make their careers. Thus, the majority of those who were working (the 33.9%) apparently believed they had found appropriate jobs in appropriate occupations. About one in 15 (6.1 percent) counted traveling among their major activities. About one in 15 (6.5 percent) were in the military. Many more were in non-career service (5.1 percent) than in career service (1.5 percent). Since the Vietnam War was still in progress in 1972, the number of seniors who choose military service is not surprisingly high. Only 13.8 percent considered marriage among their major activities in their last year in spite of the fact, shown later, that a third were married.

Table 1.1

Current Acitivites of Seniors One Year Later

Figures Weighted to Represent Entire Original Sample

Activity	Total	Men	Women	Blacks	Whites
Traveling	6.1	5.4	7.1	3.1	6.3
Still a college senior	1.4	1.5	1.4	1.7	1.3
Working full time at a job I expect to make my career	33.9	31.2	37.1	38.1	34.0
Working full time at a job which will probably not be my career	24.5	24.0	28.8	26.8	25.8
Working part time	11.5	10.2	13.9	10.9	11.7
Noncareer military service	5.1	8.5	.3	2.1	5.2
Career in military service	1.4	2.3	.2	.2	1.4
Marriage	13.8	5.3	26.0	12.0	14.1
Graduate study in an arts or humanities field	3.6	2.9	4.6	3.5	3.6
Graduate study in a biological or physical science field	4.6	5.9	2.5	1.7	4.6
Graduate study in a social science field	3.5	3.4	3.5	4.2	3.4
Professional study in business	2.8	4.2	.7	3.5	2.8
Professional study in law	3.7	5.4	1.3	2.9	3.7
Professional study in medicine	3.6	5.2	1.1	1.7	4.3
Other professional or graduate study	11.4	10.9	11.8	15.0	11.2

A third of the seniors were attending a graduate or professional school one year after graduation. The most popular fields were in the "other" fields, which most often meant education, followed by engineering. Biological and physical sciences were studied by 4.6 percent, law by 3.7 percent, medicine by 3.6 percent, arts and humanities by 3.6 percent, social science by 3.5 percent, and business by 2.8 percent. Compared to the information or plans reported in The Graduates, smaller proportions of students were enrolled in every area, except for the "other" fields, which is primarily due to the shift of students into education, and the decision by seniors who had not planned to go on to study education. More detailed analyses of fields are presented in the next section.

The pattern of activities is considerably different for men and women as shown in Table 1.1. More women than men were working full-time (66.7 to 55.2 percent), and more were working part-time (13.9 to 10.2 percent). Women more often considered marriage to be one of their major activities (26.0 to 5.3 percent). Of course, women served in the military much less often (.3 to 8.5 percnet). Overall, women less often pursued graduate or professional study (25.4 to 37.9 percent). A larger proportion of women than of men were studying arts and humanities (4.6 to 2.9 percent). The proportions of men and women studying social science (3.5 to 3.4 percent) and other fields (11.8 to 10.9 percent) were about equal. Fewer women than men were studying a biological or physical science (2.5 to 5.9 percent). Women were much less often enrolled in the professional schools of business (.7 to 4.2 percent), law (1.3 to 5.4 percent) and medicine (1.1 to 5.2 percent). Most of these differences are highly consistent with the differences in the plans of men and women reported

in The Graduates. The differences in the rate with which those plans were implemented are discussed in a later section.

The activities of blacks and whites differed as well as reported in Table 1.1. (These figures should be interpreted cautiously, since the response rate among the black students was only about 50 percent compared to 78 percent of the whites.) Blacks reported they were working full-time somewhat more often than did whites (64.9 to 59.8 percent). Blacks were less often in the military (2.3 to 6.6 percent). Blacks and whites went on to graduate and professional school to the same extent (33.5 to 33.6 percent) but their distribution among fields was different. Blacks more often studied social science (5.2 to 3.4 percent), business (3.5 to 2.8 percent), and "other fields" (15.0 to 11.2 percent). Blacks and whites studied the arts and humanities in nearly the same proportion (3.6 to 3.5 percent). Blacks less often studied a biological or physical science (1.7 to 4.6 percent), law (2.9 to 3.7 percent), or medicine (1.7 to 4.3 percent). These differences are fairly congruent with the plans of blacks and whites reported in The Graduates. The extent to which black and white students followed through with their plans differed, as we will discuss in a later section.

The Fields the Graduates in Graduate and Professional School were Studying

We examined in greater detail the fields of advanced study pursued by the graduates. As shown in Table 1.2, the most popular specific fields were law, medicine, and education, all with more than a tenth of the students in advanced education. These were followed closely by social science,

business, engineering, and physical science. Overall, 4 in 9 of the students were in professional schools of architecture, business, dentistry, engineering, law, medicine, nursing, pharmacy, or veterinary medicine.

Fields of study differed for men and women. Women more often studied the arts, humanities, social science, social work, "other" fields, and education. In fact, nearly a quarter of the women in advanced education were studying education. Men more often studied architecture, business, dentistry, theology, engineering, law, medicine, physical science, and veterinary medicine. Over half the men were in four fields: law, medicine, engineering, and business.

Blacks and whites also differed in the fields they studied. Blacks more often studied architecture, education, social science, social work, and "other" fields. Whites more often studied biological sciences, theology, engineering, humanities, medicine, nursing, and physical science.

Table 1.2

Fields of Study of Students Pursuing Advanced Study
By Sex, By Race, and Total

Field of study	By Sex		By Race		Total sample
	Men	Women	Black	White	
Agriculture	.9	.3	.9	.7	.7
Architecture	.8	.3	1.8	.6	.6
Arts or music field	1.4	4.8	1.8	2.5	2.4
Bi logical science field (botany, zoology, etc.)	4.1	4.7	0.0	4.3	4.2
Business	10.9	2.6	7.0	8.7	8.6
Dentistry	2.6	.1	1.8	1.9	1.9
Divinity school	3.1	.8	0.0	2.5	2.5
Education	6.2	23.5	19.3	11.1	11.2
Engineering	11.6	.9	.9	8.4	8.5
Humanities field (English, classics, etc.)	3.3	8.4	1.8	4.9	4.9
Interdisciplinary program	1.1	1.8	.9	1.3	1.3
Law	15.2	5.8	10.5	12.5	12.4
Medicine	14.6	5.2	7.9	12.0	11.8
Nursing	.1	2.4	0.0	.9	.8
Pharmacy	.2	.3	0.0	.3	.3
Physical science field (mathematics, etc.)	9.0	5.5	5.3	8.1	8.0
Social science field (sociology, psychology, economics, etc.)	8.6	12.4	13.2	9.6	9.7
Social work	.6	3.5	12.2	1.1	1.4
Veterinary medicine	.5	.1	0.0	.4	.4
Other	4.1	15.2	13.2	7.2	7.3

A Year Later -- What They Are Doing in Relation to Plans

To what extent do seniors follow through with their plans? When we followed up the students a year later, we found that most of them were engaged in the activities they had planned as seniors, although there were some surprising inconsistencies. There were considerable differences in the extent to which seniors implemented their plans, however, as shown in Table 1.3. In this table the top shows the activities the seniors had indicated they planned to engage in the next fall. These groups were defined by first placing all the students who had plans for advanced study in their plan group, then by placing the remaining students in their planned activity of work, military service or marriage. In this way the work, military and marriage plan groups were composed of students who had planned only those activities and who did not plan advanced study. The students who planned advanced study, however, may also have planned to be married or work, for example. This procedure seemed to clarify the definition of the groups while still reflecting the multiple plans of the students planning advanced study.

Each column in the table shows the students' responses to a follow-up question which asked them to indicate their present activities. The question allowed them to indicate more than one activity. Seniors who planned to be working full time or to be married followed through with their plans at a fairly high rate; 83.7 percent of the seniors who planned to work were working full time, and 88.9 percent of the seniors who planned only marriage were married. Only 9.1 percent of the seniors who planned to work and 4.4 percent of the seniors who planned to be married were in any form of advanced study.

Only 57.8 percent of the seniors who planned military service were in the military; most of the rest seemed to have entered the work force. Only 8.6 were in any form of advanced education.

Table 1.3

Relation of Senior Plans to Actual Activities

A Year Later

Activity a year later	Senior plan									
	Full-time work	Military service	Marriage only	Grad-arts & humanities	Grad-biol. & psy. sci.	Grad-soc. sci.	Business school	Law school	Medical school	Other study
Traveling	6.8	7.9	13.3	8.8	3.6	6.0	2.8	3.4	3.0	3.8
Still a senior	1.4	1.4	4.4	1.4	2.2	1.4	1.7	.6	.6	2.0
Full-time work career	49.2	18.8	6.7	17.8	11.6	12.8	29.0	7.4	4.5	31.9
Full-time work non-career	34.5	24.9	8.9	18.1	11.5	17.6	18.8	17.7	7.5	13.4
Part-time work	9.4	6.9	26.7	21.7	13.9	19.2	12.4	12.8	8.7	15.0
Non-career military	2.1	43.7	0.0	1.0	2.8	1.0	1.9	3.7	.8	.9
Career military	.3	14.1	0.0	.1	.9	.2	1.1	.2	.8	.4
Marriage	16.6	8.7	88.9	12.2	7.8	9.3	5.2	5.7	3.7	12.2
Grad- arts & humanities	1.2	1.1	0.0	34.5	1.0	5.4	.7	.6	.2	3.4
Grad- biological & physical science	.8	2.5	0.0	1.6	51.5	.9	.6	.3	3.2	3.8
Grad- social science	.8	.7	0.0	4.4	.7	38.6	1.7	1.5	.2	3.6
Business school	1.0	1.1	0.0	1.7	.4	1.6	51.9	1.5	0.0	.5
Law school	.4	.7	0.0	.4	0.0	1.4	.7	70.8	0.0	.4
Medical school	.1	0.0	0.0	0.0	3.9	0.0	0.0	0.0	75.2	.9
Other study	4.8	2.5	4.4	22.8	20.2	24.9	5.0	1.2	7.8	51.7
Total in advanced study	9.1	8.6	4.4	65.4	76.7	72.7	60.5	75.8	86.5	64.2
Total who planned to go in some other non-planned field				30.9	26.2	34.1	8.7	5.0	11.3	12.5
N	1927	277	45	942	962	873	542	679	629	1079

The responses of the students who said they planned some form of advanced study in April or May of 1971 are somewhat surprising. Although about three-quarters were in some form of advanced study a year later, many were not in the field they indicated as seniors. The students who planned to study the arts and humanities and those who planned to study the social sciences least often followed through with their plans: 34.5 percent and 38.6 percent, respectively, followed through. Almost as many of those two groups were in some other field as were in their planned field, and many were working full time. Slightly more than half of the students who had planned to study biological or physical science (51.5 percent), business (51.9 percent) or "other" fields (51.7 percent) actually entered their intended field. In the graduate fields the majority of students who did not pursue study in their planned field were in "other" fields, which includes education and other professional and semi-professional areas.

Students who planned to enter law school (70.8 percent) and medical school (75.2 percent) followed through with their plans more often than students with any other plans for study. Only 5 percent of the students who had planned to go to law school were studying in some other area compared to 11.3 percent of the students who had planned to go to medical school. The students who had planned to go to medical school but went elsewhere most often studied a biological or physical science or pursued "other" fields, which include dentistry and pharmacy.

It is difficult to explain the differences between the fields. The senior information was collected late in the senior year, when most seniors would know if they had been accepted. In fact, about 70 percent of the seniors who planned to go on the next fall said they had been admitted to at least one institution. Furthermore, the rate of reported acceptance was about the same across the fields.

The item on plans was repeated, virtually verbatim, in the follow-up, so the differences would not seem to be due to changes in words.

We looked for explanations for the results for students who planned to study social science and arts and humanities by examining their responses to the Senior Survey. Students in the two fields were not very different from students in other fields in their indebtedness, financial planning, or in the influences or their decision to attend graduate or professional school. Students who planned to study social science had changed their majors and vocational choice more often than other students, but students who planned to study arts and humanities were about average on those scores. Both groups had first thought of advanced study somewhat later than other groups, or the average. Finally, both fields included proportionally more women than any other fields. As we shall see in the next section, sex was related to implementation of plans. However, it is hard to explain the fact that so many students do not follow through with their plans. Apparently their intentions as seniors are later altered by changes in their finances, jobs, or interests.

Do Men and Women Follow Through With Their Plans To the Same Extent?

Men were more likely than women to plan to continue their education after their senior years of college. Did men and women also differ in the extent to which they implemented their plans? To answer this question, we prepared tables like Table 1.3 for both sexes. Since these tables were somewhat cumbersome, we summarized their most salient results in Table 1.4. The table shows the percentage of men and women who were engaged in the activity they planned as seniors. For example, 86.2 percent of the men who had planned to work as seniors were working full time a year later, and 58.1 percent of the men who had planned to enter the military actually were in the military a year later. Women were a little less likely (86.2 to 81.3 percent) than men to implement their plans for working. So few women planned to enter

Table 1.4

Percentage of Seniors Engaged in Planned Activity

A Year Later by Sex and Ethnic Group

Plan	By sex		By ethnic group			
	Men	Women	Black	White	Spanish Speaking	Oriental
Full-time work	86.2	81.3	79.7	83.8	100.0*	78.6
Military service	58.1	50.0*	50.0*	58.1	0.0*	66.7*
Marriage only	0.0*	90.9	0.0*	88.1	100.0*	0.0*
Grad- arts and humanities	32.7	36.1	9.7	35.3	75.0*	23.1
Grad- biological and physical science	52.8	47.3	36.0	52.4	40.0*	53.9
Grad- social science	43.0	33.5	31.1	39.2	50.0*	25.0*
Business school	53.4	41.9	45.5	52.5	0.0*	75.0*
Law school	71.1	69.8	70.0	70.6	100.0*	50.0*
Medical school	80.8	51.3	57.1	75.5	75.0*	87.5*
Other study	58.1	42.0	50.0	51.4	75.0*	66.6
Total in planned advanced study	56.7	41.2	39.7	52.3	64.0	55.6
Total who planned to go who were in some other field	18.2	23.1	23.1	19.6	8.0*	22.2
Total who planned to go in any advanced study	74.9	64.6	62.8	71.9	72.0	77.8
N	5060	2864	278	7326	27	92

*N less than 10

the armed services that comparisons were meaningless. Only 58.1 percent of the men who had planned to enter the armed services did so, perhaps because the Vietnam War was winding down. The way the groups were defined excludes those who hoped to go to graduate or professional school who thought they might not be accepted and would therefore enter the military. Thus, the men who had planned to enter the military seemed to have regarded it as their primary plan. Perhaps the actual prospect of military service, along with the continued fighting in Indochina led some of the men to reconsider.

In the initial survey, only one senior man indicated a sole plan to be married and a year later he was not. Some 90.9 percent of the 44 women who had planned to be married were married.

Men more often followed through with their plans in every area of advanced study except arts and humanities. The difference between men and women who planned to attend law school and was negligible. It was a little larger among those planning to study a biological or physical science. The difference climbs to 16.1 percent in the "other" fields and reaches a peak of 29.5 percent in medicine. These differences are as difficult to explain as the general results. While both law and medicine are seen as "male-oriented" fields, there was virtually no differences in the implementation rate for men and women for law and a large difference for medicine. The social sciences are reported to be highly liberal and business reported to be conservative, yet the differences between the rate at which men and women implemented their plans were the same in the two fields.

Overall, 56.7 percent of the men in contrast to 41.2 percent of the women were in the field of advanced study they had planned to enter as seniors, a difference of 15.5 percent. In other analyses, we found that 18.2 percent of the men and 23.1 percent of the women who had planned to enter graduate

study were in advanced study in a field other than their planned field. Many of the women seem to have entered education. The analyses reported a few pages ago indicated that nearly a quarter of the women were in education in contrast to approximately 6 percent of the men.

Altogether, about three-quarters (74.9 percent) of the men who had planned to pursue advanced study were in graduate or professional school, whereas less than two-thirds (64.6 percent) of the women who had planned to pursue advanced studies had done so a year later. Thus, compared to men, women less often planned advanced study, and when they did plan to go on less often actually did so, and, when they went on, less often entered the field they had planned.

How can we account for these differences? The senior data showed that women who had planned to go on to advanced study had undergraduate grades superior to those of the men who had planned to go on. They came from somewhat better educated and more affluent families. If we study only the women who actually did go on, we find the same kinds of differences. It is very useful to study these women, since we find that many of the same forces which affect other women are also at work among them. Again, when the women who went on are compared with the men who went on, the women are found to have come from families of slightly higher socio-economic status and had slightly better grades. Women seniors also more often reported that they tried to work up to the limits of their abilities in all their classes, and felt that grades had some value other than their usefulness in admission to advanced study or to get a good job. However, they expressed less confidence in their ability to complete advanced work, their ability to get A's in graduate or professional school, and their chances to rank among the best in their class in graduate or professional school. In sum, although the women

had better grades and seemed to place a higher value on academic performance, they had less confidence in their ability to be successful in advanced academic work.

The women's sense of confidence was lower in other areas, too, even when their performance equaled or excelled that of the men. For example, the women who went on to advanced study had held as many positions in student government as had the men, had been elected to as many offices, and had worked just as actively in political groups and student movements. Yet, the same women rated themselves significantly lower than the men in leadership and speaking ability and the ability to act when limited facts are available. The women had more often independently read scholarly books in their field, read other books unrelated to their courses, attended scholarly meetings in their field, and won prizes, awards or special recognition for work in their fields. Yet, the women rated themselves lower than did the men in scholarship, mathematical ability, writing ability, and scientific ability.

It seems clear that women, even those who go on to advanced study, have a lower sense of confidence in their ability to handle difficult work than do the men. Why? We do not have the kind of data needed to answer this deceptively simple question, but we do have some clues. First, compared to the men the women who went on less often reported that their parents had often encouraged them to attend graduate or professional school. The women seemed to feel less encouragement (and pressure) from their parents for educational attainment. Probably beginning in their early years, the women did not receive, as strongly as the men, the unspoken and subconscious message that they were able and that considerable accomplishments were expected of them.

Do Student of Different Ethnic Backgrounds Follow Through with Their Plans to the same Extent?

In The Graduates we found that the plans of students of different ethnic backgrounds differed. The students from Spanish-speaking backgrounds planned to go on to further study the next fall more often than any other group, followed by blacks, then orientals, and, bringing up the rear, whites. At that time we wondered how realistic these plans were. The figures in Table 1.4 show that the groups differed in the extent to which they followed through with their plans. The data for Spanish-speaking students and to a lesser degree oriental students, should be viewed with caution because of the size of the samples. Spanish-speaking students were most often engaged in the field of advanced study they had planned to enter (64.0 percent), followed by students from oriental families, (55.6 percent), white students (52,3 percent) and black students (39.7 percent). A slightly different picture appears when we consider the percentages of students who had planned advanced study who were in any form of graduate or professional study whether planned or not. The differences between the groups were a little smaller than in the earlier figures. Among the students who had planned to go on oriental students most often were in some form of advanced study, (77.8 percent), followed by the Spanish speaking (72.0 percent), whites (71.9 percent) and blacks (62.8 percent). The ethnic groups also differed in the fields in which they enrolled. (Because of the small numbers of Spanish speaking and oriental students in any field, we will discuss only black and white students.)

Blacks, more often than whites, went on to study in the fields of education, social science, and "other" fields while whites more often went on to

study in biological science, engineering, humanities, medicine, and physical science. The lower implementation rate among the black students was almost certainly affected by their lack of financial resources, as described in The Graduates. Black students tended to come from families with limited incomes, and, as we shall see in Chapter 9, often need to rely on loans, financial aid and scholarships to make it to graduate or professional school. Like the women in the sample, they tended to gravitate toward education, an economically "sensible" field, and one where the costs are often low. (Of course, many of the blacks in the sample are women.)

The Influence of Religious Background on Implementation of Plans

In The Graduates we examined some of the evidence on the differences in educational values of religious groups. We found that people from differing religious backgrounds vary in rate of educational attainment, and that the differences cannot be entirely attributed to differences in social class, intelligence or "need for achievement." Some groups, notably Jews, simply seem to place more value on educational attainment. In our sample, seniors from Jewish homes were more likely than seniors from other religious backgrounds to plan to attend graduate or professional school. Some 53.2 percent of the Jewish students planned to go on, compared to 35.1 percent of the students from Protestant homes, 39.0 percent of the students from Catholic homes, 35.4 percent of the students from homes of "other" religions, and 44.0 percent of the students from homes with no religion. Jews planned to go to law or medical school several times as often as did students from other religious backgrounds.

Table 1.5

Percentage of Seniors Engaged in Planned Activity

A Year Later by Religion of Parents

Plan	Religion of Parents				
	Protestant	Roman Catholic	Jewish	Other	None
Full-time work	82.4	84.7	86.4	90.6	80.3
Military service	62.2	49.4	20.0*	55.6	75.0
Marriage only	89.3	71.4	0.0*	100.0*	100.0*
Grad- arts and humanities	35.6	32.9	39.2	34.4	16.7
Grad- biological and physical science	51.8	48.2	52.3	56.6	53.9
Grad- social science	37.0	36.7	45.1	42.5	41.2
Business school	49.6	43.0	69.7	73.8	56.3
Law school	67.0	72.2	78.3	59.4	75.0
Medical school	71.3	78.6	82.9	69.7	72.7
Other study	52.5	49.4	53.4	43.9	56.6
Total in planned advanced study	50.2	50.3	61.1	51.4	50.6
Total who planned to go who were in some other field of advanced study	20.0	19.5	20.1	19.4	18.0
Total who planned to go in any advanced study	70.2	69.8	81.2	70.8	68.6
N	4216	2022	789	558	322

*N less than 10.

In the follow-up, the overall rates of implementation of plans to study in particular fields were about equal for the groups, except the rate for the students from Jewish backgrounds, which was about 10 percent higher than for any of the other groups. Students from Jewish homes were more likely than other students to follow through with their plans to study social science, law and medicine. The students from Jewish homes who had planned to go on were also about 10 percent more often some form of advanced education whether it was the field they had planned to enter as seniors or not. Since Jewish students more often planned to go on to graduate and professional schools, and since they were more likely to follow through with their plans, there were proportionally larger numbers of Jews in advanced study in this sample than students of other faiths.

The Influence of Social Class: Parental Income, Fathers' Education, and Implementation of Plans

Is there any truth in Sarte's remark that the Ph.D. is given in America as a reward for having a wealthy father and no opinions? The effects of social class and income have been related to the attendance of college during the undergraduate years in many studies. These studies show that lower family income and lower class origins seem to lead to a lower attendance rate than would be expected on the basis of ability. (For a review of these studies see Clark, 1964.) Do these factors also influence attendance and retention in graduate school? Davis (1962) found virtually the same proportions in his

sample of graduate students at all levels. He found no relation between their class origins and the stage of their academic career, vocational plans, or academic area. There was a relationship with age of entry to graduate school, which may be due to finances. Davis found that graduate students "...are disproportionately recruited from the higher class levels, but in absolute terms, they come from families of modest economic circumstance." Roughly the same proportions have been found in populations of Ph.Ds. by Visher (1947), Roe (1953), Strauss (1959, 1960) and Eckert and Stecklein (1961). Davis (1963a) later found almost the same percentages on class background for a sample of college seniors. Since the proportions remain the same, such background characteristics would seem to have little effect on the seeking and obtaining of a doctorate. However, Davis also found that social background did have an effect on the plans of students to enter graduate school. Students with higher socio-economic backgrounds more often planned to enter advanced study immediately. Miller (1963) followed the same students a year later, and found that, when he controlled for plans, background did not appear to have much effect on enrollment, although those from less wealthy background were more likely to be working, and less likely to be enrolled more than half-time. Perhaps they are more likely to extend their graduate training for several years rather than to go into debt. Grigg (1965) later completed a study similar to Miller's (1963). His sample was com-

posed of students in southern institutions, questioned in their senior year and in a follow-up study later. The usual moderate relations with educational level of parents were found, but Grigg (1965) emphasized:

> Family income and occupation of the father were not closely related to the achievement of plans... This suggests relative lack of reliance of students on direct family support, and the importance of scholarships, assistantships, and other jobs (as well as support by spouse) in implementing plans for future education.

Of course, students of certain backgrounds are more likely to enter certain professions. Davis (1963a) measured the proportion of students of high status background in many graduate fields. The six fields with the highest proportions of students with high status backgrounds were, in descending order, law, medicine, philosophy, political science, fine arts, and clinical psychology. The six with the lowest percentages were, in ascending order, chemistry, geology-geography, education, nursing, engineering, and physiology. It should be noted, however, that even in the lowest field, chemistry, 40% of the students come from high status backgrounds. In general, we can conclude, as Davis (1962) did, that graduate students come from all levels of background in absolute numbers, but proprotionately many more students come from higher status backgrounds.

In sum, status probably has its largest effect at entrance to college (Baird, 1967; Baird and Holland, 1968) and continues to

effect attrition during college (Astin, 1964). Its effects continue beyond college graduation, primarily in the choice of field, and the amount of time which is spent working to support oneself. Many capable students are not recruited into graduate school because of their backgrounds, especially in certain crucial professions. But, as the study by Davis (1963) implied, much of this effect is due to the low application rate among students of lower status background. Perhaps a vigorous recruiting campaign would attract more bright students from lower income backgrounds. Some evidence of the relatively small effect of social class characteristics in comparison to other factors has been reported by Davis (1963b). He indicated that "...the main function of college experience in vocational choice is to affect the students's judgment of his ability, rather than his personality or value preferences." That is, the student asks himself, "Would I be any good at this kind of work?" The importance of the role model is illustrated by the result that:

> "...the best single correlate of choice of a science career during the college career is a favorable reaction to science courses and science faculty, both faculty encouragement and identification with faculty being two of the most related aspects of career choice" Davis (1963b).

In these terms students are drawn toward fields in which they are doing relatively well, not absolutely well. That is, the variables most predictive of career decisions during college are values and measures of perceived ability.

The results of these surveys by various researchers seem to point to the same conclusion. While recruitment to various fields may be dependent on background variables, attending graduate school generally is not strongly related to background. Socialization to middle class values seems to occur during the undergraduate years, so the choice of area and attendance is probably relatively more related to values, interests, self-concepts of ability and the influence of role models.

In The Graduates, we found that the plans of students from families with high and low incomes differed only slightly, except for plans to go to law school or medical school. The students from the wealthest families planned to study these professions about three times as often as students from the poorest families. These differences are probably due to the very high cost of medical school and law school and, in the case of law, the fact that the schools provide few scholarships. Plans for further study seemed more strongly tied to fathers' education. Students whose fathers had had some study beyond the bachelors were half again as likely to plan to continue their studies (48.5 percent) as the students whose fathers did not graduate from college (31.8 percent). Again, the largest differences were in the percentages who planned to go to law or medical school.

Do students from families of different income and educational levels follow through with their plans to the same extent? The statistical answer to the question is given in Table 1.6. Overall, the figures indicate that students from more privileged backgrounds are more likely

Table 1.6

Percentage of Seniors Engaged in Planned Activity

A Year Later by Family Income and Fathers' Education

Plan	By income					By fathers' education				
	Less than $5,000	$5,000 to $7,999	$8,000 to $11,999	$12,000 to $19,999	$20,000 or more	Less than h.s. diploma	High school graduation	Some college	College graduation	Advanced work
Full-time work	77.1	80.0	88.0	86.8	81.4	81.9	86.3	85.7	80.6	82.9
Military service	41.7	67.9	45.9	63.9	58.3	46.5	66.2	64.2	60.0	51.4
Marriage only	100.0*	100.0*	75.0*	88.9*	95.0	100.0*	80.0	100.0*	90.9	88.9*
Grad- arts and humanities	33.3	30.4	28.7	36.7	37.6	23.7	37.9	38.2	36.3	36.3
Grad- biological and physical science	42.6	46.2	50.7	52.5	55.3	41.7	48.3	54.1	50.6	62.4
Grad- social science	29.4	27.9	39.0	40.2	39.6	37.3	35.3	38.7	40.6	40.3
Business school	46.2	46.4	45.7	50.0	60.3	38.2	44.9	49.5	63.7	69.1
Law school	65.2	52.8	63.9	72.1	73.2	52.7	68.8	72.1	70.3	80.4
Medical school	47.1	65.5	70.2	75.2	79.7	60.8	73.6	73.1	73.1	84.3
Other study	43.7	46.1	48.9	52.7	55.6	47.7	49.3	53.1	56.9	52.6
Total in planned advanced study	41.3	42.7	47.0	52.7	56.6	41.1	49.1	52.3	55.2	59.3
Total who planned to go who were in some other field of advanced study	23.3	21.9	19.8	28.6	19.2	21.0	18.8	19.5	20.4	19.4
Total who planned to go in any advanced study	64.7	64.6	66.8	81.4	75.7	62.1	67.9	71.8	75.6	78.7
N	428	565	1619	2096	2841	1529	1930	1402	1482	1562

*N less than 10

to be in the field they had planned to enter, and they were more likely to be in some form of advanced study. The overall rates mask some important differences between fields, however. The precentage of students who follow through with their plans to study arts or humanities had no consistent relation to family income or father's education. There was no particular relation between following through in social science and father's education, although there may have been a slight relation with parental income. Family income had a small, but consistent relation with implementation of plans to study biological or physical science and with "other study." Income had a fairly sizable relation with implementation of plans for medical school. Income had a complex relation to implementation of plans to study business and law. The figures for law suggest that the students in the lowest income category may have more access to financial aid than students from middle-income or upper-income families. To some degree this may be due to special scholarship programs for minority students.

Father's educational level was positively, if inconsistently related to implementation of plans to study biological or physical science, law, medicine, and "other" study. Father's educational level was most strongly related to following through with plans for business school. The figures for the plans for advanced study, when combined with these results on the implementation of those plans, suggest again the power of family background to influence students' lives even years after the students' childhoods. It is also striking that social class continues to effect educational attainment in the 1970's, after years of efforts to blunt its influence.

Table 1.7

Percentage of Seniors Engaged in Planned Activity

A Year Later by Undergraduate Grades

Plan	Average Undergraduate Grades				
	C or below	C+	B	B+	A to A+
Full-time work	86.9	83.3	82.2	84.1	87.9
Military service	54.4	59.9	54.2	61.1	55.6
Marriage only	100.0*	100.0*	84.2	92.9	50.0*
Grad- arts and humanities	15.8	20.5	33.1	41.6	53.3
Grad- biological and physical science	24.2	35.9	44.3	63.7	63.6
Grad- social science	25.6	28.1	37.9	42.9	51.6
Business school	13.0	40.5	64.6	63.4	58.9
Law school	36.7	55.5	74.3	75.7	84.9
Medical school	42.9	34.5	69.3	85.7	93.4
Other study	35.2	44.4	55.0	52.0	64.3
Total in planned advanced study	23.9	36.8	51.4	59.2	68.6
Total who planned to go who were in some other field of advanced study	15.5	19.8	21.5	19.2	17.8
Total who planned to go in any advanced study	39.4	56.6	72.9	78.4	86.4
Total N	549	1928	2545	1893	881

*N less than 10

The Influence of Academic Performance.

The rate of implementation of plans for advanced study in any area is clearly related to undergraduate academic performance; the relation is much stronger than the relation of any of the other variables we have examined. Overall, the students with the best averages followed through with their specific plans for study nearly three times as often as the students with the lowest averages. The best students were also in some form of advanced study more than twice as often as the poorest students. The influence of academic performance was much the same in every field. Apparently, it helps to have good grades.

In sum, we have found that the degree to which college seniors follow through with their plans is influenced by the field they planned to enter, sex, race, social class, and, to a slight degree, by religion. Although students with good grades were more likely to implement their plans, implementation was affected by many characteristics unrelated to the potential for academic or professional success. This is a sign of the need for counseling, recruitment and financial programs which will enable the best students to go to graduate or professional schools. In the next chapter we turn to the reasons students did not go on, which may suggest some directions for such programs.

Chapter 2 -- Those Who Did Not Go On

Why Did Some College Graduates Not Pursue Further Education?

The majority of the college seniors did not continue on to further education the year after they left college. Most were working in jobs, and most of those who were working intended to make careers of their jobs. Other analyses are needed to distinguish between students who had planned to go on but did not and those who did not plan to go on and did not. These analyses could identify reasons why students do not pursue advanced education. However, much information can be gained about these reasons by simply asking the seniors who did not continue their education why they did not.

We asked the seniors who had not gone on to further study to check all the major reasons they had not. The results are shown in Table 2.1. There seemed to be three categories of reasons. The first category could be classified as motivation. Many seniors did not go on because they found the academic way of life unappealing; 35.1 percent indicated they were simply tired of being students, and another 19.8 said they just didn't want to pursue their education immediately. The second category consisted of financial reasons. Nearly a third (32.1 percent) said they needed money, nearly a quarter said they couldn't afford further education (24.6 percent), and 14.3 percent said their family responsibilities came before their educations. The third category of reasons reflected the view that advanced education is not highly relevant to the practical realities of daily work; 37.8 percent were anxious to get practical experience before going on for more education, 17.8 felt they could enter and succeed in their fields without further education, and 14.9 percent said they were anxious to enter the job market.

Table 2.1

Reasons for Not Attending Graduate or Professional School for All Students Not Attending, and by Sex and by Race

(Figures show percentage of each group citing reason)

Reason	Total Not attending	By sex		By race	
		Men Not attending	Women Not attending	Blacks Not attending	Whites Not attending
Needed money	32.1	30.3	33.3	38.2	31.0
Simply did not want to	19.8	16.7	23.0	3.1	20.4
Could enter and succeed in my field without further education	17.8	18.7	16.1	4.7	18.1
Couldn't afford it	24.6	20.4	29.2	31.2	23.7
Undergraduate grades were not high enough	7.1	10.0	3.1	2.3	7.2
Was tired of being a student	35.1	32.1	37.5	16.4	35.1
Had family responsibilities	14.3	12.9	15.5	16.4	14.2
Low admission test scores (GRE, LSAT, etc.)	3.6	4.5	2.3	4.7	3.4
Discouraged by undergraduate faculty	1.7	1.8	1.5	.8	1.5
Anxious to enter job market	14.9	14.1	15.3	7.0	14.9
Was not accepted by any of the graduate or professional schools of my choice	5.9	8.4	2.4	2.6	5.8
Had military obligations	8.7	14.9	.4	3.9	8.7
I was anxious to get practical experience before going on for more education	37.8	33.3	42.2	35.9	37.1
Other	13.7	12.5	14.9	13.3	13.5

Interestingly, very few students cited academic reasons for not continuing: only 7.1 percent said their undergraduate grades were not high enough; only 5.9 percent said they were not accepted by the schools they had chosen; only 3.6 percent cited low admission test scores; and only 1.7 percent felt they were discouraged by their colleges' faculty.

Finally, some (8.7 percent) of the students said they had military obligations.

As we consider the reasons students give for not continuing their educations, it appears that most of the students who did not go on felt they did not need advanced education, or that it was too expensive if they did need it. Many other students seemed disenchanted with the academic way of life. The students who did not go to graduate or professional school seem to feel they have good reasons for their decisions.

This basic profile remains the same when the information is analyzed by sex, although there were differences in emphasis. Women placed somewhat greater emphasis on the motivational reasons for not pursuing further education. About 6 percent more of the women than the men said they simply did not want to continue their educations, and about 5 percent more of the women said they were tired of being students. Women also cited financial reasons for not continuing slightly more often: 3 percent more women than men felt they needed money, and about 9 percent more felt they couldn't afford further education. Women did not mention pragmatic reasons more often than men with one exception: about 9 percent more women than men were anxious to get practical experience before going on for more education. Men more often mentioned academic reasons: 7 percent

more men than women credited low undergraduate grades, and 6 percent more men than women admitted they were not admitted by the schools of their choice. Since men had poorer undergraduate grades, these figures might be expected. Predictably, men cited military obligations more often than women.

Blacks and whites had the same patterns of reasons, but differed in emphasis. Blacks felt that financial reasons were important more often than whites: blacks felt they needed money 7 percent more often than whites, and felt they couldn't afford further education 7 percent more often. Considering the limited financial resources of black students and their families, as reported in The Graduate, these differences are understandable. Blacks cited motivational reasons for not continuing on much less often than whites: 16 percent less often on the feeling they simply did not want to, and 19 percent less often on being tired of being a student. In short, blacks and whites give much the same reasons for not continuing their education. It appears that blacks are more interested in continuing their educations, but more often felt they face financial obstacles.

Plans for Future Study

Nearly everyone in the sample of students who did not attend graduate or professional school had plans to do so eventually. As shown in Table 2.2, less than one in ten said they had no plans for further study. Some 38.3 percent said they would "possibly" attend graduate or professional school at a later time, and nearly half (49.1 percent), said they would "definitely" attend later. Most said they would work for a few years before attempting to continue their educations.

Table 2.2

Plans for Future Study in Graduate or Professional School
Among Follow-up Sample Not Currently Attending and
Amount Needed to Make Attendance Possible

	Total Not attending	By sex: Men Not attending	By sex: Women Not attending	By race: Blacks Not attending	By race: Whites Not attending
FUTURE PLANS					
None	9.3	9.5	8.7	2.3	9.6
Possibly, after working for a few years	18.9	19.9	16.8	8.6	18.8
Possibly, after finishing military service	1.9	3.3	0.0	1.6	1.9
Possibly, when children are older	1.4	.2	2.7	1.6	1.3
Possibly, but have no idea when	16.1	15.4	16.4	9.4	16.2
Definitely, after working for a few years	30.9	29.5	31.5	48.4	29.9
Definitely, after finishing military service	2.8	4.8	.1	2.3	2.8
Definitely, when children are older	1.0	.3	1.9	0.0	1.0
Definitely, but have no idea when	14.4	11.9	17.0	20.3	13.6
AMOUNT NEEDED TO ATTEND					
Less than $500	4.6	4.6	4.5	5.4	4.7
$500-$1,000	10.7	8.1	14.0	12.9	10.7
$1,000-$1,500	16.0	13.9	18.4	14.0	16.4
$1,500-$2,000	20.9	19.6	22.7	24.7	20.4
Over $2,000	47.8	53.7	40.4	43.0	47.9

The plans of men and women for future study were approximately the same. However, somewhat more women than men were unsure when they would continue their educations, although they definitely intended to do so (17.0 to 11.9 percent). The aspirations of blacks were higher than the aspirations of whites. About seven in ten blacks (71.0 percent) said they definitely intended to continue their educations, in contrast to less than five in ten whites (47.3 percent). Since blacks attended graduate or professional school as often as the whites in this sample, it is plausible to predict that a larger share of the black college seniors will eventually attend graduate or professional school than will white college seniors.

Financial Obstacles

The people in the follow-up sample who had not continued their educations were asked "If you are not now attending a graduate or professional school because of insufficient funds, how much would you need to attend?" The estimates of those who responded to this item are also shown in Table 2.2. The amount needed would not be trivial for most of the students who responded. Over two-thirds estimated they would need more than 1,500 dollars to be able to go to graduate or professional school and nearly half estimated they would need more than 2,000 dollars. These estimates are probably fairly realistic, since even public institutions require fees, books, transportation, etc. The estimates of men were somewhat higher than the estimates of women, and the estimates of whites were somewhat higher than the estimates of blacks.

The students who had not continued their education in the year after they graduated from college were often tired of the academic system, and

often felt that further education had no practical bearing on the careers they had planned. Some of the graduates seemed to be saying that they would have gone on if it were not for financial obstacles. Whatever their current attitudes about further education, nearly all of the graduates planned to continue their educations eventually. It appears that college graduates still have a strong belief in the power of advanced education to enhance their careers, incomes, and lives.

Part Two: Getting In

Chapter 3 --

Students' Descriptions of How they Decided to Go to Graduate or Professional School, How They Financed Their Educations and Their Reactions to the Tests They Took When They Applied

In this part of the report we describe students' ratings of the helpfulness of various sources of information in choosing a graduate or professional school. Then we examine the way students finance their educations, and their present indebtedness. Finally, we examine the attitudes of students toward the fairness and accuracy of the tests they had taken when they applied to graduate or professional school.

How did graduate and professional school students make their decisions about which school to attend, and what did they regard as helpful sources of information in making their choices? Table 3.1 shows the students' ratings of the helpfulness of eleven sources. Looking back on their decisions, they regarded advice from friends and relatives as the most helpful source, followed by directories or guides to graduate study, advice from departments the student applied to and advice from a counselor at the undergraduate college. It is striking that a much larger percentage of the students considered the latter three as helpful sources of information when choosing a graduate or professional school than had considered the same sources to be important in making up their minds about plans for after graduation as seniors. It is also striking that students much less frequently regarded parents as helpful when choosing a school than they thought they were when planning for the future as seniors (36 vs. 50 percent), and that friends and relatives were considered more helpful than parents.

Table 3.1

Helpfulness of Eleven Sources of Information in Choosing a Graduate or Professional School

ource	Group								
	Grad. Arts Humanities	Grad. Biol. Science	Grad. Physical Science, Eng.	Grad. Social Science	School of Education	Law School	Medical School	Other Professional	Total
Directories or guides to graduate or professional study	40	50	47	56	42	45	48	48	48
Publications of national test programs such as GRE, LSAT, MCAT, etc.	5	8	4	8	3	18	26	8	10
Advice from a counselor at your college	49	49	50	52	41	35	50	41	45
Advice from the university department or schools you applied to	51	58	56	49	47	30	44	48	47
Advice from friends or relatives	52	47	41	50	53	70	69	60	56
Advice from parents	31	24	22	22	37	48	49	41	36
Advice from a graduate or professional school admissions office	19	18	17	22	28	27	37	33	27
Advice from a preprofessional advisor	16	22	14	16	23	19	41	21	21
Advice from a professional in the field (not a college professor)	22	25	19	19	40	43	51	43	35
Visit from someone recruiting for a school	2	1	5	3	4	18	9	12	8
Visits to campuses	31	39	35	28	26	32	64	37	37

Note: Figures show percent of each group indicating each source was helpful or very helpful. Options were "not helpful," "helpful," and "very helpful."

Test program publications, visits from recruiters from schools, and advice from preprofessionals were not major factors in either choice. In some cases, students may have considered test program publications to be guides or directories.

The pattern of influence varied from field to field. The advice of counselors at the students' undergraduate college and advice from the school they applied to was helpful to all the students in graduate fields but advice from friends and relatives was relatively more helpful to students of the arts and humanities and social sciences. Directories or guides were relatively less helpful to students of arts and humanities than to other graduate students. Education students found the advice of friends, relatives, departments to which they applied, and information from directories most helpful. Law students presented a unique profile. They considered the advice of their parents as well as friends and relatives as helpful, and they found advice of a practicing lawyer helpful. Of all groups of students they found the advice of college counselors and schools to which they applied least helpful. Such a finding suggests that law schools might wish to take steps to provide more information to prospective students and pre-law advisors. Medical students also present an unusual pattern. Like the law students, medical students thought the advice their parents, friends, and relatives gave them was helpful. In contrast to all other groups a majority of the medical students felt that visits to campuses were helpful, and a sizable minority felt that advice from a graduate or professional school admissions office and advice from a preprofessional advisor were helpful. They also found guides and directories more helpful than did any other groups.

Graduate and professional school students were also asked for their ratings of the adequacy of their institutions in several areas including admissions and help in adjusting to the department or school (see Table 7.1 in Chapter 7). Most students in every field found these aspects of admissions to be adequate, but only about a quarter of all graduate and professional school students found them "very good." Students in all the fields were about equally satisfied with the speed of reply about their departments' decision and the information provided for applicants. When it came to flexibility of course requirements for admissions however, law students were by far the most satisfied, with some 45 percent describing the flexibility of requirements as "very good." Thus, in general, the students were satisfied with the admissions procedures of their departments, but they were not enthusiastic.

A somewhat different picture emerges when students reacted to the assistance their departments or school had provided them in adjusting to their new settings. Few students appeared to be satisfied with their departments' help in finding housing, assistantships, employment for students, or employment for their spouses. Students were only moderately satisfied with their departments' aid in finding financial aid for students. However, results differed by field. Students in biological and physical science were fairly well satisfied while the students of the professions were much less frequently satisfied with the help in finding assistantships. Professional school students most frequently did not answer the question regarding assistantships presumably because research assistantships in these fields were rare. Satisfaction with departmental

help in obtaining financial aid was greatest in the biological and physical sciences and medicine, and lowest in law and education.

Putting this information together, it suggests that most students felt that the admissions procedure was generally quick and satisfactory, but that their departments and schools were of little help in meeting their nonacademic needs. However, in fairness to the schools, some students may not expect much help from their institutions.

Financial Status of Students in Advanced Study

The overall results about students' borrowing are easy to summarize. The majority of students had borrowed nothing, owed nothing, and thought they would need to borrow nothing to complete their educations. Only 22 percent had borrowed as much as $1,000. Law students had borrowed this much more frequently (33 percent), as had medical students (41 percent). Students in biological science (11 percent) and physcial science and engineering (9 percent) had least frequently borrowed $1,000 or more.

Interestingly, students in the various fields were in debt to about the same extent. Perhaps students' nonacademic debts tended to even out their total indebtedness.

The law and medical students expected to borrow much more than students in other fields: some 41 percent of the law students expected to have to borrow $1,000 or more and 25 percent expected to borrow $3,000 or more; 55 percent of the medical students expected to borrow $1,000 or more, and 46 percent expected to borrow $3,000 or more. The other fields, particularly biological and physical sciences, expected to borrow much less.

Table 3.2

Financial Status of Graduate and Professional School Students

	Group								
inancial Status	Grad. Arts Humanities	Grad. Biol. Science	Grad. Physical Science, Eng.	Grad. Social Science	School of Education	Law School	Medical School	Other Professional	Total
Amount borrowed for education									
Nothing	65	76	80	66	64	55	46	62	64
Less than $1,000	7	8	7	10	7	7	9	8	8
$1,000 to $1,999	12	10	5	9	13	23	19	12	13
$2,000 to $2,999	4	1	2	4	3	7	11	6	5
$3,000 or more	3	0	2	4	2	3	11	5	4
Amount in debt									
Nothing	48	53	55	50	51	57	59	53	54
Less than $1,000	8	11	12	10	10	7	7	7	9
$1,000 to $1,999	12	12	13	13	11	11	9	10	11
$2,000 to $2,999	10	8	6	6	8	8	7	9	8
$3,000 or more	12	8	9	15	9	9	12	13	11
Amount would have to borrow to complete education									
Nothing	61	74	82	58	69	48	37	63	61
Less than $1,000	5	9	6	8	9	3	1	7	6
$1,000 to $1,999	5	5	2	7	4	7	4	8	5
$2,000 to $2,999	5	3	1	8	2	9	5	5	5
$3,000 or more	9	3	1	9	2	25	46	9	13
Sources of support*									
Parental or family aid	56	44	39	51	48	73	79	58	56
Spouse's employment	19	22	23	24	26	22	20	21	22
Scholarship or fellowship from your graduate or professional school	29	31	27	30	17	18	32	25	25
Scholarship or fellowship, from outside the university	13	18	19	17	10	7	16	15	14
Loan from a bank or similar source	16	8	8	19	15	30	28	21	19
Loan from the school of your choice	9	3	3	8	7	15	29	12	11
Research assistantship or equivalent	4	25	27	15	5	2	7	10	12
Teaching assistantship or equivalent	31	37	37	20	13	1	2	8	16
Other university employment	10	8	5	10	12	7	7	12	9
Employment outside the university	32	18	20	27	48	40	25	40	33
Personal savings	48	39	43	48	51	60	59	54	51
Veteran's benefits	4	3	3	7	5	5	1	6	5

*Note: Figures show the percentage of each group indicate source was a minor source or major source of support.

Much of the difference among fields is due to the differences in sources of student support. Students in the biological sciences and physical sciences and engineering most often counted research and teaching assistantships among their sources of support. Students in arts and humanities and social science also fairly often counted teaching assistantships among their sources. Law and medical students seldom considered assistantships important. The graduate fields reported more reliance on scholarships or fellowships from their institutions than did other fields, except for medicine. Students in law and medicine consequently turned more often than other students to their parents for assistance or to their personal savings, or obtained loans from banks or their institutions. The high costs of medical school seem to have required medical students to use a greater variety of sources of support.

The differences in students' sources of support are clearly related to the characteristics of the fields. For example, law students spend so much time on their studies that they have little time for work. Law students are thus required to rely primarily on their parents or personal savings although 47 percent report working. There is more money for research projects in biological and physical science, so there are more research assistantships in those fields. The differences in support also have their own effects. For example, law and medical students often finish their educations in debt for thousands of dollars. Research assistants are able to work with their professors, and have greater access to them than other students. We will see some of the reasons for the differences in the finances of students in later chapters, as well as some of their consequences.

Graduate and Professional School Students' Attitudes Towards Admissions Tests for Advanced Study

Some of the most critical hurdles facing the applicants to graduate and professional schools are the admissions tests they are required to take. Students and others criticize the tests, while admissions committees defend them. In the discussion about tests there is a good deal of evidence that they do in fact predict grades in graduate or professional school with moderate success. In contrast, it is striking that there has been so little study of what the candidates themselves think of the tests. More generally, except for the Russell Sage studies (Brim, et al., 1969; Goslin, 1963, 1967) there have been few studies of people's general reaction to tests.

We therefore sought information about graduate and professional school students' feelings about the admissions tests they had taken. The relation of these attitudes with field, academic success, and ethnic group status, and self-esteem were also examined. It was hoped that the results might be useful to admissions groups and test makers.

Overall, the results of analysis of the follow-up sample indicated that test takers tended to feel that the graduate or professional admission test they had taken did not accurately assess their abilities (only 45 percent thought it had) although they felt the tests assessed abilities that are relevant to success in the field (57 percent) and were fairly comprehensive in their coverage (64 percent). They did not feel that the tests were inferior to written essay-type exams (only 39 percent felt essay tests

were better). They felt that the test was primarily an obstacle to admissions rather than a help to the candidate (55 percent). Perhaps partly because of these attitudes many tended to feel the test made them nervous while they were taking it (50 percent). Finally, they felt that the content of the tests were oriented toward white, middle-class culture (61 percent) but were not biased against blacks and other minorities (56 percent felt it was not).

When the results were analyzed by fields, they revealed some large differences. Only 35 percent of the arts and humanities students who took the GRE felt that the test accurately assessed their abilities in contrast to 58 percent of the law students who took the LSAT; 58 percent of the social science students felt the tests did not allow enough time to adequately assess their abilities in contrast to 41 percent of the medical students. Only 52 percent of the arts and humanities students felt that the GRE assessed abilities relevant to success in their field and only 56 percent felt it was comprehensive in contrast to 74 percent of the law students who felt the LSAT assessed relevant abilities and 75 percent of the biological science students who felt that the GRE was comprehensive in its coverage. Half of the arts and humanities students regarded the GRE as inferior to an essay examination; only 26 percent of the students in the physical sciences and engineering thought so. The physical scientists also considered the test to be primarily an obstacle to admission less often than students in other fields (48 percent); social science students (63 percent) and education students (66 percent) thought so more often than other students. Social science

students and law students were most likely to report feeling nervous while taking the test (57 and 58 percent respectively); arts and humanities students (39 percent) and physical science and engineering students (42 percent) were least often nervous. The biological science students were the least likely to feel that the tests were oriented toward white, middle-class culture (48 percent), social science students the most likely (75 percent). The physical science students were the least likely to feel that the GRE was biased against blacks (26 percent); social science students were the most likely to believe the GRE was biased (60 percent).

The data from the augumented sample was analyzed by student-designated ethnic group: black, oriental, and white. Overall, the 128 blacks were clearly the most critical of the tests and the 87 orientals, the most favorable. There were 2036 whites, 87 orientals, and 128 blacks. The largest differences were on four items, two of which dealt with bias. The four items, followed by the percentages of the blacks, orientals, and the whites, respectively, who agree with the item were as follows: "Content is oriented toward white, middle-class culture" (96, 58, 67); "Content is biased against blacks and other minorities" (87, 41, 50); "Accurately assessed my abilities" (24, 56, 51); and "Is primarily an obstacle to admission rather than a help to the candidate" (80, 48, 55). Perhaps the best way to summarize these results is that the oriental students were the least negative toward the tests, the blacks considered the tests as biased obstacles to admission and the whites were in the middle, although many of them were critical of the tests.

Table 3.3

Tests Graduate and Professional School Students Have Taken and Their Attitudes Toward Them

	Group								
	Grad. Arts Humanities	Grad. Biol. Science	Grad. Physical Science, Eng.	Grad. Social Science	School of Education	Law School	Medical School	Other Professional	Total
Test Taken for Admission									
GRE	61	70	64	79	50	2	4	33	41
LSAT	<1	0	0	<1	0	95	0	<1	12
MCAT	0	6	0	0	<1	<1	94	1	12
ATGSB	0	0	<1	<1	<1	1	0	29	8
Miller's Analogy	4	1	<1	4	11	0	<1	2	3
None of the above	33	22	34	15	37	1	2	33	24
Attitudes Toward Tests*									
Tests abilities that are relevant to success in the field	52	57	63	54	40	74	58	52	57
Content is oriented toward white, middle-class culture	59	44	48	75	72	63	61	60	61
Content is biased against blacks and other minorities	39	29	26	60	47	44	43	40	41
Was fairly comprehensive in its coverage	56	75	69	58	61	69	64	66	64
Accurately assessed my abilities	35	48	52	39	35	58	49	48	45
Is primarily an obstacle to admission rather than a help to the candidate	48	51	48	63	66	60	53	55	55
Didn't allow enough time to adequately test one's capability	45	36	46	58	53	51	41	49	49
Is not as good a test as a written essay-type exam	50	49	26	48	50	40	32	40	39
Made me nervous while I was taking it	39	51	42	57	56	58	50	49	50

*Note: "Agree" figures are calculated on the basis of the number of students who had taken an admissions test.

Students' opinions about tests were generally unrelated to their opinions about other areas of graduate or professional school. No correlation between opinions about the tests and opinions about other aspects of advanced education was as high as .25. However, the pattern of the correlations suggested that those who felt the tests were biased were slightly less satisfied with their choice of graduate or professional school, and, generally, that those who were critical of tests were slightly less satisfied with their graduate or professional school experiences. These were only slight tendencies, however.

Attitude toward tests were virtually unrelated to students undergraduate or graduate grades. They were also generally unrelated to students' admissions test scores (no correlation between any test and any opinion about tests was as high as .15). Opinions about tests seem to be independent of students' test scores or academic performance.

It appears that students criticisms of tests cannot be dismissed as the carping of low scorers or explained as part of the behavior of the chronically captious.

No other questions in the survey elicited as much student comment as the questions on attitudes towards tests. The comments were nearly all critical, to one degree or another. At best, the tests were seen as a necessary evil; at worst, tests were seen as the direct cause of all personal and social problems. In the following pages we attempt to summarize the main themes in these comments. In some cases, the comments are followed by a description of evidence that, to be fair to the tests, should be presented.

Perhaps the most pleasant criticism came from those who had done much better than their test scores might indicate.

> I do not believe the LSAT is a valid testing instrument to determine ability to comprehend the study of law. In my own instance I received a 46% on the LSAT but at the present I rank 2nd of 140 in my class! I rest my case!

Other students were extremely negative toward tests or ETS, for one reason or another.

> The GRE is a pile of _____!
>
> * * *
>
> The MCAT was the stupidest standardized test I've ever seen, except, perhaps the science section. The math was vilianlous, easier than SAT's. The $20 fee was ABSOLUTELY OUTRAGEOUS FOR THIS PIECE OF GARBAGE.
>
> * * *
>
> When the revolution comes, ETS will be the first to go and rightly so!
>
> * * *
>
> I resent being tyrannized by you bastards at ETS.

Most criticism was much milder and well considered. Some of the most thoughtful criticism concerned the content and coverage of the test, two areas in which the testing organizations place a great deal of effort.

> Re the GRE: The test provides a fairly accurate assessment of some abilities relevant to success in graduate study, viz. reading speed and comprehension, some vocabulary, simple algebraic manipulations, interpretation of graphs and charts. However, (1) since I have found that the quantity of material which must be studied in most graduate courses is not great, I feel that both sections of the exam are too speeded. (Of course, portions of the math section in particular are so simple that they must be speeded in order to produce much variation in the scores.) And (2) the math section

> is not comprehensive in coverage. Nothing is required in the way of the production, or at least the understanding, of mathematical or logical proofs. The production or understanding of logical sequences of thought is usually necessary in the writing or reading of research papers.

(Of course, the GRE mathematics test does attempt to assess the understanding of the logic of math, and most students do not find the test at all simple.)

* * *

> I do not believe the MCAT is accurate as a gauge for skills necessary to complete medical school. This belief is based on the fact that the MCAT tests specific facts. I cannot believe that the specific facts which it tests for are necessary for success as a physician.
>
> Furthermore some students haven't taken courses in the field from which many of the specific facts were drawn, and others, while they did have courses in the appropriate field, did not have the specific facts (tested for by the MCAT) either presented to them or emphasized to them.
>
> What would be at least a little more valuable is to test the student in his specific major area. In that way the med school could judge somewhat the students ability to learn, rather than whether or not he has been presented with certain specific facts.
>
> Finally it should be noted that lumping 3 sciences together in one test does not serve the purpose of testing a science major about his particular field: a student with a major in chemistry has not necessarily had much biology at all. Hence a single test which includes a mish-mash biology and chemistry cannot adequately determine the chemistry major's ability to learn the chemistry material which was presented to him in his undergraduate courses.

(The idea behind the MCAT science score is that it assesses broad understanding of the areas of science needed in medical school. The MCAT attempts to use the testing time available to assess a variety of fundamental skills rather than achievement in specific subject areas.)

* * *

In addition to comments about the inadequacies students felt, they saw in the tests specific coverage of academic areas, many students commented about the important abilities the tests did not cover. The most commonly mentioned unassessed ability was creativity.

> If there is any way a test can measure creativity, you ought to modify LSAT so it will fill that function. There are too many real estate agent and tax accountant types in law school.

* * *

> I have suffered through both undergraduate and graduate school requirements to take both the so-called aptitude tests developed by ETS. I feel emphatically, that aside from the absurdity of having to pay for taking such a test, it tests one and only one type of intellectualy ability: the "obsessive compulsive" and overly intellectualism and cerebral ability. This test does not in any way account for a persons level of creativity and imagination; rather by virtue of the type of intellectual skills it calls into play, it discriminates against the above mentioned skills. Your test is an outgrowth of white, middle-class society and I am hopeful that the current policy that many universities have in disregarding a person's scores or even better not requiring them for admission, will continue in a much more massive, widespread and dramatic way.

(There is no evidence that the aptitude tests discriminate against the creative person. They are merely testing something different.)

Another frequently mentioned "missing ability" was academic motivation.

> Although entrance tests for graduate school may give a reasonable assessment of a student's ability range they do not attempt to ellicit any information regarding the prospective student's mental attitude towards graduate study. Although I don't know how to incorporate a reliable measurement of motivation into entrance exams, I do feel that student motivation is of prime importance in successfully pursuing a course of graduate study.

Another frequently mentioned quality that was often mentioned by students was skill in interpersonal relations.

> I already feel that the entire LSAT and College Board testing scheme and analysis technique discriminates patently against reward of interpersonal abilities and uses a sterile, objectified, mass-produced standard which denies evaluation of people and promotes testmanship. Is this kind of ability which provides leadership, innovation and concern for other people?

* * *

> Too much emphasis is placed on the standard law school exam. This exam is generally the only determination and measure of one's ability in law school. The standard exam doesn't measure such essential legal skills as oral ability, negotiation skills, how one works when not under the pressure of a time limit, and abilities to work with people.

A few students did give the tests credit for their capacity to assess analytic ability.

> The teaching that is done in most undergrad schools requires great ability to memorize facts. The Miller's and the GRE requires great conceptual abilities, much judgmental skill, ability to analysis facts (considerable amount required) and some basic memory of what subject matter recall is needed for these tasks. I am saying that yardsticks are being applied, the specifics for which were never formally taught in school. This is, of course, an attack on U.S. Education and its refusal to teach students the thinking skills required for grad work and jobs in industry.

Some students took on the tests on technical grounds.

> The GRE could serve a vital job in the problematic process of graduate student selection. The evidence (well known to GRE) is that in the past the test has been a poor predictor of graduate student performance, but since no test is a better predictor my only comment is to try suggest a more diverse exam--one that could rate practical knowledge, practical ability.

> I don't see how the GRE can be improved by worrying about possible bias against minority groups. No university is doing any minority individual a favor by admitting him in spite of marginal qualifications, for if that individual is handicapped by his experience in getting admitted to grad school, he will be handicapped for the same reason in the profession he is trying to succeed in.
>
> Any test that is a good predictor of grad school performance would be a boon. As it is, the GRE may be deleterious, for if GRE scores are poor predictors, slightly better predictors should be considered in lieu of GRE results in considering grad school applicants.

(Of course the GRE is constantly revised to make it as good a predictor as possible. The evidence, summarized by Lannholm, suggests that the GRE is usually a useful predictor of graduate school grades. There is also no evidence that tests of "practical ability" are better predictors.)

Some students pointed to the importance of background.

> Ridiculous to suggest that the test was a help to the student; unless you mean in his competition against other students, in which case it can be decisive.
>
> Most of the test was pretty neutral culturally, although it is easy to see how some people would have a hard time with the word meanings, for example, due to their background. I found that the tests, especially the field test in Economics, was biased for U. S. students as opposed to foreign students.
>
> Still, this is a better test than written one would be.

Finally, many students expressed their concern that tests, testing, and testing organizations have much too much power in our society.

> We are living in a test society. I think it is unfortuate that we must rely so heavily on tests. It would be a pleasant change to be admitted into <u>something</u>, besides prison, without first having to take an 8 hr. test that bores you, fatigues you, and really doesn't test anything but your endurance.

* * *

I strongly object to the tremendous influence and power that ETS exerts over the educational and professional futures of literally millions of students. While I recognize that increased college and professional school enrollment has created a need for the efficient administration of applicants, still I protest the unbridled and unchecked power that ETS has in their process. What guarantees are there that ETS tests and surveys are validly derived?

In my opinion ETS is a monopoly of the worst kind. It should be made to answer, either by an outside monitoring agency or by other competitors in its field, as to the utility and veracity of the services and information it supplies.

* * *

My real feelings on the LSAT are that it measures speed rather than competence or ability. Of course, my bias comes from having never done well on standardized tests, and perhaps no test can measure determination, desire, or perserverance. But, I detest any educational admissions system which in attempting to measure potential actually thwarts and inhibits achievement by stifling ambitions and opportunities on the basis of a four or eight hour test. The perceptive test-taker may or may not be the best lawyer, but he will soon be the only type individual admitted to law schools.

My point is that a process whereby students are culled before they have had a chance to prove themselves cannot satisfactorily serve the needs or goals of education in a democratic society. The reason is that an aristocracy of test-takers does not approximate an aristocracy of merit or ability, and so long as standardized tests play a decisive role in admissions policies, equal educational opportunity for all will remain a myth. Of course, even the most democratic of systems could not avoid frustrated ambitions, but it would not set artificial barriers such as minimum LSAT scores in the path of individual achievement.

It seems apparent that students have serious doubts about the validity and functions of tests for admission to advanced study. Although the students quoted are a minority of the test takers, they illustrate the fact that many are skeptical about the representativeness of tests' content. Many question their validity or relation to the real work of the field. Many do not believe they are necessary. Although many of the

students' concerns are also important to the testing program themselves, the students did not seem to appreciate the pains which the programs have taken to make their tests fair, valid, and helpful.

These students were successful in entering graduate or professional school. The tests had not been barriers to them, and they still were quite critical of the tests. The students who had taken the tests but had not entered advanced study would probably have been even more critical of the tests. Even the students who took the tests were successful with tests throughout their years of education. They had passed test after test and had not suffered. They had only been rewarded by tests, yet they were critical. It seems plausible to think that their criticisms are only the tip of an iceberg of criticism of tests which could be found among college and high school students.

Perhaps test constructors should try to better explain the construction and use of their tests. Perhaps admissions committees could give students their rationales for requiring the tests. It is possible that students might feel less critical toward the tests if these things were done. However, many students may still have the feeling, based on their own experiences, that admissions tests are measuring something that is only one of the many factors in success in their field, and a rather small factor at that. Their feelings are consistent with a mass of evidence that indicates that academic ability has little relation to high level accomplishment and creativity (e.g., Hoyt, 1965; Baird, 1969; Dellas and Gaier, 1970). A certain level of academic ability may be a necessary but by no means sufficient condition for success in advanced education and the careers to which it leads.

Part Three: The Environment

In this part, we first describe students' current work, marital and academic status. Then we report students' plans for careers after they complete their educations. Then we consider students' views of the attributes required in their fields. We next consider how students cope with the strictly academic demands they face by examining their study techniques. This is followed by an account of students' descriptions of their school's administrative, peer, academic, and social environments. Finally, we report students' descriptions of the characteristics and behavior of their professors.

Chapter 4 -- Students' Personal Activities and Plans, Views of Abilities Needed in Their Fields, and Studying Practices

Many life circumstances can affect the educational careers of students. Able students may withdraw or curtail their programs because of other obligations or opportunities. As shown in Table 4.1 one of these obligations--the role as a marriage partner--was shared by about a third of the students in graduate or professional school. In law and medicine this proportion falls to about a quarter of the students; in education it is a little higher. Of course, as the students grow older, the proportion will grow larger.

Most (84 percent) of the students were attending school full time, and most were carrying seven or more units of credit. The exceptions here are law and medicine in which the nearly universal pattern is to attend full time and carry thirteen or more units, and education, in which 45 percent were attending part time and 38 percent were carrying six or fewer units. These differences are consistent with the curricular demands of law and medical school, and the fact that many education students are also full time workers.

The pattern in the graduate fields seemed to be some part time work, typically for 20 hours a week or less. Most law and medical students were not working. Only in education did a sizable percentage work.

The majority of the education students who worked were working outside the university. Students in the biological sciences, physical sciences and engineering worked within the university, typically as research or teaching assistants. In fact, the majority of the students in those fields held assistantships. Students in the other graduate

fields held a variety of kinds of jobs, with 29 percent of arts and humanities students holding assistantships and 39 percent of the social science students holding assistantships. Few students in law or medicine held assistantships.

Grades. The grading patterns across fields revealed some striking differences in the approach used in each type of school. In the graduate fields and education about three-quarters of the students had grades of B+ or higher; very few students had grades of C+ or lower, and few received pass/fail grades. In law, only 22 percent had grades of B+ or higher, and 46 percent had grades of C+ or lower. In medicine, 60 percent indicated that their school used a pass/fail system. Some 60 percent of the students of the other professional fields had grades of B+ or higher.

The students who enter graduate and professional school are generally bright and had good undergraduate grades. About two-thirds to three-quarters had undergraduate grades in their major of B+ or higher. The students in graduate fields, then, received about the same grades as graduates as they did as undergraduates; their advanced academic experience did not come as a shock. Most students in medicine encounter a new kind of grading, pass/fail, which may or may not be distressing. Law students, in contrast, received considerably lower grades as law students than as undergraduates; 67 percent had grades of B+ or higher in their undergraduate majors, and only 22 percent had grades of C+ or lower in their undergraduate majors, but 46 percent had such grades as law students. Some of the possible effects of the lower grades on law students can be seen in the section of self-ratings in Chapter 8.

Table 4.1

Current Status of Graduate and Professional School Students

atus	Group								
	Grad. Arts Humanities	Grad. Biol. Science	Grad. Physical Science, Eng.	Grad. Social Science	School of Education	Law School	Medical School	Other Professional	Total
Single	61	61	57	61	50	64	65	60	59
Engaged	7	8	8	7	10	9	9	10	9
Married, no children	22	23	28	20	25	22	20	21	23
Married, with children	8	6	7	10	11	5	6	9	8
Widowed, divorced, separated	2	2	1	2	3	1	0	1	1
Attending school full-time	80	86	86	86	54	95	98	84	84
Attending school part-time	19	13	14	13	45	4	1	15	15
Carrying 1 to 6 units	18	12	14	15	38	1	1	17	15
Carrying 7 to 12 units	52	61	55	58	36	10	6	32	36
Carrying 13 or more units	26	22	29	25	23	88	85	48	46
Not working	37	30	27	38	24	69	83	40	43
Working part-time	47	51	58	46	33	24	16	42	40
Working full-time	15	18	14	14	42	6	2	17	16
Working 1 to 10 hours a week	17	13	15	14	6	7	9	14	12
Working 11 to 20 hours a week	22	34	37	25	17	14	6	19	21
Working 21 or more hours a week	23	22	20	21	52	9	2	26	22
Working as research assistant	3	24	23	13	3	2	4	8	10
Working as teaching assistant	26	32	33	16	10	1	1	7	14
Working for university in other job	5	3	4	7	9	5	5	10	6
Working outside university in job related to studies	14	6	10	12	43	9	3	22	16
Working outside university in job unrelated to studies	12	4	3	12	9	14	4	13	9
Grades									
D+ or lower (below 2.00)	0	0	0	0	0	3	0	1	1
C (2.00 - 2.49)	1	1	1	1	1	17	3	2	3
C+ (2.50 - 2.99)	3	2	4	3	2	26	7	6	7
B (3.00 - 3.24)	16	16	19	15	17	24	10	23	19
B+ (3.25 - 3.49)	20	24	24	26	28	13	7	27	22
A to A+ (3.50 - 3.99)	39	32	34	37	32	8	7	26	26
All A's (4.00)	13	19	16	13	13	1	3	7	9
School uses a pass/fail system	4	3	1	2	2	2	60	5	10

Career Plans

As shown in Table 4.2, law and medical school students had very clear ideas about when they would obtain their degrees. Students in other fields had a much greater variety of expectations.

The career occupations expected by the students varied in a logical way with their fields. Nearly two-thirds of the students in education expected to be teaching in an elementary or secondary school. Some 60 percent of the medical school students expected to be in self-employed professional practice with partners, another 16 percent expected to be practicing alone. Some 32 percent of the law students expected to be in self-employed professional practice with partners, and another 47 percent expect to be employed as professionals by others. Graduate students in the biological sciences were the most oriented toward research, with 64 percent planning some career in research, the majority at a university in conjunction with teaching. Students in the physical sciences and engineering were also interested in research, with 47 percent planning research careers, approximately split between university and industrial research; another 25 percent planned to be employed professionals. Students in the arts and humanities were the most interested in teaching as a career; 69 percent planned to teach, either in schools, junior colleges or universities, and another 8 percent planned to teach and do research at a university. Students of the social sciences planned a wide variety of careers; 28 percent planned to be involved solely with teaching, 32 percent planned to be involved in research (the majority also as university teachers), 21 percent planned careers as practicing professionals, either self-employed or employed by others, and 11 percent planned to serve as

Table 4.2

Educational and Career Plans of Graduate and Professional School Students

lan	Group								
	Grad. Arts Humanities	Grad. Biol. Science	Grad. Physical Science, Eng.	Grad. Social Science	School of Education	Law School	Medical School	Other Professional	Total
Plan to obtain degree in									
1972	12	4	29	13	35	1	1	25	18
1973	26	28	19	19	20	3	2	36	21
1974	12	6	10	8	10	84	12	11	19
1975	14	24	21	31	5	8	78	15	23
1976 or later	19	29	12	17	12	3	[illegible]	6	10
Don't know	16	9	8	13	17	1	1	6	8
Expected occupation after completion of education									
Teaching in elementary or secondary school	20	3	2	5	65	0	0	2	11
Teaching in junior college	11	5	4	6	5	1	0	2	3
Teaching in college or university	38	8	7	17	5	1	1	5	8
University research and teaching	8	48	20	26	1	1	6	4	10
Research with non-profit organization or institute	1	10	5	6	1	1	1	1	2
Research in industry	0	6	22	0	1	0	0	2	4
Self-employed professional practice alone	2	1	0	1	0	5	16	5	4
Self-employed professional practice with partner(s)	1	4	1	3	1	32	60	7	13
Employed professional practice	6	0	25	17	5	47	12	30	22
Self-employed, business	0	1	1	1	1	1	1	2	1
Executive or administrator:									
In government	1	0	1	9	1	4	0	4	3
In education	1	1	0	1	11	1	0	1	2
In private industry	1	0	2	1	1	2	0	20	3
Manual labor, factory work	1	2	1	0	0	1	0	1	1
Military service	1	0	5	1	1	2	2	3	2
Clerical or sales work	0	7	0	1	0	0	0	1	1
Other	7	3	3	4	4	2	2	10	5

executives or administrators, especially in the government. Students of the other professions most often planned careers as employed professionals (30 percent), executives or administrators in private industry (20 percent), and self-employed professionals (14 percent).

Required Attributes for Success in the Study of the Field.

The requirements for complete success in the fields vary, but many of the requirements are the same. All the fields require a consistent level of concentrated intellectual attention to the subject matter. The specific requirements may change from field to field, but the need for a conscientious concern with detail and high level work stay the same. The students seem to hold this view. As shown in Table 4.3, the three capabilities considered "very important" for success in their field by a majority of the sample were self-discipline and determination, regular study habits, and memory skill. Regular study habits and memory skill were considered particularly important by students in law and medicine.

Writing skill was considered important by half the students; it seemed especially important to students of the arts and humanities, social sciences, and law. It is something of an indictment of our graduate and professional education system that only 40 percent of the total sample considered creativity to be very important to success in their fields. In fact, creativity is considered very important to success by a majority of students only in the arts and humanities (64 percent), biological sciences (54 percent) and education (52 percent). Creativity was considered less important in other fields, especially in law (26 percent) and medicine (14 percent).

Table 4.3

Students' Views of the Importance of Eleven Capabilities for Success in Advanced Study

Importance of Capability*	Group								
	Grad. Arts Humanities	Grad. Biol. Science	Grad. Physical Science, Eng.	Grad. Social Science	School of Education	Law School	Medical School	Other Professional	Total
Knowledge of mathematics	4	29	83	20	12	4	11	24	27
Knowledge of the humanities	80	3	2	32	37	18	13	26	25
Knowledge of the social sciences	25	6	2	87	42	28	17	38	31
Knowledge of physical science	4	51	71	6	10	1	55	15	26
Knowledge of biological science	3	95	11	13	10	1	91	22	25
Knowledge of a foreign language	51	6	4	14	4	2	3	9	10
Writing skill	74	42	22	68	50	85	14	54	50
Memory skill	53	56	40	46	37	75	90	51	55
Regular study habits	61	51	59	58	39	87	82	53	61
Self-discipline and determination	80	72	78	75	68	89	90	75	78
Creativity	64	54	41	48	52	26	14	40	40

Knowledge of particular subjects was generally not considered important except in the fields in which they were obviously relevant. Thus, knowledge of mathematics was considered very important by a majority only in physical sciences and engineering; knowledge of the humanities only in humanities, knowledge of the social sciences only in social science, and knowledge of a foreign language only in arts and humanities. Knowledge of physical science was considered very important in both the physical sciences and engineering and medicine. Knowledge of biological science was believed important in both the biological sciences and medicine.

Viewed another way, most fields seemed to require mastery of a specific area of knowledge, except for education, law, and other professions.

Studying

The academic demands of graduate and professional schools are considerable. Sustained high level effort is required in most schools. To cope with these demands students use a variety of study methods, some of which are shown in Table 4.4. The most common methods are to underline textbooks, to study at least twenty hours a week, and to participate in classroom discussions. However, students in each field had their own pattern of study methods. Students in the arts and humanities did the most common things, but they also outlined lectures and participated in classroom discussions more than average, and "crammed" less than average. Graduate students in the physical sciences and engineering wrote down almost everything their professors said more often than other students but outlined lectures and underlined textbooks less often. Perhaps the necessity to follow proofs and to

Table 4.4

Study Practices of Graduate and Professional School Students

actice	Group								
	Grad. Arts Humanities	Grad. Biol. Science	Grad. Physical Science, Eng.	Grad. Social Science	School of Education	Law School	Medical School	Other Professional	Total
Make brief statement of the main points in each example or case in the textbooks	20	13	10	17	16	62	13	15	21
Outline lectures	34	28	22	32	36	29	29	33	30
Outline textbooks	15	16	12	19	16	30	12	17	17
Study with a group of other students	3	7	9	5	8	17	6	12	9
Underline textbooks	62	48	37	72	68	85	62	63	62
Study more than twenty hours a week	62	42	51	53	20	76	66	43	51
"Cram" just before a test	28	40	38	41	34	57	46	42	41
Memorize detailed facts from reading	15	13	10	11	13	15	34	15	16
Write down almost everything the professor says	20	32	38	19	18	23	34	24	26
Ask questions in class	39	31	33	45	42	18	13	34	32
Ask questions after class or consult with instructor	30	30	27	28	25	10	13	21	22
Participate in classroom discussions	53	41	34	55	48	23	24	43	39
Use an "outline" book or "Horn book" that explains specific cases or examples	1	3	2	2	1	46	6	1	7

Note: Figures show percent of each group indicating they usually use each study technique. Options were "Seldom do this," "Sometimes do this," and "Usually do this."

record data and graphs led to the greater reliance on lectures. Study in the social sciences seem to depend on interaction in classroom discussions, and on the number of questions students ask in class. However, social science students also frequently underlined their textbooks. Since the subject matter of the social sciences is so broad, underlining may be critical. Students in education seemed to work less than other students, only twenty percent saying they study twenty hours a week or more. In contrast, three-quarters of the law students said they usually studied more than twenty hours a week. They were most likely to say they cram just before tests, underline textbooks, and outline textbooks, suggesting that law students use all the methods of individual study they can think of. They also used two methods that are mostly confined to law: they make brief statements of each example or case in their textbooks and they used outline books or "Hornbooks" that explain specific cases or examples. These too are also individual methods of study. Law students reported they did not ask questions in class, ask questions after class or participate in classroom discussions as much as other students. These are probably due to the size of law school classes and the formality of the law school system.

Medical schools students, consistent with their stereotype, studied hard, and were the most likely to say they memorize detailed facts from reading. They also reported that they asked relatively few questions in classroom discussions.

We have examined students' current activities, their views of what is needed to be successful in their field, and their adaptation to the academic stresses of graduate and professional school. In the next section we turn to students' direct descriptions of their departments and schools.

Chapter 5 -- The Graduate and Professional School Environment

When students enter graduate and professional school, they enter a new social system which has its own rules, mores and status categories (Baird, 1969). Each discipline has its own characteristic ways of doing things and each emphasizes different things. These mores and emphases create the environments that students will work and live in during their years of advanced study. Although the environment has an overall effect on students and can be analyzed in that way, it is also useful to consider its individual aspects (Pace and Baird, 1966). The parts of the students' environment include: the administration's behavior toward students; the peer environments created by other students; the academic environment; and the general atmosphere of the department or school.

The results for the administrative environment, shown in Table 5.1 appear inconsistent. About the same percentages (between 62 and 65 percent) felt that there was poor communication between administrators and students, and that administrators involved students in governance, and that the administration is responsive to the needs of the school and students. Perhaps students do feel that there is poor communication, and feel that the few students who are involved in governance do not provide adequate communication, and that the administration may be benign, but unresponsive to students. The same explanation may hold for the high percentage (66 percent) that said the administration was receptive to faculty or student ideas; this item is somewhat ambiguous in combining faculty and students. Nearly half the students felt that the administration treats students

Table 5.1
Graduate and Professional School Students' Descriptions of Their Departments or Schools[1]

DESCRIPTION	Group: Grad. Arts Hum.	Grad. Bio. Sci.	Grad. Phys. Sci., Eng.	Grad. Soc. Sci.	Sch. of Ed.	Law Sch.	Med. Sch.	Other Prof.	Total
Administration									
There is poor communication between administrators and students	60	59	63	67	47	73	62	56	62
The administration treats students like numbers	51	43	53	54	48	61	46	38	48
Administrators involve students in governance	51	65	60	56	51	56	75	67	61
The administration is committed to social change	34	39	34	38	43	44	56	49	43
No attempt is made to orient new students to the university or departmental community	48	47	72	54	38	48	27	36	40
The administration is receptive to faculty or student ideas	55	63	66	57	57	66	80	71	66
The administration is responsive to the needs of the school and students	54	63	66	53	59	63	78	71	65
Other Students									
Students are friendly	91	92	94	93	88	91	96	92	92
Students are very bright	85	85	91	88	81	92	94	86	88
There are lots of student cliques	50	50	47	54	49	68	77	58	57
Many students have to work to meet expenses	79	72	76	78	80	73	46	77	73
Students are independent thinkers	72	84	80	83	76	84	81	81	80
Academic cheating is fairly common	22	17	19	20	27	13	12	20	19
Many students are involved in radical activity	31	24	22	37	29	30	21	22	26
Students value the money they will make in their careers more than the opportunities for helping people	35	44	55		39	72	49	52	51
Students work very hard at their studies	81	85	89	8	70	96	97	88	87
Students actively participate in extra-curricular activities	54	55	57	52	52	57	60	57	56
Students actively participate in academic activities outside the classroom, such as discussions, departmental clubs, etc.	53	58	55	57	48	54	49	54	53
Student organizations reflect general student opinion	36	39	43	44	43	56	55	50	47
The Academic Program									
There is keen competition for grades	63	73	80	73	75	92	57	73	73
I do not like the course work, but it is required for the career I have chosen	34	38	39	41	47	53	37	42	42
The course work is dull	35	40	49	49	56	57	43	49	49
The course work is stimulating	81	85	84	76	70	79	86	80	80
Requires many long hours of hard work	85	81	84	84	74	95	93	79	83
Provides many opportunities for research and creative work	70	77	77	73	57	48	55	63	64
The Academic Program (continued)									
Requires much more studying than undergraduate college	71	56	67	73	48	93	86	68	71
Requires a much different kind of studying than undergraduate college	79	75	72	81	69	94	81	79	79
Allows considerable choice in courses students may take	59	67	68	57	45	54	17	46	50
Primarily teaches skills and practical training	36	44	40	42	57	66	49	62	52
Provides opportunity for innovative programs on an individual basis	54	67	54	62	56	30	40	55	53
The General Atmosphere									
The university (or school) offers a wide variety of cultural programs, concerts, lectures, etc.	81	82	88	80	79	65	58	76	76
The department is proper and conventional	69	75	83	71	61	81	77	76	75
The department has a liberal environment	54	54	53	70	55	59	53	53	56
The department has an informal environment	70	85	84	78	76	63	72	76	75
The school is in a closely knit community	35	37	40	39	43	46	54	52	45
There is a strong esprit de corps among students and faculty	39	44	46	42	43	44	53	53	47
Many students have to defer marriage to get through	20	15	20	22	21	27	32	22	22
The costs are so great that many students go into debt	58	47	48	59	50	79	82	61	61
Overall, the faculty is very good	82	87	89	82	78	84	84	83	84

[1] Figures show percentage of each group responding that each statement is "somewhat" or "very" descriptive of their department or school.

like numbers, although there are apparently attempts to help new students become oriented to the departments. Finally, some 43 percent thought their department or school was committed to social change.

The administrative environment was different in different schools. Of all groups, the graduate students in the arts and humanities seemed to sense the least responsiveness from their administrators in terms of their receptiveness to ideas, their responsiveness to their needs, and involvement of students in governance. They also did not think their administrators were committed to social change. Students in physical science and engineering also did not think their administrators were committed to social change. They also most often reported no departmental attempts to help students become oriented to the university or department community. Students of the social sciences least often reported that students were involved in governance. Law students felt they had poor communications with their administrations and that they were treated with impersonality to the point of feeling like numbers. Medical students seemed to sense the best relations with their administrators as indicated by their interest in students' ideas, their concern for their needs, their involvement of students in governance, and their provision of orientation programs. The medical students also felt their administrators were committed to social change, which is far from some stereotypes of the medical profession. Finally, students of other professions also felt their administrators were responsive to their ideas and needs, and least often felt they were treated like numbers.

The peer environment. Studies of educational effects have frequently found that students' values, aspirations, and attitudes are influenced by

their fellow students (Newcomb & Wilson, 1966; Wallace, 1965, 1966; Feldman and Newcomb, 1969).

Perhaps the only complete study of the stresses and demands on graduate and professional students and their relations to student peer groups is reported in Mechanic's book, Students Under Stress (1962). The setting was a graduate department in one of the social sciences at a big ten school. The stress situation was a series of departmental examinations which would decide whether the students would be advanced to doctoral candidacy, would receive a terminal masters, or would be asked to leave. Mechanic was especially interested in two kinds of reaction to stress: active coping mechanisms to meet the task, and personal defenses against the anxiety which stress creates. He found that the group of student peers served as a basis for social comparison in an ambiguous situation. As the degree of stress increased, the amount of comparison and communication among students increased greatly. Social comparison sometimes became stressful in itself, and students would sometimes withdraw from contact with others. Interaction with the faculty served the same purpose. Students attributed more power to those they thought most likely to support them in the final decision. When their situation became ambiguous, students turned to their peer group for definitions of the task to be mastered. They also relied on very insubstantial evidence from peers and faculty to provide them with feedback as to how well they were doing by means of social comparison. Mechanic did not measure the personality needs of his group of students, but he found that those who were more central in the communication network did worse on the examinations. The more central students not only used

communication for social comparison, i.e., to define adequate performance, but also used it to satisfy their needs for reassurance and warm personal contact. While it is impossible to tell if these characteristics were due to a higher anxiety level or lower academic potential, they gain significance in view of other studies which suggest that the most successful students in advanced study have little need for personal contact and are emotionally stable (Barron, 1954; Friedenberg, 1954).

In graduate and professional school, the peer group may serve many functions. It may simply provide the emotional support of friendship, fulfilling needs of students that are frequently not met in classes or the laboratory, and, by fulfilling these needs, providing an emotional basis for coping with the demands of advanced study. Peer groups may support and reinforce the academic values of the faculty and the informal nonacademic values of the profession, aiding the process of professionalization. Of course, in some cases the peer group will support values which run counter to those of the faculty, in which case the group can have a disruptive influence. The peer group can help set the level of effort and quality in students' work. In addition they can serve as a basis for comparison, providing examples and standards against which the student can evaluate his performance, attitudes and characteristics. The peer group can have a powerful stimulating effect on students' intellectual development. The example and competition of other students can prod students to examine their assumptions, sharpen their thinking and broaden their knowledge. Some studies, such as the study of medical students by Becker et al (1960), have indicated that students in advanced education develop a collective strategy to meet the academic demands placed upon them. The peer group will probably suggest

the methods of coping with the demands of advanced education. We developed items designed to assess each of these functions of peer groups in the Survey. The function of providing emotional support seems well met in all the schools, with an average of 92 percent of the sample saying students are friendly. However the extent of the support may be limited, since some 57 percent say there are "lots of student cliques." The graduate students tended to report somewhat fewer cliques than average, whereas the law and medical students reported more cliques than average. The extent of student group support to the academic activities outside the classroom, such as discussions, departmental clubs, etc., was near the average of 53 percent in all the fields.

The characterics of students affect their values and the values of other students will influence individual students. One major dimension of values places service to other people at one end and concern for money at the other. The perceptions of this aspect of the values of other students held by students were assessed by the item "students value the money they will make in their careers more than the opportunities for helping people." About half of all students agreed with this statement, but the percentage varied from 35 percent of the arts and humanities students to 72 percent of the law students. This result is consistent with research on the characteristics of students who enter these fields.

Students set standards of performance for each other. Apparently students feel these standards are set at high levels: some 88 percent judge other students to be very bright and 87 percent thought they work very hard at their studies. The perception that other students work

hard was strongest in law and medicine. The examples of other students allows the student to set his level of effort. Interaction with other students may also help sharpen students thinking. About 80 percent of the students in every field felt other students were independent thinkers. Perhaps the presence of other alert students acts as a stimulus to the students' own attention to the field.

One way of coping with the demands of advanced education is to cheat. Students seem to feel it is rare. Less than one in five felt that academic cheating was common.

In adapting to, and behaving in the general university environment, about one in four students reported that many students were involved in radical activity, perhaps related to the fact that nearly half felt that student organizations reflect general student opinion. Considering the academic demands, a surprisingly high percentage of students (56 percent) reported that students actively participated in extra-curricular activities.

The response to the question "many students have to work to meet expenses" are consistent with the section on finances. Nearly three of four students reported that "many students have to work to meet expenses". The only exception was among the medical students where the percentage was 46 percent.

In sum, most graduate and professional schools students feel their peers are bright, hard working, and friendly, although some students had doubts about their altruism or involvement in academic activities.

The academic program. The academic program is the center of graduate and professional education. The facts, theories and interpretations empha-

sized in classes define the field, and are matters of expert judgment in each field. In that sense, students' opinions are less important than those of their professors. However, students' opinions are important when it comes to the manner in which the field is presented and the procedures used in the academic program. Students' reactions to these aspects are related to the subjective quality of the academic experience.

We consequently sought students' descriptions of their academic program in four areas: the level and kind of effort required, the stimulation of the program, the variety of the program, and the emphasis of the program on practice and research.

The level of effort seems to be quite high in advanced study; 73 percent of the students reported there was keen competition for grades in their schools, 83 percent reported their program required many long hours of hard work, and 71 percent felt their program required much more studying than undergraduate college. Furthermore, the students reported new types of academic demands; 79 percent felt their program required a much different kind of studying than undergraduate college. Overall, the academic demands seem quite high.

The level and pattern of effort was not the same in all fields, however. The pattern in medical school, for example, seemed to be lots of hard work and studying, but without the sense of keen competition for grades. In law the pattern was hard work, hard studying and studying of a new kind, with a very keen competition for grades. In education the students did not seem to feel that the field required exceptionally more studying than under-

graduate school, and they were least likely to feel that a different kind of studying was involved. Thus, law students seemed to feel they were in a highly competitive environment, medical students seemed to feel they were in an demanding environment, and education students felt they were in an environment relatively similar to undergraduate school.

Students' comments on these items suggests that the question of level of work is much more complex than simple "toughness of standards." A number of students pointed out that competition for grades may lead to less learning rather than more.

> There is no academic atmosphere if by this you mean one that is conducive to creative, intelligent work. What you have here is a "cut throat," "stab in the back" atmosphere that may prevent our development of our academic skills.
>
> * * *
>
> There is too much competition among students for grades. The result of this is that professors are more interested in the grades of a student than knowing whether he has learned anything from the course.

Other students felt that an extremely heavy workload may be based on nonessential or peripheral learning.

> My greatest complain about graduate history at ------- is lack of time to do writing that is of high literary quality. My first quarter (10 weeks) here I turned in 100 pages of material. Thirty pages of this was a seminar paper using Portuquese primary sources, a language I could not read when I began the seminar. Another forty-five pages consisted of weekly book reviews, requiring clear reading of nine books. The remainder of the material I produced was based on a document written in a seldom-seen form of 17th Century Valencian Spanish. The Valencian document contained technical economic information and single terms demanded long hours of philological investigation.
>
> Clearly only a small percentage of my time could be devoted to writing. I completed the quarter on time, without "incompletes." Later I found out that I had been writing faster than one professional author of cheap pornographic novels.

Finally, some students pointed out that many of the demands of advanced study are self-imposed.

> I don't think that graduate school necessarily requires much more studying than undergraduate work. However, my commitment and my interest require me to work more than I did as an undergraduate.

The stimulation of the program. As the analyses reported in The Graduates indicated, most students expected the work in graduate and professional school to be intellectually stimulating. The real world of advanced education may be a pleasant confirmation of that expectation, or it can be a severe dissappointment. Interest in the course work is probably a prime determinant of whether students stay in school or leave.

Overall, students seemed to find the course work stimulating (80 percent), and only 42 percent agreed that "I do not like the course work, but it is required for the career I have chosen." Interestingly, the students seemed to show some ambivalence about the work, since nearly half also felt that the course work was dull. Considering these questions together, it appears that the law students were least excited about their field. They most often reported that they did not like the course work but it was required for their careers (53 percent), and that the course work was dull (57 percent). They reported that the work was stimulating about as often as other students. Perhaps they felt that the course work was sometimes dull more often than other students. Students in education least often found the course work stimulating (70 percent), fairly often found it dull (56 percent) and fairly often said they didn't like it, but it was required

for their careers (47 percent). Students in arts and humanities seemed to find their work exciting. They least often described it as dull (35 percent) and least often described it as unlikable but required (34 percent).

Students sometimes commented that their studies were as dull as undergraduate school.

> I had hopes the atmosphere would be different--a closer relationship between teachers and students. Instead, I find myself in the undergraduate situation--sitting in crowded classrooms listening to the same dull lectures with no real chance to ask questions and "get involved."

Some students recognized the problems in keeping the courses lively while the professors were working to be sure that the "basics" were covered.

> In general, law schools need some way to enliven 1st year, which for most people (myself included) is a real "down," due to the tremendous amounts of relatively unrewarding and tedious work required. Unfortunately, I don't see any facile solution; law schools are trying to cram a hell of a lot of material into 3 years, and just getting those "basics" which the professors think vital takes up an inordinate amount of time, leaving the student precious little time to pursue his own interests.

The variety of the program. Consistent with the greater structure of professional programs, there seemed to be a division between graduate and professional fields on the variety of possible work. Compared to professional students, students in the graduate fields more often reported that their school or department "Allows considerable choice in courses students may take," and, with the exception of other professions, that their school or department "Provides opportunity for innovative programs on an individual basis." Medical students were particularly unlikely to feel there was a considerable choice of courses (17 percent) and law students were least likely to report

opportunities for innovative individual programs (30 percent). Overall, about half the students felt these statements described their schools or departments.

From their comments, it appears that some students accepted the lack of options in their courses.

> Obviously, the first two years of med school present a fixed curriculum. Elective material is available later on. Also, the nature of the course work changes to more practical subjects in later years.

Some students complained that they could not satisfy their specific interests.

> My only comment would be that very few courses in British history are offered during the regular academic year and that more are offered during the summer school sessions. If the degree requirements are to be fulfilled it is very difficult when the courses are few in number and often cancelled.

Some students pointed out that a lack of requirements did not necessarily mean complete freedom.

> Though the area I'm in (General-Theoretical) is quite flexible in its requirements as presented in the brochure, in practice a lot of emphasis is put on certain courses that are "useful" for the comprehensive examinations. This limits the possibilities that are available.

Other students felt that the program really needed to be restructured.

> I feel that academic program here is not geared for optional learning because the program is too diffuse. This diffusion leads to frustration and the feeling that things are worse than they are (or should be). Our approach should be more of an integrated approach; for example, my learning would be greatly enhanced if we could study the anatomy, biochem, physiology, histology, embryology, pharmacology, and pathology of the heart all at the same time than to study some here and some there. Of course, some sort of "Introduction to Medicine" must be given in advance to avoid confusion. But I don't feel that I am learning effectively under

> the present program; to me, attending classes is wasting my time. Also a self-study program is a must!

Finally some students pointed to the relation between flexibility and learning.

> Our curriculum is entirely too inflexible--we have so many class hours that there is almost no time to study, unless one wants to sacrifice being a human being and be only a medical student. One should, in my opinion, be able to spread out our 4 quarters of basic sciences to 6 or 8 if one wishes, since at the present we have no time to go into any field in any kind of depth and therefore we end up mainly just memorizing what the teachers say and not really learning the subject matter in a comprehensible manner.

The emphases of the program. Many graduate and professional fields are divided between those who are interested in research and scholarship and those who are interested in practice. The faculty who teach those fields are also frequently divided, and so are the curricula they design. However, each field usually has struck some balance with the emphasis on one side or the other. We asked students for their opinions about the emphasis in their schools.

The total sample was approximately split half and half as to whether their school "primarily teaches skills and practical training." Law students most often felt their field was "practical," (66 percent) followed by the other professional students (62 percent) and the education students (57 percent). Students in graduate fields did not generally consider them primarily practical; students in arts and humanities least often considered their field "practical" (36 percent). Generally, the professional school students considered their fields to have a pragmatic orientation. The exception was medicine, in which only 49 percent felt they were trained in practical skills.

The picture remained basically the same when we asked students if they felt that their "program provided many opportunities for research and creative work." The percentage agreeing with this statement was consistently higher in the graduate fields than it was in the professional fields. Students in biological sciences and physical sciences and engineering fields most often felt they had many opportunities for creative work; students in law least often felt that they had such opportunities.

The differences between the professions and graduate fields are expected of course, but still, they may be related to student satisfaction.

Students who commented on these items generally came down on the side of practicality.

> "... more emphasis should be given the actual application of the law and less to the archaic case method. It is bordering upon the ridiculous that a lawyer might earn his title, pass the bar, join a respectable firm, and then have to spend 5 years doing menial tasks while he "learns his way around the courthouse."

* * *

> My interest in economics is primarily policy oriented, that is, I am interested in using economics to help solve such social problems as poverty, unemployment, inflation and degradation of the environment. I feel that the primary emphasis of the department is on abstract theoretical models which are based on assumptions so far removed from reality that they are largely inapplicable to the real world. The primary emphasis seems to be on games of mathematical logic.

Finally some students pointed out that research and creative work were not necessarily the same.

> Opportunities may be provided for research without necessarily regarding such research creative.

The general atmosphere. Students' reactions to their experiences can influence their feelings about the atmospheres of their department or school. Their feelings about the atmosphere, in turn, can influence their satisfaction with their school and their willingness to continue with their studies. Therefore, in addition to the items described in earlier sections, we asked students for their general perception of their fields in areas that may influence their satisfaction with their graduate or professional school experience. This group of items dealt with factors which are not dealt with elsewhere, but which have a strong influence on students' reactions to advanced education. The items covered the surrounding university environment, the atmosphere or "feeling" of the department, the personal costs of attending graduate or professional school, and the relation between faculty and students.

Some three quarters of the students felt that the university, of which their school or department was a part, offered "a wide variety of cultural programs, concerts, lectures, etc." Only the law students (65 percent) and the medical students (58 percent) fell below this average. Perhaps the amount of hard work required in these fields, noted earlier, led to these perceptions. If students are very busy, they may not be able to notice, let alone take part in cultural events.

Students were less positive (45 percent) about the idea that their school was "in a closely knit community." Students in the arts and humanities were least likely to agree with this idea (36 percent) and medical students the most likely to agree (54 percent). The reasons were difficult to perceive.

About three quarters of the students felt that their department or schools were proper and conventional, and about three quarters felt their departments had an informal environment. Only 56 percent felt that their department had a liberal environment. How could the students simultaneously feel their departments were proper and conventional and informal? Perhaps propriety and conventionality in manners have no particular relation to informality. That is, a department may be conventional and very formal. conventional and informal, unconventional in manners but formal in substance, or unconventional and informal.

Students in the biological sciences, physical sciences and engineering most often felt their departments were informal, students in law the least often. Students in the social sciences most often felt their departments had liberal environments. Less than a quarter of the students felt that "many students have to defer marriage to get through." Even in medicine only 32 percent felt this item described their schools.

Over six in ten students reported that the "costs are so great that many students go into debt." Consistent with information about the availability of scholarships and assistantships, less than half of the students in the biological sciences and physical sciences and engineering thought students went into debt, whereas about eight in ten students in law and medicine thought students went into debt. Again, it appears that financial pressures bear on the minds of law and medical students more than on graduate students. However, as some students commented, the reason students do not go into debt is because they radically arrange their lives so they do not have to become indebted.

> The costs are great, but most students here in married student housing (costs are even greater for families) simply do without (otherwise known as living in "poverty"), raise their own food, etc. rather than going into debt. Debt costs much more in the long run; so when you are poor, you can't afford debt--credit, loans, etc.--only the rich (those with regular good paying jobs) can afford to go into debt.

Students' descriptions of their professors are examined in Chapter 6. Here we are concerned with their overall evaluation of the quality of the faculty and of their relations with them. Students generally gave high ratings to their professors; 84 percent agreed that "Overall, the faculty is very good," and about this percentage agreed in every field. However, when asked if "There is a strong esprit de corps among students and faculty," only 47 percent agreed. Again, this percentage did not vary too much from field to field. As the analyses in Chapter 6 suggest, students seem to appreciate the scholarly, research and professional competence of their professors, but feel they are slightly aloof. Perhaps this is a necessary kind of relation if professors are to maintain their objectivity in the small classes and seminars that frequently characterize advanced education.

A number of students commented on the lack of a feeling of intellectual community in their schools and departments.

> I think the major source of disenchantment I have had with graduate school has been the absence of intellectual camaraderie and the sense of isolation. I often feel that my work is of no relevance to anyone other than myself. This reflects, perhaps, the failure of my professors to express their opinion of my work one way or the other. There is a wall of apparent indifference on the part of faculty, the alleviation of which is not promoted by the lack of enthusiasm and unfriendliness of fellow students.

* * *

I was disappointed by the total lack of an academic community at ------. The department is formal and impersonal, and is characterized by a lack of scholarly "camaraderie." Even though I attended a larger institution as an undergraduate, there was a much more closely-knit department there.

There is "campus-community atmosphere." Campus cultural affairs are attended mostly by wealthy businessmen who live nearby. The lack of student housing is apalling.

* * *

I returned to graduate school after having worked in business doing research for three years. I entered what was billed to be one of the most innovated, applied programs going anywhere. What I have found is that there has been some change, yes. But by and large I find the academic world still as irrelevant as ever. It is doing more, yes, but it is still a far cry from working hand in hand with real-life problems. I find professors to be poor communicators compared to the no nonsense atmosphere of the grimy world of business. Students have more freedom than ever before, but rarely exercise it. If they do it is in a faltering way. This is partly the students' fault of not getting themselves together and it is also the fault of faculty who do not genuinely want (or believe) that the students should be treated as individuals. Overall, I find the kind of growth, cooperation, stimulation that I found in business lacking in academia. Which when you stop to think about it, is kind of ironic.

Conclusions: The Effects of Environments. There is a great body of research about the character and influence of educational environments (Feldman and Newcomb, 1969; Baird, 1973; Walsh, 1973). Scientific evidence has been produced in recent years to show not only that colleges di fer, but that they differ systematically on certain dimensions (Pace, 1969; Astin, 1968; Baird, 1973). Other research has shown that these dimensions are related to students vocational and educational progress (e.g., Astin and Panos, 1969; Rock, Baird, and Linn, 1972). These dimensions are also related to student characteristics and behavior (Astin, 1965; Pace, 1965). Students in different kinds of colleges are also imbedded in very different

environments with very different expectations for the student. The student, administrative and faculty cultures of colleges differ and can exert powerful influences on what the student does. However, the size of the effects of the environment should not be exaggerated. Studies of college effects typically show little impact of the college on students, once their characteristics as freshmen are taken into account (e.g., see Rock, Baird, and Linn, 1972). Thus there are limitations on the impact of even the best teaching. One cannot easily turn the front line of Nerkle State into Rhodes scholars. To evaluate the success of an institutions's educational program we need to consider the capability and interests of the students.

Most of this research has focused on the undergraduate institution, but it seems plausbile that many of the same techniques could be used with the environment of graduate and professional schools. The analyses presented in this chapter suggest that the environments in different fields are often quite different, although many aspects of the environments were the same. These elements create the patterns of expectations and pressures that define the student environments of each field. The "feel" of each field seemed to be different. In a later section we will see some of the effects of these environments on students' feelings about their schools. From these results and the comments of students it is clear that the environments of graduate and professional schools have an impact on students' academic and personal well-being. In the next section we turn to what is probably the most important element in graduate and professional school environments, the professors.

Chapter 6 --

The Academic Experience: Students' Views of Professors

The core of graduate and professional education is the intensive relationship between students and their teachers. The student presumably learns what it means to be a member of his field from the behavior of his teachers as well as from the content of what he is taught. The process of professionalization is thought to be carried out largely through the efforts of the faculty. The teacher is thus a role model, an example of professional values, and a guide to the profession in addition to being a source of knowledge. For these reasons, it is essential to study the behaviors and characteristics of graduate and professional school faculty in any study of advanced education

One critical role played by the faculty is their influence on the socialization of students to their ultimate role. Since the rewards--financial and personal--of the ultimate roles are not available, the cues for the proper role behavior in that ultimate role are lacking. In graduate and professional schools most of the available information about ultimate role behavior comes from present holders of the ultimate role--the professors and staff members. The professors also define the roles which students are to enact, and they provide the only interpersonal rewards--attention, concern, friendliness--provided by the school for students.

The process of assuming a professional identity may be facilitated by the presence of an attractive and accessible model (Erickson, 1959; Miller, 1963). A number of studies have indicated that the accessibility and influence of a model plays a crucial role in the commitment of students to the

field. Indeed, these relations may play a more crucial role than ability (Davis, 1964). Assuming this is to be true, why should it be so in terms of the present study? First, there is a simple cognitive effect: graduate students can see some of the duties, rewards, and opportunities of the ultimate role in the lives of their professors. (At the same time, however, some of the stresses and costs within the ultimate role are hidden.) Professors also provide a living example of what the student hopes to become, someone who has gone through the entire process and emerged as an acceptable and even exemplary person. Although the process of identification cannot be investigated without an intensive study using depth interviews, we can note that the models can provide an ideal, an example of a person to become, which will reach and satisfy some important needs of the student. In their functions as definers of the role of student, as the channel through which the graduate and professional school can send its affective payoffs, their occasional function as models of scholarly or professional behavior and the rather individual relation they have with students, the faculty is probably one of the most important factors in the student's adaptation to graduate or professional school. Because of the structure of graduate and professional schools an individual professor often has considerable power in his relations with students. His grading is seldom reviewed. His signature and approval are often needed in the formal progress of the student. Since there is little review of his decisions if there is a disagreement between a professor and a student, the best a student can do in many cases is to change his major professor. The professor can often provide a student with financial support, employment

opportunities, etc. Since professors often define how students are to behave in sometimes ambiguous fields, their definitions of adequate performance may have serious effects on the internal feelings of the student that he is meeting "professional standards." For all these reasons, it is important to assess students' perceptions of their professors.

The characteristic ways in which instructors teach their classes and deal with students can also have important consequences for their students' learning, satisfaction and development. For example, an instructor in psychology could emphasize technical knowledge of his science, be concerned with the effects of psychology in the personal development of his students, or attempt to make his students think like researchers. The way in which he teaches his course and interacts with students helps determine what his students get out of advanced education; his teaching and professional style reflects his values and the goals he hopes his students will attain.

There have been many attempts to describe the teaching behaviors of instructors by such varied methods as systematic observation, rating methods, and measures of social interaction. Recently there have been a number of attempts to describe the classroom environment by questionnaires asking students about classroom procedures and qualities. This latter approach seems to offer the advantage that the student describes what has occured to him as he perceives it, and indicates whether it was a characteristic part of his classroom experience. The assumption behind this approach is that the perceptions of students, the persons most affected by teaching, are useful descriptions of what goes on in the classroom. It is teacher behavior as it is <u>received</u>; in the case of teachers it is behavior as it is <u>sent</u>, or intended. Of course, we cannot ask

students about everything they may have experienced. Classroom experiences vary greatly, and what is important to one student may not be so to another. We must attempt to isolate the features of classroom teaching that are important for the majority of students and teachers.

We therefore attempted to define the major aspects of classroom teaching which had been identified in previous research and the experiences of groups of teachers. While there appeared to be a bewildering diversity among these studies and experiences, there was actually some degree of consensus. From this review and from an intuitive analysis of teacher behaviors that are visible in typical school classes, a number of items dealing with teacher-student interaction were developed. We tried to make most items descriptive of behaviors and reactions to those behaviors rather than evaluations of behaviors. (See Table 6.1)

Overall, graduate and professional school students described their professors as respecting the adulthood of the students, and in turn as having the respect of most students. Considering their students as adults, they expected them to be prepared for every class session, and encouraged classroom discussion and encouraged further contact about classwork out of class. However, they do not often consult with students on their academic progress.

Advanced education is sometimes criticized for being impersonal and cold. The professors are supposed to regard teaching as a distasteful distraction from their scholarly pursuits and professional meetings. From the responses of our sample, this description appears false. The students say their professors are seldom absent from class, and do not value research more than teaching. They also say that they do not treat students as numbers but, on the contrary are friendly and accessible to students. However, if students feel that it is easy to have contact with professors, they did not seem

Table 6.1

Graduate and Professional School Students' Views of Their Professors

iew of Professors*	Group								
	Grad. Arts Humanities	Grad. Biol. Science	Grad. Physical Science, Eng.	Grad. Social Science	School of Education	Law School	Medical School	Other Professional	Total
They are friendly and accessible to students	74	70	84	74	75	67	76	79	77
They clearly explain the subject matter	70	72	71	65	65	63	60	70	67
They treat students as adults	78	82	90	82	83	79	80	81	82
They expect students to be prepared at every class session	79	64	68	72	68	93	50	75	72
They encourage out of class contact about academic work	64	72	68	65	67	56	62	68	65
They have liberal political views	39	37	25	59	36	55	22	35	37
They have conservative political views	14	22	22	18	19	23	22	25	22
They are interested in reform in the field	39	40	37	54	70	67	41	61	53
They take strong positions on controversial issues	29	23	15	33	36	37	17	34	28
They encourage classroom discussion	74	64	59	74	77	80	47	76	70
They give helpful feedback on tests, papers, and reports	59	52	59	59	60	23	38	59	52
They give each student a clear idea of how well he is doing	43	43	51	44	50	10	41	50	43
They consult with students about their academic progress	33	31	32	34	26	8	30	34	30
They treat students like numbers	9	8	10	11	10	24	15	10	12
They are excellent teachers	52	53	48	46	52	51	37	50	48
They are more concerned with research than teaching	18	42	35	36	17	9	34	19	24
They are so divided into factions that they harm students' academic progress	10	13	7	16	5	5	13	7	9
They are often absent from class	2	3	3	2	3	2	1	2	2
They are excellent lecturers	42	45	47	38	39	44	29	41	41
They are top-notch researchers	41	60	55	44	26	30	46	33	40
They are very helpful advisors	39	42	43	30	46	21	28	42	38
They complement each other in providing coherent and comprehensive instruction	43	50	49	42	44	46	47	49	47
They stimulate student learning	61	61	60	54	56	53	45	79	[illegible]
They have the respect of most students	69	71	77	67	68	66	65	69	69
They exercise a good deal of discipline in the classroom	23	25	30	19	5	49	23	31	29

*Figures show percentage of each group indicating statement was true of 50 percent or more of their professors.

as sure of the value of the contact. Only 52 percent of the students said teachers gave helpful feedback on tests, papers and reports, only 43 percent said they give each student a clear idea of how well he is doing, only 38 percent said they were very helpful advisors, and a mere 30 percent said they consult with students about their academic progress. It appears that the faculty are available for student initiated contact, but do not go out of their way to provide concrete help to students.

Few students (9 percent) say their professors are so divided into factions that they harm students' academic progress, but only about half (47 percent) say they complement each other in providing a clear and comprehensive instruction.

In the classroom, students describe their teachers as clear explicators of the subject matter. They also suggested their professors do not allow their political views-liberal or conservative--to come out in class work. In fact, few students (28 percent) said that their professors took strong stands on controversial issues, and a scant majority (53 percent) said their teachers were interested in reform in the field. The students did not feel that their professors were concerned with running a tight ship; only 29 percent said their teachers exercized a good deal of discipline in the classroom.

Only 41 percent of the students felt their teachers were excellent lecturers; probably a majority would consider their teachers adequate, if they had been asked that question. In any case,56 percent felt their professors stimulated student learning and 48 percent described their professors as excellent teachers. Since these are assumed to be the basic purposes of advanced education, one might have expected the figures to be higher. Finally, 40 percent believed they were being taught by top-notch researchers. Since research is not equally important in every field, and since the research capability of professors is not always visible to students (a considerable number left this item blank) this figure seems reasonable.

The general description of teaching in graduate and professional schools provided by the total results was also basically accurate in various fields with some intriguing differences. Students in the biological sciences were the most likely to report that their professors were top notch researchers and that they were more concerned with research than teaching (42 percent) and that they encouraged out-of-class contact about academic work. The law students, in contrast, seldom said their professors were top notch researchers (30 percent) or that they were more concerned with research than teaching (9 percent) or that they encouraged out-of-class contact about classwork (perhaps due to the large size of law school classes). The proportion of students in the biological sciences and in law who said their professors were excellent teachers was nearly exactly the same. Research and teaching, then, would appear not to have the positive relation claimed by faculty nor the negative one claimed by students. They are probably just separate activities. Some recent research has indicated that professors who are heavily involved in research do not spend less time on their teaching; they simply arrange their time so that they can meet all their commitments (Clark & Blackburn, 1973).

The greatest characteristic of the professors of the physical sciences and engineering might be called "objectivity". Compared to other groups, their students more often describe them as treating their students as adults and as having the respect of most students. They are also less often described as taking strong stands on controversial issues, as being interested in reform in the field, and as having liberal political views. They clearly do not allow their personal opinions to influence their presentation of their subjects in the classroom. They are relatively frequently seen by their students as good researchers, and as excellent lecturers, and as friendly and accessible to students. These results suggest that professors in the physical sciences and engineering are conscientious about both their teaching and research duties.

Graduate students in the social sciences describe their professors as much like the general picture, only noting their liberal political views, and their relatively small use of discipline in the classroom.

Graduate students in education describe their professors as interested in reform in the field, as taking strong stands on controversial issues, and as not excercising great discipline in the classroom. Together these traits may indicate the general educational liberalism of many faculty members in education departments. Education graduate students seldom described their professors as top-notch researchers. This perception contrasts sharply with the aspirations of the American Educational Research Association, a professional organization devoted to raising the standards of educational research. Education professors are also considered helpful advisors by their students. Interestingly, although their profession is the study and improvement of education, the education professors themselves are not described as exceptionally friendly, or clear, or as unusually good lecturers or teachers, or as stimulating student learning.

Law students' descriptions of their professors were unusual in many ways.[1] Some of these descriptions are almost certainly due to the unique character of law. For example, of all groups, law professors were least often described as top-notch researchers, or as more concerned with research than teaching. "Research" in any experimental or, laboratory sense is remote from the concerns of law. There is such a thing as faculty legal research of course. Most of it, done in the library, would not be very visible to a first year law student and little of it is brought into first year classes. Also, first year students would have little opportunity, if any, to work with a professor in doing any of the

[1]This section profited from the comments of Frederick Hart.

research. Hence, it is unlikely that they could make any kind of a judgment as to whether their teachers even do any research. Most law schools use a case study method, which requires students to be prepared to be called upon at any moment. Many law professors try to elicit responses from every class-member so they may judge their mastery of the subject. The responses of students bear this out, as well as suggesting a certain degree of formality in the classroom. The law students are considerably more likely than any other group to describe their professors as using a good deal of discipline in the classroom. Perhaps as a consequence of the adversarial nature of law, and the considerable latitude for personal opinion, law students are more likely than any of their contemporaries to describe their professors as taking strong stands on controversial issues, as interested in reform in the field, and as having liberal political opinions. An aura of controversy must add spice to the law classroom. All of this takes time, which, by the reports of law professors, they give to the preparation of their classes.

The formality of the law classroom may make it difficult for students to approach their professors after class. In any case, of all students, law students least often felt their professors were friendly and accessible or felt they encouraged out of class contact about academic work or consulted with students about their academic progress. They are least often seen as helpful advisors. Finally, they are most often seen as treating students like numbers. Law professors appear aloof and remote to their students. Of course, there is a reason why law professors are less accesible: the student-faculty ratio in law schools. Few first year law students are in classes of less than 50. Most are in classes of well over 100 and some probably had some classes where there were over 200 students. This makes it difficult for all but the more aggressive students to spent any time with a faculty member. The student-

faculty ratio in law schools is almost always greater than 30 to 1, compared to many graduate schools which have a student faculty ratio of less than 10 to 1.

Other results suggest that law professors do not give their students a clear idea of their progress. They are the professors least often described as giving each student a clear idea of how well he is doing and least often described as giving helpful feedback on tests and assignments and least often described as clearly explaining their subject. Consequences of the absence of feedback and ambiguity have been noted by many researchers (e.g., Baird, 1973). The consequences include student anxiety, less learning, and lower morale. However, compared to the average, they are slightly more often described as excellent teachers and lecturers. Some of these results are explained by the nature of the first year. As Hart (1974) puts it:

> In law schools, the first year student will have no examinations or quizzes until the end of the semester. Part of this is due to the student-faculty ratio, and part of it is due to the fact that law professors believe that there isn't any way to test for specifics. They are teaching a process - and this is not testable until a substantial amount of material has been covered. There is another aspect to this. Most of us who teach in the first year find the the most important thing to teach is that there are very few answers and many questions. Most students come to law school believing that the law is a nice little set of rules that can be learned. That simply isn't the real world. There are some rules, but the way in which these rules operate is quite different from the way in which one may think... This means, I think, that students get confused and do not know how well they are doing. I don't know of any solution to this, in fact I think it is a good thing. I sometimes tell students that they are beginning to become a lawyer when they are 'comfortable in uncertainty' because that's the life of a lawyer. ... Even when students do take exams, they are essay exams and are not capable of the same kind of mathematical exactitude that you can have with objective tests. So again, students do not get as good an idea of how well they are doing as they would like.

Like the law students, medical students gave their professors relatively low ratings on their clarity in explaining their subject matter, on the helpfulness of their feedback on tests and reports, and on their helpfulness as advisors. These reactions may be due, as with the law students, to students expectations that they should be getting clear concise guides to a field that is not clear or concise. Medical school students least often described their professors as excellent teachers and lecturers. They also gave them the lowest rating on the ability to stimulate student learning. Probably because of the didactic nature of the first year of medical study, they are relatively infrequently described as encouraging classroom discussion or as expecting students to be prepared at every class session. They also seem to keep their political views to themselves and seldom take strong stands on controversial issues. Of course there are few controversial or political issues in Gray's Anatomy.

Students in "other" professional schools describe their professors much as everyone else describes theirs, except that they most often say their professors stimulate student learning.

Many students commented on these questions, providing evidence that students had a wide range of experiences with graduate and professional school faculty.

Many of the comments described teaching that seemed to be like poor undergraduate teaching: dull lectures, disorganized preparation, narrowing in its effects rather than broadening.

> The teaching quality here is an extreme disappointment to me--I longed to tell you more about that--lecture format vs. seminars, passive vs. active learning, amount presented correlated with confusion about subject matter etc.

* * *

The emphasis in chemistry during graduate school is more on the development of thought processes and creativity whereas in undergraduate there was extreme emphasis on fact. The transition is one that takes a while and is not immediate.

I find that personalities become a major part of the scientific field and the majority of the professors in the department have some personality defect that enters into their research and yours.

The department here is willing to give a provisional student a chance. I entered with an extremely low advanced test score and much higher GRE scores. So far, I have been successful due to a lot of help given to me by some post-docs. We are a very close-knit bunch.

* * *

The undergraduate-graduate interface may be hard to transcend, but the transition strain can be attenuated by good teaching in the lecturer's portion of the course and by frequent and speedy feedback to the student to his work. The topics for the courses that I have elected have been too large to cover in any one quarter in detail, but lecturer's have optioned to splash about in all or most of the topics in one sector without giving at least one really good example of scholarship in any one topic. Courses have tended to ignore any logical structure in the research in topics, i.e., why the course topic is a topic worth studying, why research is oriented along different lines or to different questions within the topic, what advancement has been made to date, and where forefronts are headed and why. Readings tend to reflect the same lack of scholarship; no attempt has been made to synthesize supplemental materials to carry some of this depth's burdens. Feedback has been low because very little is asked or stimulated. If stimulated, time to work on the question becomes limiting to fulfill minimal shotgun memory work.

* * *

In my opinion, graduate study should be aimed at the goal of producing a scholar with specialized knowledge in one field, more than general knowledge in several other fields, and general knowledge or, at least, interest in or receptivity to all branches of human endeavor. Course work frequently hampers the growth of knowledge by confining the student. Seminars should consist of intelligent discussion of topics, not petty criticism of papers. Students should be encouraged to think, not memorize. Professors should be honest about their opinions of students and treat them as intelligent adults, listening to their opinions and sharing their own.

Some students suggested solutions.

> The major disadvantage of my school is that the basic science teaching is atrocious. Some plan to improve teaching should be instituted--perhaps a graduate school course that would be graded by comments and would form part of the record under consideration when applying for a professorship.

Some students pointed out that faculty friendliness is not the same as respect.

> The attitude of the faculty members toward graduate students is one of "superior" to "inferior", respectively. Although the faculty are friendly, the important areas (i.e., progress, encouragement and worthiness) are many times ignored or neglected.

Some students felt that divisions in faculty interests could possibly hamper their education.

> I believe that any school is good even if only a minority of professors are excellent. The main objection is that at -------, the variety of prof. interests is so diverse, that there is little cohesion among them concerning theory & technique--and this is at times confusing, but also good in that it gives one a wider range of knowledge in many areas.

Many students, of course, reported very good teaching.

> With regard to the faculty, I think they can best be summed up with the word "surperlative." The competence of the faculty is outstanding. As far as political matters go, I would think they tend toward the liberal side of the spectrum, but not once was politics a subject of class. They all try to use their limited class time to the study of law. On the whole they were well organized and prepared for class. Also, if they had to miss a class, 9 times out of 10 it was made up. The faculty tends to not accelerate competion. The freightening levels of competition are initiated by the student body.

One issue which produced a great deal of comment was the emphasis on research or scholarship and, according to the students, the corresponding de-emphasis on teaching.

> On the whole, ---------- University's psychology department is respectable. Its strong point seems to be research. Graduate school coursework is rather poor, however. Many professors don't seem to give a damn about making their courses clear and stimulating. It also appears that professors who devote more energies to teaching them to research are chastized. There should be significant improvements in the quality and applicabi-

lity of coursework if courses continue to be required of graduate students. (Possibly courses could be more oriented to practical research and teaching skills because participating in these activities results in much more learning).

* * *

It is a great evil that research people who are utterly unqualified to teach should be allowed to ruin fine subject matter in a disorganized & boring presentation--.

A separate type of Ph.D. should exist with emphasis on Teaching skills & aptitude--The "Publish or Perish" approach of even relatively obscure colleges is the largest single deteriment today faced by colleges & students--.

It is possible and necessary to establish qualifications and criteria for the funding of chairs of "TEACHING" in a field.

* * *

I am enjoying my medical education very much, and find it very stimulating.

I feel however, that there are not enough of the faculty who are truely devoted to teaching. Teaching and the preparation for lectures etc. seem to take a back seat to research.

I would like to see medical schools (and perhaps other schools) hire professors on two bases: one for faculty principally interested in research and another for those principally interested in teaching.

i.e., MORE EMPHASIS SHOULD BE PLACED ON GOOD TEACHING!

In an earlier study (Baird, 1966) we found that good and close relations with the faculty led students to general feelings of high morale, a sense that they had chosen the right field and school, and a willingness to stick with their studies. This general satisfaction seems to extend to the formation of supportive student groups. When the faculty was accessible and helpful, students' morale was high in the face of the stress of high academic standards. When the faculty was distant the stress of high academic standards was associated with low morale and doubts about the worth of the career.

These results suggested that when the faculty is distant, general dissatisfaction leads to feelings of stress. When faculty-student relations were close, dissatisfaction did not lead to feelings of stress.

Since the role of the graduate student is a transitional one, with the ultimate role of scholar or professional as an outcome, one would expect a high degree of contact to be needed in order to produce what Strauss (1959) calls "coaching". This process is the tendency for persons who have gone through status transitions to guide and advise those who follow. "Coaching" provides preparation for problems students will face as professors, researchers, or professionals. This preparation should be more thorough where the faculty is psychologically close. The research reviewed in Chapter 1 supports this idea. The attitudes needed for a professional role should be taught during graduate school as they are in medical schools, for example, where the student must learn to control his fear and disgust of disease (Daniels, 1960).

Whatever its causes, the psychological closeness or distance of the faculty is a center of tension in graduate and professional schools. In some fields, a low social distance for high identification by the student, for the teaching of attitudes, and the development of commitment to the field seems desirable. That is, the professors should be accessible and close to the students. However, in some fields, such as law, commitment may be made to the field, with the professors serving as examples of professional conduct, rather than as friendly guides to the field. It is the law that becomes "a jealous mistress", not the law school. Because of the evaluations which are deemed necessary to the system--grades, passing a proposal or written examination, etc.--professors must maintain a social distance so that evaluations may be made objectively. This tension between

the professors as role models or examples, and their functions as evaluators causes ambivalence in students. For example, a student might wish to work under a professor because he is an important figure in the field, yet avoid him because of his arbitrary grading policies. In any case, the results of our questions about professors and the comments of students about their professors leave little doubt of the importance of student-faculty relations.

Part Four: Students' Evaluations of Their Schools and Their Reactions to Their Experiences

We first report students' ratings of the adequacy of their schools' or departments' admissions procedure, formal degree requirements, assistantships, library and facilities and advising. We next asked students for their personal reactions to their experiences in advanced education, then examined the changes in students' self-ratings.

Chapter 7 -- Students' Evaluations of Their Departments' Facilities and Policies

Students are barraged by a series of rules, requirements and facilities as they go through graduate or professional school. They must deal with departmental or school decisions before they arrive in the admissions process. The definitions of their progress, status and what they can study are set by departmental and school policy. Their very attendance may be determined by the availability of scholarships or assistantships. The educational value of assistantships may be determined by the range of activities allowed to the assistant. How much the student learns may be affected by the availability and quality of the facilities. The students' adjustment to the school will be affected by the helpfulness of the department and the quality of departmental faculty advising. Consequently, because of the importance of policies and facilities, we devised a number of questions about them in the areas of admissions, formal degree requirements, assistantships, facilities, and departmental and faculty advising. Students evaluations are shown in Table 7.1 of these areas.

Admissions. An earlier question asked of the students when they were seniors generally indicated that they felt the admissions procedures were fair, prompt, and fairly efficient. Students still seemed as satisfied a year later. The majority of students in every field rated as "adequate" or "good" the flexibility of course requirements for admissions, the speed of reply about the departments's or school's decision, and the information provided for applicants

Formal Degree Requirements. The majority of students in every field also gave good ratings to the clarity of degree requirements, the relevance of requirements to the actual work in the field, and the number of formal steps to the degree. Fewer students felt satisfied with the difficulty of meeting

Table 7.1

Students' Reactions to Graduate and Professional School Practices and Facilities*

Area	Group								
	Grad. Arts Humanities	Grad. Biol. Science	Grad. Physical Science, Eng.	Grad. Social Science	School of Education	Law School	Medical School	Other Professional	Total
Admissions									
Flexibility of course requirements for admissions	66	71	69	72	59	69	69	69	69
Speed of reply about department decision	61	65	69	66	51	60	61	55	62
Information provided for applicants	62	62	67	65	57	68	70	67	66
Formal Degree Requirements									
Clarity of requirements	71	66	74	69	63	74	77	72	72
Relevance of requirements to the actual work in the field	66	69	73	70	61	70	73	69	69
Number of formal steps	53	54	63	62	52	48	50	55	55
Difficulty of meeting steps to a degree	52	60	61	59	46	42	48	53	52
Proportion of courses required in major area	64	70	72	71	61	33	46	62	60
Proportion of courses allowed in minor areas	46	58	60	57	47	24	31	46	45
Reasonableness of language requirements	69	61	60	64	48	17	25	49	47
Opportunities for independent study	61	68	69	69	52	34	50	55	56
Opportunities for undergraduate teaching experience	46	52	56	45	35	5	13	22	31
Assistantships									
Amount of stipend or salary	37	47	61	42	21	5	12	25	30
Steps in appointment procedure	30	42	52	36	19	3	9	19	25
Award process	26	40	47	32	18	3	7	19	23
Relevancy of work to academic progress	40	51	54	41	27	5	15	29	31
Chance to act in a professional role	41	46	54	39	26	8	19	28	31
Relevancy of work to ultimate professional work	46	54	56	43	28	10	[illegible]	30	33
Library and Facilities									
Library books in field	63	64	72	63	61	75	76	68	69
Library books outside field	63	62	67	66	62	35	41	61	57
Library journals in field	62	67	76	74	65	61	79	72	72
Library hours	59	62	73	68	61	74	70	67	68
Service from library staff	68	66	74	72	63	66	76	69	70
Availability of laboratory facilities	28	68	61	41	38	11	71	38	43
Quality of laboratory facilities	27	69	59	40	39	8	71	36	42
Study and lounge space	45	44	63	57	54	48	58	56	55
Equipment for class work	39	66	63	50	49	23	72	51	51
Access to computer facilities	15	50	71	54	32	5	37	45	41
Quality of computer facilities	18	59	72	57	36	6	40	44	42

Table 7.1 (Cont.)

Area	Group								
	Grad. Arts Humanities	Grad. Biol. Science	Grad. Physical Science, Eng.	Grad. Social Science	School of Education	Law School	Medical School	Other Professional	Total
Departmental and Faculty Advising									
Helping students find assistantships	40	52	58	47	25	6	25	29	33
Helping students find other kinds of jobs	31	30	39	34	30	19	27	35	32
Helping students obtain financial aid	41	50	52	45	30	25	50	41	43
Helping students find housing	24	32	28	22	23	18	34	29	24
Helping spouses of students find work	9	18	16	16	10	7	27	16	15
Advising about academic requirements	59	68	69	64	55	46	51	60	59
Guidance in selection of course work	56	66	65	60	58	36	35	53	50
Supervision of students' course work	55	61	61	62	52	25	42	53	48
Advice in selection of thesis subject	42	56	50	47	25	4	9	28	27
Supervision of thesis research	39	55	51	49	22	4	8	27	26

*Figures show percentage of each group who said their school was adequate or good in each area.

steps to a degree. In law, medicine, and education, the proportion rating the policy as adequate drops below a majority.

The percentage of all students who feel that the proportion of courses required in the major area is satisfactory is 60 percent, but 46 percent of the medical students considered the proportion satisfactory, and only 31 percent of the law students thought so. A similar question, on the proportion of courses allowed in minor areas drew a similar response, except that the level of satisfaction was lower in every field. Law and medical students were again the least satisfied. The requirements of the curricula in these two fields usually allow for few, if any, courses to be taken outside the professional area. Differences between the fields in students' satisfactions with opportunities for independent study probably stem from the same curricular demands in the professions. Students in the professional fields, particularly law, were less satisfied with opportunities for independent study than students in the graduate fields. There were also sharp differences between the professional and graduate fields on two items which were only appropriate to graduate fields. The professional school students typically left blank the questions about the reasonableness of language requirements and opportunities for undergraduate teaching experience. The majority of students in the graduate fields felt the language requirements were reasonable, but their opinions seemed to be split on the opportunities for undergraduate teaching.

Assistantships. The questions on assistantships also did not apply to most professional school students, although a few education and other professional school students did answer the questions. Students in the physical sciences and engineering seemed most satisfied with assistantships; with the

exception of the award process, the majority of this group rated the aspects of assistantships as adequate or good. Students in the arts and humanities seemed least satisfied, altogether. Students in the social sciences were the least satisfied with the chances to act in a professional role as assistants, and the relevance of the assistantship work to ultimate professional work.

Facilities. The results for these questions are fairly easy to summarize: where a facility is relevant to the field, students rate it as good or adequate. Libraries are relevant to every field, and the clear majority in every field felt that the library books in the field, journals in the field, library hours, and service from library staff were adequate. With the exception of law and medical students the majority of students felt that the library books outside their field were adequate or better. Laboratories are most relevant to students in biological science, physical science and engineering, and medicine: the majority of students in those fields rated the availability and quality of laboratories as adequate. Computers are most often used in biological science, physical science and engineering, and social sciences; students in those fields gave satisfactory ratings to the accessibility and quality of the computer facilities. Equipment for class work (demonstrations, experiments, etc.), are most often used in the sciences and medicine: students in those fields are satisfied with those facilities. Study and lounge space was seen as less adequat- by students in arts and humanities, biological sciences and law. It is difficult to understand the reasons for these differences.

Another indication of students' basic contentment with their schools' facilities was the very low number of comments about facilities. Students

did not go out of their way to praise them, but they did not criterize them in their comments either. Perhaps it is a sign of the affluence of American graduate and professional education that students seem to simply assume that adequate facilities will be available, and that they are.

Departmental and faculty advising. Students in many fields reported that their school or department gave them little help in meeting a number of real life requirements for attending graduate or professional school. Few students rated their departments as adequate in helping the spouses of students find work, helping students find housing, or helping students find jobs other than assistantships. The departments and schools got better ratings on helping students find assistantships and helping students obtain financial aid. However, even in these areas only a minority of students in a number of fields considered the help adequate. Only in biological science, physical science and medicine did a slight majority rate the help in obtaining aid as adequate. Of course, questions about assistships are most relevant to graduate fields, but even there, less than half the arts and humanities students and social science students considered the help adequate. Considered together, it appears that schools and departments could do a good deal more to help their students take care of some essential tasks.

It is fairly easy to summarize students' feelings about the quality of advising about academic requirements, guidance in selection of course work, and the supervision of students course work: a majority of students in the graduate fields, education, and other professions were satisfied. In law only a minority was satisfied, and in medical school only a minority was satisfied with the exception advising about academic requirements.

The items referring to thesis work apply to the graduate fields. It seems that a majority of students in the biological sciences and physical sciences and engineering were reasonably satisfied, the students in arts and humanities and social sciences were less satisfied. Of course, even in the graduate fields some students may have felt that it was too early in their careers to evaluate thesis advice.

Reflecting their mixed reactions in the item results, students had mixed things to say about the quality of advising and help. Some students pointed out that number of the functions mentioned in the questionnaire were handled by other parts of the university.

> "Helping students find housing" and "Helping spouses of students find work" are NOT functions of the department or faculty. Housing is handled here at _____ by the Married Student Housing Office--far better and more responsive than any civilian or military landlords or agencies I have seen or heard of. Unmarried students find ample space in a high rise half-filled graduate student dorm, or through abundant bulletin board ads for apartments and houses.

Some felt that faculty should not be held responsible for their students' adjustment to advanced study.

> You may note also a tendency to hew to middle path on questions regarding abilities of teachers and counseling facilities available to students. That can be attributed to the old-fashioned view that teachers are to teach, not hold students' hands, and students are to learn, not have personal problems solved.

However most comments about help and advising were critical.

> The really major problem, however, is neither teaching nor research skills but advisor skills. They are almost incapable of communicating with students honestly about the student's progress--until the Chairman sends a probation letter and the

student is stunned. They are too busy trying to be congenial and friendly instead of honest and effective in terms of helping the student realize his potential. Students must be each others advisors--but they are not in touch with all the relevant information!

* * *

This department is rather hierarchical, reminiscent of one of the worse features of a European university. From my vantage point, I see little positive interaction between faculty and graduate students, graduate students and undergraduates, undergraduates and faculty.

* * *

It would seem to me that greater interest, concern and skill in advising graduate students would be helpful, especially those returning to school after a number of years' absence. To be met with indifference, rudeness or incorrect information does not help the University. What can be done so that advisors don't have to see hundreds of students in the few days of registration?

* * *

Students are used to fullfill the egotistical desires of their advisors and are not considered as "people seeking an education to solidify their own dreams." The most deplorable thing that happens to the average graduate students is the dehumanization inflicted by the advisor and faculty via this long practiced educational "jack-assery."

* * *

I have been very disappointed in my thesis committee. I feel that I've gotten very little help or support from them. I feel that they have skills to share and that "to work with someone" should mean more than going to the library.

The survey doesn't seem to account for the importance an individual may hold. The Chairman of the Graduate English Division is condescending, moody, unhelpful, and downright rude at times-- And he is the person we all must deal with at least 4 or 5 times a year. His office is poorly organized & inefficient. I know very few students who have ever been counseled by their advisors--advisors customarily check to see if the students are satisfying departmental requirements. I have never been asked about my own interests.

* * *

> The quality of advising graduate students is in general very poor. I feel that this reflects a lack of interest and concern on the part of the faculty rather than the students. There were no overall orientation meetings for entering graduate students, no outlines of degree requirements or expectations beyond those outlined in the catalogue, and no continuing advising programs to ensure satisfactory progress of graduate students. This is an intolerable situation, I feel, and represents a waste of resources. Any close association with faculty members is entirely up to the student to pursue; no one stresses the importance of such professional association; and students are thereby deprived of an extremely important part of their graduate education.
>
> Set up an advisory body for graduate students--orientation to the program, evaluation of progress, encouragement for faculty affiliation, information on job placement. This is vital!

In sum, graduate and professional school students seemed to be fairly satisfied with their schools' admissions practices and most formal degree requirements. Students seemed to desire more flexibility in the courses they were allowed to take. Where students had a basis for reacting, they tended to be satisfied. Thus, in the fields where assistantships were common, students seemed to be satisfied with various aspects of assistantships. (An analysis of the responses of students who held assistantships showed them to be quite satisfied.) Where a facility was relevant to a field students tended to be satisfied with it. Overall, it appears that students are generally satisfied with the formal aspects of their schools policies and programs, and with the facilities provided. It is a credit to the affluence of American education that facilities are seldom found wanting.

One area where students were often dissatisfied was departmental advising. The student comments illustrate how aggrevating the lack of good departmental advising can be. Graduate and professional students are, of course, adults, and adults need accurate, useful information on areas that affect their lives. Many departments could do a good deal more to provide this kind of help.

Chapter 8 -- Personal Outcomes: Satisfaction with Advanced Education and Changes in Self-Conceptions

A. Personal

Students' satisfaction with their graduate and professional school experiences are important in their own right, since they affect student morale and effort directly. But they are also important as indicators of the success of the schools' programs and policies. Satisfaction can also have a critical influence on students' decisions whether to continue or dropout.

Students may enter with a disposition toward dissatisfaction if the school they are attending is not their first choice of institution. As shown in Table 8.1, nearly six in ten of the students said their present school was their first choice of a graduate or professional school. Students in the physical sciences and engineering, education and other professions most often reported they were attending their first choice of school, law and social science students the least often. Students did not differ greatly on their reports as to whether they were attending their second choice school. However, whether a school was the students' first choice did not have a strong relation to whether the student would "strongly consider a different university or school within the field, if it were practical to change." The students most willing to change were in the arts and humanities and social sciences, with 45 percent in both areas who would consider another school. The students least willing to change were in medicine, education, and other professions, all with less

Table 8.1

Graduate and Professional School Students' Personal Reactions to Their Schools

Reaction	Group								
	Grad. Arts Humanities	Grad. Biol. Science	Grad. Physical Science, Eng.	Grad. Social Science	School of Education	Law School	Medical School	Other Professional	Total
My expectations of what graduate or professional school would be like are being fulfilled	48	61	67	53	56	60	62	56	58
I expected to be treated like a colleague in graduate or professional school, but find I am treated like a student	27	25	21	34	28	31	30	29	28
I would strongly consider a different field or study now, if it were practical to change	23	14	19	26	20	15	5	13	16
I would strongly consider a different university or school in the field, if it were practical to change	45	37	31	45	29	37	26	29	33
This is my first choice of a graduate or professional school	49	53	66	44	64	40	55	68	58
This is my second choice of a graduate or professional school	26	20	18	28	16	26	24	18	21
The curriculum is too narrow	43	39	25	43	35	31	22	31	32
The curriculum allows sufficient time for thoughtful consideration of the content	39	53	52	49	53	38	30	46	45
The courses generally complement each other	61	68	75	68	69	80	82	80	75
There are sufficient opportunities for interdisciplinary work	42	60	64	53	44	35	46	53	50
The grading system is fair	69	77	84	70	76	38	79	74	71
Courses should be on a pass/fail system	45	51	40	57	54	55	82	54	55

Note: Figures show percentage of each group indicating that the item reflected their feelings about their graduate or professional school experience. Options were "Yes" and "No".

than three in ten students who would consider changing. Overall, a third of the sample would be willing to change, suggesting that many students feel a good deal of dissatisfaction with their schools.

Students were more satisfied with their fields than with their specific schools. A mere 16 percent said they would "strongly consider a different field of study now, if it were practical to change." Only five percent of the medical students would consider changing; 26 percent of the social science students would consider changing. These results are consistent with a number of surveys (e.g., Havemann and West, 1952) which have shown about the same ordering of level of satisfaction with various fields. People in the social sciences, for example, have consistently shown the greatest dissatisfaction with their field.

Many students enter advanced study with the expectation that they can, at last, cease being deferent students and can become adult scholars and researchers. Obviously, there are many years of work ahead, and the process of "professionalization" is gradual. So, it may not be surprising that 28 percent of the students agreed that they "expected to be treated like a colleague in graduate or professional school, but find I am treated like a student." It is difficult to understand why more social science students (34 percent) felt this way than did physical science and engineering students (21 percent).

Generally, students seemed to find fairly few surprises in their experiences. Nearly six in ten said "My expectations of what graduate or professional school would be like are being fulfilled." Some two-thirds of the physical sciences and engineering students felt their expectations

were being met in contrast to less than half the arts and humanities students. Other information indicated that these fields consistently differed in their students satisfaction with the curriculum and friendliness of the graduate community, so perhaps the differences are not too surprising.

Students' comments about their satisfaction showed a wide range of feelings and opinions. Some were very critical.

"I consider this school an intellectual cesspool."

Some were laudatory.

> I am grateful for the opportunity to study medicine, particularly at _____. I shall strive to make the institution a better place for my fellow students, future students, and myself in any way I can.

(This comment came from the same school as the first.)

Some students felt that they were not treated with respect.

> I haven't "suffered" such juvenile treatment since sixth grade--this includes my military time.

Other students felt they were provided ample opportunities to exercise their individuality with maturity.

> ---------- University I have found to meet my expectations precisely at the points where I am let down: Its emphasis on tough-mindedness and independence (even creativity) is limitless and encouraging IF your background is sound and your ability to perform without adequate cues and structure very secure. There are no set "courses" in history here. It is assumed that the student already knows what to do & how to do it. The university is merely to provide the time & place. This is, I feel, a mature and repectable approach by the department: no student is "coddled," and intellectual independence is encouraged as it is work of excellent quality. The atmosphere is informal, the number of students very limited; but again, this seeming strength may be troublesome to timid souls of the less well prepared student. Obviously, I am saying that this school is a wonderful & stimulating opportunity for the intellectual growth of a certain standard type of student--and something very difficult for all others.

> Confident students of proven ability to perform in history should find work here both exacting and stimulating. The professors are a group with diverse personalities & backgrounds, but all demonstrate (to me) a competence and love of work extremely uncommon. Their excitement gives this place a facination I think most serious students would find hard to resist.

A few students felt that the tasks of advanced education were not intrinsically rewarding.

> I do not feel that an advanced degree is worth all the trouble that a student has in getting through graduate school. I have been in graduate school for 10 months, and now I think I would rather have a technician's job, where I can see the results of my work and know that I am doing something which must be done.

Some students felt that advanced education did not effectively prepare students for the real duties of their fields.

> I don't feel law school provides a particularly interesting, relevant, stimulating, or updated preparation for entering practice.
>
> The extensive "case method" approach should be limited and supplemented by outside legal work with credit. More opportunities for input of one's imagination should be afforded. Courses emphasing counseling, trial practice, new uses to which the law might be put etc. are rare if not nonexistent. Merely examining particular aspects of theories embodied in edited cases hardly fosters imagination, initiative, positive thinking or creative approaches to deducing and solving intricate problems out of complicated factual situations.

Finally, some students eloquently described the multiple factors outside the graduate experience itself, which can influence their satisfaction.

> My filling out this questionnaire may be somewhat inappropriate, or indeed invalid because while this is my first year in graduate school at --------- University, I had a year working on an M.A. at the University of ----------, followed by 2 yrs. 7 months in the Army. This added "experience" has in my opinion affected my answers to the various questions in the following ways. I am somewhat more cynical, or at least less idealistic in my expectations in graduate school; the various shortcomings, contradictions, or if you will, injustices do not bother me as much as if I were starting out. This

results in an apparently paradoxical, though I think consistent tendency to rate the school higher and not castigate its shortcomings. Even the most starry-eyed idealist in some sense includes the possible in his calculations, and since my notion of the possible, based on experience, is probably rather lower than the new student, I am inclined to rate the real situation that much higher.

In the same vein, I have tended to look "with reservations" at the various idealistic proposals in the questionnaire because I have seen how such things get tangled up in problems of feasibility, bureaucratic inertia, and finances & finally end up as pavement on the proverbial road to hell.

Finally (and I am trying to keep this short) the questionnaire does not really hit at the problem that is foremost in the minds of nearly all graduate students that I know, i.e., the economics of the thing, not so much financing while in school, but jobs when one finally gets the degree. For all of the faults and absurdities that one finds in graduate school, I like it (or I wouldn't be here) and am willing to put up with some fairly extreme pedantry and penury if there is a reasonable chance of some reasonable financial rewards at the end. But with the current economic situation, and the "glut" of Ph.D.s on the market, it is hard not to be apprehensive and to wonder whether the hassle has been worth it. Once again, my own personal situation clouds my judgment, as the time spent in the military is time lost and in a large sense irrecoverable and I also happen to have a wife who believes in the capitalist ethic with a vengence and who spends an inordinate (to me, anyway) amount of time calling my basic assumptions & values (love of learning, intellectualism, lack of materialism et al) into question. I find myself engaged in a race trying to finish this business before it (or rather the circumstances that surround it) finish me. Don't mistake me: I like graduate school and what I'm studying more at the time; its just that the ivory tower is rather exposed to the elements.

B-Curriculum and Grading

In this block of questions we also asked students for their reactions to two aspects of the graduate and professional school experience which often have a strong effect on students' satisfaction with their educations: the curriculum and grading.

Students in the arts and humanities and social sciences, the two broadest fields, were most likely (43 percent) to feel that "The curriculum is too narrow". Two of the most clearly specified fields--medicine and physical sciences and engineering--were the least likely (22 and 25 percent,

respectively) to feel that the curriculum was too narrow. Perhaps the variety of the students interests and expectations led the arts and humanities and social science students to feel that the breadth of the offered courses was too small.

With the exception of arts and humanities, about half the students in graduate fields felt that the curriculum allows sufficient time for thoughtful consideration of the content. Only three in ten medical students and four in ten law students felt they had sufficient time. The graduate fields are supposed to encourage "thoughtful consideration" of the content of courses and the pressures of law and medical education are legendary. However, it is striking that even in the highest field, only 53 percent of the students find they had adequate time for consideration of their courses.

Students were more positive about the logical integration of the curriculum: 75 percent felt that "The courses generally complement each other." Students in the professions, which generally have carefully integrated and explicit curricula, most frequently responded positively to the item. The students in arts and humanities least frequently responded positively (61 percent). Perhaps the very diversity of some fields (not sufficient according to some arts and humanities students as we saw in an earlier question) leads to the feeling of a lack of structure by their students.

Predictably, law school students seemed to be the least satisfied with the opportunities for interdisciplinary work (35 percent). Biological science and physical science and engineering students were most satisfied (60 and

64 percent, respectively). Overall, only 50 percent of the students felt that there were sufficient opportunities for interdisciplinary study. Results in Chapter 14 indicate that the majority of students are in favor of more interdisciplinary study.

Some seven in ten of all students felt the grading system used by their school or department was fair. Students in the physical sciences most often felt their grading system was fair (84 percent). Law students least often felt their grading system was fair (38 percent). The grade distribution information presented in Chapter 4 indicated that law schools award a distribution of grades very much like that used in undergraduate colleges. For students who have consistently obtained fairly high grades, these grades may be upsetting.

Some 55 percent of the students felt that courses should be on a pass/fail system, but opinions varied considerably by field. Medical students, who are already in pass/fail situations, were in most favor of the idea (82 percent). Students in the physical sciences and engineering who tend to be generally conservative on academic issues, were in least favor of the idea (40 percent). (Student comments about grades and pass/fail systems are persented in Chapter 14.)

Students seem to feel their expectations about advanced study were being met, and few would consider changing to a different field. However, about a third would consider changing their department or school. Students seem to be satisfied with the breadth and integration of the curriculum. However, only a minority felt they had time to really think about the content of the curriculum. Most students were satisfied with the grading system. Overall, then, students seem to be satisfied with the fields they have chosen, and to a lesser extent, their institutions.

Changes In Self-Ratings and Self-Conceptions

Students' conceptions of themselves can have a powerful effect on the amount of effort they put to their studies, their reactions, their definitions of successful performance, and their perserverance at the tasks that face them. (See The Graduates) Thus, self-conceptions can affect students' educational experiences. But students' educational experiences can also affect their self-conceptions. A failure on an examination can be a crushing defeat for a student who has always been successful in his academic work. Humiliating criticism can lead a student to doubt his capacity to handle high level work.

To study the possible influence of graduate and professional school experiences on students' conceptions of themselves we asked them to rate themselves on twelve abilities. They had also rated themselves on these abilities as college seniors. The twelve abilities were chosen because they were related to seniors' educational or vocational progress in other analyses.

We examined the change in the percentage of students in each field who considered themselves in the top ten percent on each ability. If this percentage had changed by as much as 10 points from the senior year to a year later we considered the change to be meaningful. As shown in Table 8.2, students in every field lowered their ratings of themselves in scholarship. The sharpest drops were in law, where the percentage declined from 51 to 22 percent, and medicine where the percentage declined from 54 to 30 percent. It seems plausible that students who are associating and competing with other bright graduate and professional school students would feel less superior than they did in their undergraduate college.

Table 8.2

Changes in Self-ratings from Senior Year to One Year Later*

Self-ratings	Group									
	Humanities		Biol. and Physical Sci.		Social Science		Law		Medicine	
	Senior	Current	Senior	Current	Senior	Current	Senior	Current	Senior	Current
Writing ability	38	38	18	20	34	38	43	33	21	25
Creativity	44	36	27	25	30	31	30	24	22	26
Memory	40	32	36	28	38	31	47	30	47	31
Ability to act when limited facts are available	29	28	30	24	31	28	44	29	35	31
Scholarship	48	35	48	34	53	37	51	22	54	30
Scientific ability	9	10	68	46	19	23	14	14	68	38
Medical ability	7	10	25	29	8	14	11	13	21	20
Leadership ability	30	29	24	23	38	31	49	31	33	23
Reading ability	42	38	24	23	42	36	46	35	31	26
Mathematical ability	10	9	55	38	20	24	24	23	43	30
Skill in relating to others on an individual basis	43	45	25	28	52	52	49	42	40	41
Sympathy for others in trouble	48	46	31	32	53	54	47	42	44	46

*Figures show the percentage of each group who rated themselves in the top ten percent on each characteristic.

The fields differed in their impact on other self-ratings. The self-conceptions of arts and humanities and social science students remained essentially the same as they were when the students were seniors, except for scholarship. Students of the biological and physical sciences lowered their estimates of their abilities in science by 22 points and in mathematics by 17 points. Again, the students probably reduced their self-estimates after encountering other students who were as able as they were in science and mathematics.

Students in medicine also lowered their self-estimates of their abilities in areas that seem related to their studies, including scholarship, (a drop of 24 points) memory, (16 points) mathematical ability, (13 points) and scientific ability (20 points). However, they also rated themselves 10 points lower on leadership ability, suggesting that medical students' general self-esteem may have been touched by their medical experiences.

The self-conceptions of law students may have been affected even more than those of medical students. Like other students, their rating of their abilities dropped in areas related to their studies of law. They lowered their self-ratings of scholarship by 29 points, of memory by 17 points, of reading ability by 11 points and of writing ability by 10 points. However, they also lowered their conceptions of the ability to act when limited facts are available by 15 points and their leadership ability by 18 points.

How can we explain these changes in self-conceptions? One answer may lie in research on the social psychology of groups which indicates that people compare themselves with others more often when they: a) have more

contact with them, b) are in competition with them, and c) when they can observe each others' performance. The more people compare themselves with other people, the more their ideas about themselves are influenced by other people (La Benne and Greene, 1969). Thus, the more contact students have with other students, the greater the competition they feel with other students, and the more they can observe each others' performance, the more their conceptions of themselves will be affected. The fields in which there was the least degree of change of self-conceptions, social science and arts and humanities, are also the fields where students tend to respond to academic demands alone, rather than in groups. Furthermore, the students have little chance to observe the performance of other students. For example a history graduate student may have a few classes with other students, most of which are not required of all students. He would study by himself, turn in his papers to his professors, and give answers to examinations, all of which would be done without much contact with other students, and without observation by other students.

Students have more contact with one another in laboratories in the biological and physical sciences. There is also more need for students to demonstrate their understanding of the subject before other students in science classes. For example, students may be called on to solve problems, demonstrate proofs, etc. The degree of decline in self-ratings is correspondingly greater in biological and physical science.

In medical school students enter and procede as a class. They are in frequent contact in the laboratories, and all must take the same classes.

Thus, the amount of contact and opportunities to judge each others' performance is greater. Students' self-ratings declined more in medicine than in the graduate fields.

Finally, law has many of the features of medicine: students are educated as a class, there is frequent contact in the classroom and libraries, and observation of each others' performance is almost a daily affair with the law school custom of asking students many questions in the "socratic method" of teaching law. In addition, law schools have an intense level of competition; class standing can seem critically important in the minds of many students. Perhaps this complex of competition and visable performance accounts not only for the general decline in self-ratings, but also accounts for the fact that the areas of greatest decline include "the ability to act when limited facts are available" and "leadership."

Students enter graduate and professional schools with a history of successes behind them. Their self-conceptions, based on these successes, are correspondingly high. As they encounter students with equal ability and accomplishments, their conceptions of themselves as persons with exceptional talents decline. The greater their degree of interaction with other students, the greater the decline in their self-conceptions.

Part Five: Comparisons of the Experiences of Blacks and Whites and of Women and Men

In this part, we examine the differences in the finances, experiences and reactions of blacks and whites. Then we examined the extent to which the graduate and professional school experiences of men and women differ.

Chapter 9 -- Black and White Experiences in Graduate and Professional School

Much has been written in the last ten years about the underrepresentation of blacks in higher education. Most writers concentrated on the transition from high school to college. They pointed out that black high school graduates had gone on to college less frequently than whites. At least partially as a consequence, a great deal of effort has been given to policies and practices which have increased the opportunities for black students to enter college. Individual colleges actively recruited black students, offered black students more financial aid and made efforts to help blacks adjust to college by providing counseling and tutoring. In addition national groups such as the National Scholarship Service and Fund for Negro Students (NSSFNS) and the National Merit Scholarship Corporation worked over the years to increase the number of blacks on college campuses by active recruitment and scholarship programs.

Apparently these efforts have been successful. The percentages of black high school graduates continuing on to college had definitely increased. A recent U.S. Department of Labor study showed that the proportion of black and white high school graduates who went on to college was the same. Other surveys by the American Council on Education showed sizable increases in the number of black college freshmen.

What seems to have been forgotten is the attendance patterns of black students in graduate and professional school. The high school to college picture is looking brighter for blacks, but what about

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[1]I wish to thank Rodney Hartnett for his very helpful advice on this chapter.

the opportunities for black colleges graduates to participate in advanced study?

As a partial answer there is some evidence that black college students have higher degree aspirations than white students. Surveys by the American Council on Education have repeatedly shown that black college freshmen have higher degree plans than whites. Data presented in The Graduates indicated that black seniors in a national group of 94 colleges planned to go to graduate or professional school the next fall more often than did white students.

At this point one may wonder, as we did when we completed our senior survey, if the plans of the blacks would actually prove to be realistic. There were several reasons to wonder if blacks would actually go on. Most obviously they faced financial obstacles, since their parents often had limited financial resources. However, as shown earlier in Chapter 1, we found that equal proportions of blacks and whites (34 percent of each group) had gone on to graduate and professional school. The results were consistent with several other recent surveys which have shown that the number of black graduate and professional school students has increased markedly in recent years. Thus, many black college graduates are continuing their educations. However, there were still major differences in the areas they entered as shown in Figure 9.1. Overall, 22.1 percent of the blacks compared to 29.4 percent of the whites were studying the traditional graduate fields of arts and humanities, physical science and social science. Some 29.0 percent of the blacks compared to 36.0 percent of the whites were studying one of the professional areas of architecture, business, dentistry, law, medicine, and pharmacy. Although large numbers of blacks are going

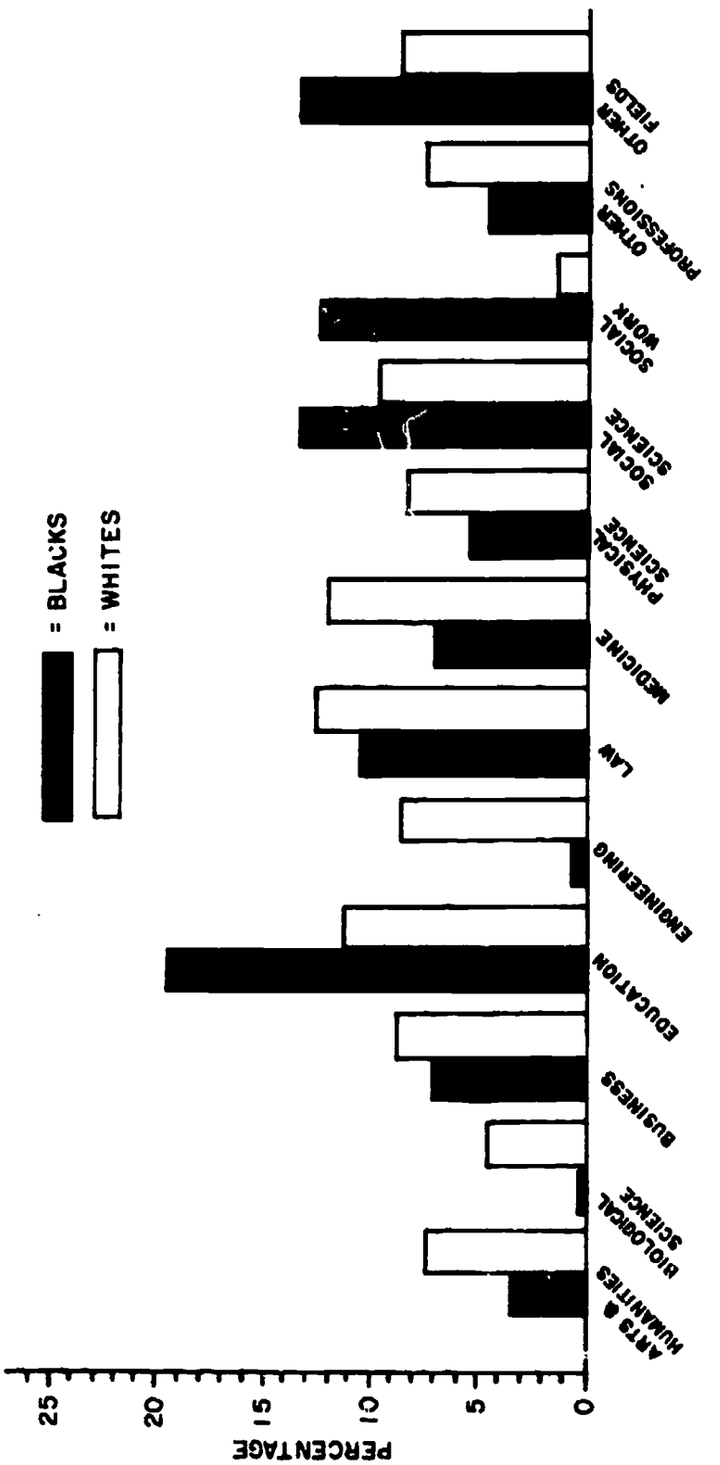

Figure 9.1 GRADUATE AND PROFESSIONAL FIELDS OF STUDY OF BLACKS AND WHITES

on for further education, they are not as often found in the fields that will staff many of our colleges, and they are not as often found in certain professional fields. Much more needs to be done to recruit blacks into certain fields, particularly engineering and biological science.

However, even if the distribution of fields blacks and whites enter could be altered, there is evidence that the graduate and professional school experience differs for blacks and whites. The undergraduate experiences of blacks and whites differed, as Rodney Hartnett showed in Chapter of The Graduates. Do the experiences of blacks and whites continue to differ in advanced study, or are the demands such that all students face the same problems in adaptation?

To answer this question we compared the responses of black and white students in both the follow-up sample and the augmented sample. The results were basically the same in both samples. The results from the augumented sample wil be reported, unless they differed from the follow-up sample. Where the differences are small, results for a combined sample will be reported. Where the differences are large both will be reported and the discrepancy analyzed. The differences between blacks and whites in particular fields were not reported because the numbers of blacks were too small in any particular field to warrant detailed analysis.

The low family incomes of black students influenced the way they financed their advanced education. The majority (62 percent) of white students had borrowed nothing to attend graduate or professional school, compared to 33 percent of the blacks. Among the black students,

35 percent had borrowed up to $2,000 and 16 percent had borrowed more. The comparable figures for whites were 21 and 10 percent.

Most of these loans (and other loans from undergraduate school) remained to be paid. Most whites (56 percent) said they owed nothing; 20 percent owed up to $2,000, and 19 percent owed more. The comparable figure for blacks are 20 percent owing nothing, 35 percent owing up to $2,000, and 30 percent owing more.

In spite of their present indebtedness, black students thought they would need to borrow even more to complete their studies. Many (39 percent) black students thought they would have to borrow more than $2,000; 10 percent thought they would have to borrow up to $2,000, and only 30 percent thought they would need nothing. The comparable figures for whites are 22, 11 and 57 percent.

The loans to black students most often came from banks (23 percent said this was a source of their support) and from the school or university (20 percent said this was a source of support). The figures for whites were 18 and 12 percent respectively. Black students were also much more likely to count a scholarship or fellowship as a source of support; 60 percent reported scholarships from their schools, and 37 percent reported scholarships from outside the university. Only 25 percent of whites reported scholarships from their schools and only 13 percent reported scholarships from outside the university. Whites were more likely to count parental aid (54 percent vs. 39 percent) and personal savings (52 percent vs. 37 percent) among their sources of support.

In short, blacks generally had to borrow money or rely on scholarships to be able to attend graduate or professional school,

whereas whites tended to rely on family aid or their own savings.

Blacks and whites also differed when we asked students to rate the helpfulness of some sources of information and advice in choosing a graduate or professional school. Blacks more often than whites considered the following to be helpful: advice from parents (44 percent of blacks vs. 28 percent of the whites); publications of national test programs (26 vs. 11 percent); advice from a professional in the field (46 vs. 34 precent); advice from a graduate or professional school admissions officer (36 vs. 24 percent); and a visit from someone recruiting for the school (28 vs. 6 percent). The last two influences suggest that black students were frequently sought out and recruited by graduate and professional schools.

It also seems plausible that many blacks were recruited for advanced study when we look at their undergraduate grades. About a third (34 percent) had undergraduate grades of C or C+, compared to 16 percent of the whites; 44 percent had B grades compared to 32 percent of the whites;and only 21 percent had B+, A or A+ grades compared to 50 percent of the whites.

If we put together the information on finances, sources of advice, and academic performance, it seems plausible that many black students have been sought out by graduate and professional schools, admitted even if their grades were only average, and provided with loans and scholarships. This description does not apply to every black student, of course, but it does suggest that graduate and professional schools have attempted to enroll blacks.

Given these initial differences, did black and white students differ in their descriptions of their schools' characteristics and features? Did their experiences and reactions differ?

Perceptions. Interestingly, blacks and whites described the administrations of their schools in the same way on the seven items shown in Chapter 5, reflecting several aspects of administrative style.

Blacks and whites differed on only one of the twelve items dealing with other students; they more often felt "there are lots of student cliques" (69 to 58 percent).

Of eleven items that dealt with the academic program, blacks and whites differed on one. Blacks less often felt that "I do not like the course work, but it is required for the career I have chosen" (36 to 49 percent).

Blacks and whites differed on one of nine questions about the general atmosphere of their departments. Blacks less often felt that their school or department had a liberal environment (43 percent for black to 57 percent for whites).

Satisfaction. When students were asked to rate the adequacy of the various facilities or policies discussed in Chapter 7, blacks and whites continued to show differences. Blacks and whites differed more in their opinions of formal degree requirements than any other area. They differed on four of the items. Blacks were less satisfied with formalities such as the difficulty of meeting the steps to a degree (43 to 53 percent). Blacks were also less satisfied with the opportunities for independent study (46 to 56 percent) and the opportunities for undergraduate teaching (23 to 33 percent). Finally, blacks were not as satisfied

as whites (59 to 69 percent) with the "relevance of requirements to the actual work in the field."

Blacks were not less satisfied than whites with the six aspects of assistantships studied in the survey.

Blacks and whites did not differ on any of the eleven items which dealt with the adequacy of the library, laboratories, computers and other facilities.

The groups also did not differ on the ten items concerned with the adequacy of departmental and faculty advising.

Reactions. Of the 12 items discussed in Chapter 8, which dealt with students' personal reactions and opinions toward graduate or professional school, blacks and whites differed on one. This was "My expectations of what graduate or professional school would be like are being fulfilled" (47 percent of the blacks agreed compared to 58 percent of the whites).

Reforms. Some of the most striking results appear in the comparisons of black and white students' opinions about reforms in admissions. (These will be discussed in Chapter 14.) Some 61 percent of the blacks in contrast to only 36 percent of the whites believed that "More blacks and other minority group members should be admitted to this department, even if they do not meet the usual minimum requirements." Another 61 percent of the blacks but only 29 percent of the whites agreed that "More minority students should be admitted here, even if some qualified majority students would be excluded." However, blacks and whites were equally opposed to a quota system and to the notion that "Admissions requirements should be made higher so that fewer people will enter

advanced study, and eventually, few people enter the job market in the field." Blacks and whites were equally favorable to admission of more women and to the idea that admissions should be on the basis of talents in addition to academic talent.

Blacks were less favorable than whites (25 to 45 percent) to the idea that poorly performing students should be weeded out in the first year. For some reason, blacks were less favorable than whites (30 to 50 percent) to the abolition of required classes after the first year. These two were the only items of nine on which blacks and whites differed.

Blacks and whites did not differ on any of the six items which dealt with innovations in graduate or professional study.

Blacks were more likely than whites (61 to 43 percent) to believe that all students should receive scholarships so they could concentrate on their studies, that scholarships should be based as much on need as ability (75 to 64 percent), and that tuition should be lowered (73 to 56 percent).

Descriptions of professors. Black students clearly felt more remote from their professors than did white students. On the items discussed in Chapter 6, black students less often described their professors as friendly and accessible to students (57 percent of the blacks compared to 74 percent of the whites), or described them as treating students like adults (63 compared to 80 percent). Perhaps as a consequence blacks less often felt that their professors had the respect of most students (55 to 66 percent).

Perhaps because of their own concern with change, blacks were less impressed than whites with the liberalism of their professors' political views (23 to 37 percent). Black students may prefer a fairly informal approach to learning with many opportunities to consider ideas and opinions. They felt, more often than their white counterparts, that their professors exercised a good deal of discipline in the class (45 to 28 percent). Blacks less often felt that they clearly explained the subject matter (48 to 65 percent). Finally, blacks were less impressed than whites (39 to 53 percent) with their professors' ability to stimulate student learning.

To some degree, the blacks' feeling that the faculty is remote and formal may be due to the fact that the students are black and the faculty mostly whites. The black students have probably learned to be skeptical of the friendliness of whites over many years.

Are the experiences of black and white graduate and professional school students the same or different? The answer seems to be that they are much the same but still different. We asked students 141 questions about their graduate experiences. Black and white students gave different answers to 22 of these questions or about 16 percent of the questions. However, not all the differences were very large. If we use a rough (and arbitrary) rule of thumb that the groups need to differ more than 15 percentage points for the difference to be really meaningful, the groups would differ on only 9 of 141 items or slightly more than six percent

of the items. If we assume the items cover the breadth of the graduate and professional school experience, these figures suggest that something like 94 percent of the experience of blacks and whites is the same, and six percent is different. If we were to accept these hazardous calculations, it is useful to look at the areas where the experience is the same and different. Black and white students seem to react to the physical and student environments in the same way. There were no or very few differences in their views of facilities, departmental and faculty advising, suggestions for innovations, ideas to improve finances and support, assistantships, or feelings about other students and subjective reactions to the experience. The areas with the largest number of large differences were the description of professors and formal degree requirements.

In sum, blacks enter graduate and professional school with several strikes against them. They come from families with limited resources, for whom support of their children's advanced study would be a considerable financial burden. Many blacks therefore had to borrow money just to finish their undergraduate educations, and many had to borrow more to be able to attend graduate or professional school. Thus, many blacks enter advanced study in debt, often to the schools they were attending. In addition, in questioning the graduates who had not continued their educations why they had not done so, blacks emphasized financial reasons more often than whites. It appears that finances are a large roadblock for many black students.

From our data it appears that graduate and professional schools are already doing a good deal to meet the financial needs of their minority students. Efforts from private and governmental support may need to be expanded.

A second possible area for reform, the redistribution of fields of study, is difficult to deal with. More rigorous recruiting programs in certain fields might attract more black scholars, but it seems that changes need to be conducted earlier. It is necessary to interest high school seniors in certain fields, such as engineering, before there will be large numbers of black seniors in those fields. In many cases, students' stereotypes about the fields may need to be overcome.

A recent Carnegie report (1973) points out that there are proportionately few blacks among college faculty members. Statistics for the traditional professions also show that there are proportionally few blacks in these areas. It is clear that there would need to be much change before blacks will be proportionally represented on our college faculties and in our professions. As a first step, there needs to be a large increase in the pool of minority graduate and professional school students, the main source of future college faculty members and professions.

Our data suggests that the differences in the educational opportunities of blacks and whites seem to be narrowing. More blacks are going to college and more are going to graduate and professional school. However, before we will have the kinds of equality projected by the Carnegie Commission for the year 2000, there needs to be long range change in our schools and society.

Chapter 10 -- Comparisons of the Experiences of Men and Women in Graduate and Professional School

Women are considerably less likely than men to go on to graduate or professional school, even when they have high grades. We discussed the possible reasons for the difference in Chapter 1. Do the same influences hold sway in advanced education? Do the experiences and reactions of men and women differ?

The women who entered graduate or professional schools were better grade-getters than the men in undergraduate school. They continued to out-strip the men in advanced study. Some 43 percent of the women had A's. Thirty-one percent had B's, and 8 percent had C's. The comparable figures for men were 28, 27, and 19 percent.[1] Women are often planned to teach at a school or junior college (30 percent compared to 7 percent of the men), and men more often planned to enter private professional practice (7 to 22 percent).

In other areas there were few differences however. Men and women worked to about the same extent, and had the same distribution of kinds of jobs. They were indebted to the same extent, and had the same distribution of sources of financial support. They received scholarships, fellowships, and assistantships to about the same extent. Their opinions about tests were the same.

Of 25 items which dealt with professors, men and women differed on only one. Men more often than women (32 to 22 percent) felt that professors excercise a good deal of discipline in the classroom. The relation of men and women to their professors seems to be the same.

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[1] About 18 percent of the men and 12 percent of the women were in pass/fail systems. About 5 percent did not report their grades.

Do men and women describe their departments or schools differently? Of 39 items which asked students for their descriptions, men and women differed on only five. Men more often described their institutions as having administrations reponsive to school and student needs (69 to 59 percent). Men also more often felt that students actively participated in extracurricular activities (55 to 40 percent), that students valued the money they will make in their careers more than opportunities to help other people (56 to 38 percent) and that there are lots of students cliques (60 to 50 percent). Men also more often thought their current studies required much more studying than undergraduate school (78 to 66 percent). It is difficult to see any trends in these results except for the suggestion that the women are less impressed with the altruism of their fellow students than are the men.

However, when asked for their evaluations of the adequacy of admissions practices, degree requirements, assistantships, facilities and departmental advising, the views of men and women students did not differ on any of the 36 items.

In their opinions about 26 possible reforms in graduate and professional admissions, requirements and grading, innovations, and financies and support, men and women differed on one. Women more often felt, predictably, that the scheduling and structure of the academic programs should be reorganized to meet the special needs of women (39 to 21 percent).

Men and women did not differ on any of the 12 items which solicited their personal feelings about their reactions to advanced study.

Of some 141 items which dealt with the graduate and professional school experience, men and women differed on seven or about five percent of the items. There was a large difference--defined as more than 15 percentage points--on only two items. One item was an obvious one, concerned with rescheduling and re-structuring academic programs to meet the special needs of women. Except for such reforms as maternity leaves, child care, and offering classes at more convenient times, women students seem to want about the same changes as men. Women favor certain reforms and are dissatisfied with a number of aspects of advanced study, but men favor the same reforms and are equally dissatisfied. The other item, dealing with students preference for money or service, may have partly been due to the fields men and women had entered.

In short, the first year graduate and professional school experiences of men and women seem about the same. The experiences may differ in subsequent years; however, during the first year it seems that the demands of the advanced education bear equally on both sexes.

Part Six: Characteristics and Reactions of Special Groups of Students

In this section we examine the following questions: "Who gets scholarships and fellowships?," "Are older students different from younger students?," and, "How does marriage affect students' educational careers?" All the analyses in this section are based on the augmented sample data.

Chapter 11 --
Who Gets Scholarships and Fellowships and How Do They React to Graduate and Professional School?

The awarding of scholarships and fellowships is an important part of advanced education. Awarding agencies often must deliberate on many complex variables and cases so that they can feel they have awarded scholarships or fellowships to the most deserving students. For example, is a bright student whose parents make $7,000 a year less deserving than a student of average ability whose parents are poverty striken? Obviously, "Who gets what?" is a critical question. Its answer can affect the educational careers of many students.

To seek an answer to this question in this study, we compared the responses of the students who had indicated that a fellowship or scholarship either from their institution or some other agency was a major source of support with the responses of all other students. There were 745 students who were holders of scholarships or fellowships and 1656 other students.

The two most fundamental questions about scholarships are "do they really go to the needy?", and "do they really go to the academically able?". The answer to the first question is a qualified yes. The median income of the families of students who received scholarships was approximately $11,500; the median for students who did not was approximately $16,700. However, nearly a fifth (19.6 percent) of those who received scholarships or fellowships came from families with incomes of $20,000 or more a year. This is only half the proportion of students from families making $20,000 or more (39.1 percent) among the students without scholarships, but it is still a

sizable number. In contrast, 25.9 percent of the scholarship holders came from families with incomes less than $8,000, compared to 15.4 percent of the nonholders. The proportion of low income students is limited, of course, by the number of low income students who attend college and apply to graduate or professional school. However, the number of low income students who receive scholarships or fellowships is fairly small. In fact, in absolute numbers, there were more students whose parents had incomes below $8,000 among the students who did not receive scholarships than among those who did. To some degree, the reason for distributions of incomes may be due to the answer to the second question, "do scholarships really go to the academically able?".

The grades of scholarship and fellowship recipients were clearly superior to the nonrecipients. Some 69 percent of the recipients had undergraduate grades of B+ or higher, compared to 51 percent of the nonrecipients, and 46 percent of the recipients had grades of A to A+, compared to 27 percent of the nonrecipients. At the other end, 12 percent of the recipients had C grades, compared to 23 percent of the nonrecipients. The figure of 12 percent is still surprisingly high. It appears that most scholarships and fellowships are awarded to those who are academically successful and relatively needy. A number of additional scholarships and fellowships seem to be awarded mostly on the basis of students' ability and others awarded mostly on need.

Students who entered different fields seemed to have different access to scholarship and fellowship funds, as reported in Part II. Graduate students, particularly those in the sciences had more funds, professional students, particularly in law, less.

What kinds of students receive scholarships, and how do their reactions to graduate or professional school differ from other students? Their parents were slightly less well educated than other students, but these differences were much smaller than the differences in income. For example, the largest difference was in the percentage of students whose fathers were college graduates; 36 percent of the recipients' fathers had college degrees, compared to 43 percent of the nonrecipients. The recipients rated themselves higher than nonrecipients on scholarship and scientific ability. These two ratings were most strongly associated with academic performance and attendance in graduate or professional school. Overall the values scholarship and fellowship students looked for in their careers were much the same as other students. They valued independence, interest in the work activities, making use of their unique talents, and working with others. However the recipients placed less emphasis on obtaining high incomes and more emphasis on making a contribution to knowledge. They seem more interested in scholarship than money.

The recipients' reasons for choosing a professional field were consistent with their career plans. Some 36 percent planned careers in university research and teaching, another 21 percent planned to teach in colleges or junior colleges, and 18 percent planned careers as self-employed professionals. The corresponding figures for nonrecipients were 16, 16, and 31 respectively.

Contrary to the expectations of some people, there were proportionally as many women among the recipients as the nonrecipients. The home religions of the students also did not differ. However, as a group, the recipients tended to be slightly younger, and included more blacks and orientals than the nonrecipients; 12 percent of the recipients were black in contrast to 2 percent of the nonrecipients, and 6 percent of the recipients were oriental in contrast to 3 percent of the nonrecipients. Of course, the large majority of both

groups were white. This is another indication of the apparent concern of graduate and professional schools for minority students. The graduate status of recipients and nonrecipients differed slightly.

Nearly all, 99 percent, of the recipients were attending school full-time compared to 94 percent of the nonrecipients. Fewer recipients were working (38 to 48 percent), and fewer of these students held teaching assistantships (15 to 23 percent). This may be due to the practice, in some departments, of spreading the aid and jobs to cover as many students as possible. Thus if a student has a scholarship, he or she would be taken care of, and another student would be offered an assistantship.

The scholarships and fellowships apparently did not meet all the financial needs of the students who had them. Some 38 percent of the recipients indicated that they needed to call upon their parents for at least some support, 23 percent relied upon their spouses, 20 percent had loans from banks, and 43 percent had reached into their personal savings. Although all these figures are below those for nonrecipients, they are still high. Furthermore, more recipients (43 percent) than nonrecipients (34 percent) believed they would need to borrow money to complete their educations. Thus, the scholarships and fellowships seem to help recipients, they still do not solve all their financial problems.

Recipients of scholarships and fellowships do get better graduate and professional school grades than other students; 40 percent of the recipients have grades of A- to A+ compared to 27 percent of the nonrecipients, and 57 percent of the recipients have grades of B+ or higher compared to 40 percent of the nonrecipients.

Were the reactions of scholarship recipients to their graduate and professional schools different from those of other students? Generally, they were not. Of the items concerned with the administration, other students, the academic program, and the general atmospheres of their schools, recipients and nonrecipients differed on only one. Some 53 percent of the recipients thought there were opportunities for innovative programs on an individual basis, compared to 41 percent of the nonrecipients. Likewise, of the many items on professors, recipients, and nonrecipients differed on only two. Recipients more often considered their professors to be top notch researchers (55 to 39 percent) and more often thought they were more interested in research than teaching (42 to 30 percent).

Scholarship and fellowship recipients also do not differ greatly from other students in their ratings of the adequacy of their school or departments' admission practices, formal degree requirements, assistantships, libraries and facilities, and most aspects of departmental and faculty advising. They were, logically, more satisfied than other students with their departments' help in finding financial aid (53 to 38 percent considered the help adequate or very good), and they were more satisfied with the guidance they had received in selecting course work (58 to 46 percent).

The personal reactions of recipients and nonrecipients also differed little. Recipients slightly more often said there were sufficient opportunities for interdisciplinary study (50 to 39 percent).

Recipients and nonrecipients differed little in their views on possible reforms in advanced education. Of the items on reforms in admissions, formal degree requirements and grading, other innovations and finances and

support, recipients and nonrecipients differed on only two. Recipients more often felt that all students should be required to do some teaching (54 to 42 percent) and that all students should receive scholarships (61 to 46 percent).

In sum, of 141 items concerning descriptions of educational programs, professors, ratings of facilities and policies, personal reactions and views of reforms, recipients and nonrecipients differed on only 8. Two of these reflected the recipients' view that their professors valued research, and two reflected their feeling that there were many options in the curriculum. Two others reflected, in some way, their status as scholarship or fellowship recipients. None of the differences was larger than 15 points. It may be that scholarship and fellowship holders have more access to programs of independent and interdisciplinary study, and that they have a little more access to their professors' research, but even these differences were fairly small.[1] In sum, even though they get very good grades, it appears that the graduate and professional school careers of scholarship and fellowship holders are basically the same as those of other students.

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[1]Because the overall differences were so few, detailed analyses of recipients and nonrecipients within particular fields are not reported.

Chapter 12

The Older Student in Graduate and Professional School

The student who returns to advanced study after a number of years away from formal education is becoming more common in graduate and professional schools. Projections of the future patterns of advanced study indicate that older students will become a major group of students in the future. The older students surely have needs that differ from those of younger students, but there is little evidence about what these needs are and how the older students react to graduate and professional school programs often organized for younger students.

In the augmented sample there were 1235 students who were 23 years of age or less, 1050 students who were between 24 and 29 and 189 students who were 30 years old or more. We shall concentrate on the students 30 years of age or more.

Who were the older students? The majority (64 percent) were married and near half (48 percent) had children. About one in 8 were also full-time homemakers. The great majority (89 percent) were enrolled full time. More of the older students (56 percent) were working than the younger students (43 percent). About two-thirds (68 percent) were men and one-third (32 percent) were women, a greater proportion of women than among other students. The proportion of blacks was higher among the older students (12 percent) than among younger students (5 percent). There were also fewer Jews among the older students (4 percent) than among younger students (12 percent). They came from somewhat lower socioeconomic families, on the average. They held somewhat higher opinions of their writing

ability and sympathy for others in trouble than other students. Consistent with the last result, they placed less value than younger students on gaining high incomes from their professions. Consistent with their altruistic description of themselves, they were more interested than younger students in teaching in colleges or universities (24 percent to 13 percent), and they were less interested in self-employed professional practice (18 to 28 percent).

The undergraduate grades of the older students were lower than those of younger students: 49 percent of the older students had college grades of B+ or higher compared to 58 percent of the younger students. However, the first year graduate grades of older and younger students were nearly the same, suggesting that the older students may have brought greater maturity and motivation to their studies.

Predictably, older students seldom relied on their parents for support (10 percent), in contrast to one half of the younger students (50 percent). Older students also relied more on their spouses' employment than did younger students (41 to 26 percent).

When choosing a school, older students, as independent adults, relied less on almost every source of information than did younger students, except for the departments or schools they applied to, and their admissions officers. Older and younger students relied equally on the advice of a professional active in their field.

Do younger and older students hold the same views of the environments of their schools and departments? Analyses of the questions

on students' perceptions of their institutions' environments indicated that, by and large, younger and older students saw their environments in much the same way. Older and younger students saw the administration in the same way, perceived other students in the same way, and viewed the general atmosphere of their schools in the same way. The only area where they differed was in their views of the academic program. Older students less often considered the work dull (29 percent to 49 percent of the younger students), and less often said they disliked the course work (27 percent to 43 percent).

It is in their relations with professors that older students differ most from younger students. They more often felt their professors gave helpful feedback on tests, papers and reports (48 percent to 34 percent of the youngest students) that they gave each student a clear idea of how well they are doing (37 to 26 percent) and that they consult with students about their academic progress (34 to 18 percent). Older students felt their professors were generally helpful advisors (41 to 23 percent). In the classroom, older students felt their professors were excellent lecturers more often than did younger students (46 to 34 percent). They also more often felt that their professors stimulated student learning and complemented each other in providing an understandable and complete coverage of the field (49 to 38 percent).

Interestingly, older and younger students' ratings of the adequacy of their departments were virtually the same in every area: admissions, formal degree requirements, assistantships, libraries and facilities, and departmental and faculty advising.

Older students' personal feelings about their graduate and professional school experiences seemed to be more positive than those of younger students. Older students more often felt their expectations of graduate or professional school were being met (68 to 53 percent), and they less often would seriously consider a different department or school (18 to 31 percent). They also judged the grading system to be fair more often than younger students (78 to 64 percent).

Older students' views of possible reforms in graduate and professional education were much like those of younger students with three exceptions: they were less favorable to the ideas of grading on a pass/fail basis (44 to 59 percent), admitting more women (45 to 60 percent) and the idea that scholarships and assistantships should be awarded as much on need as ability (57 to 69 percent).

Overall, it appears that older students have many of the same experiences as younger students and react to them in about the same way. Of course, many older students have more occupational and family obligations, but these do not seem to interfere with their academic performance or their satisfaction with graduate or professional school. In fact they seem a little more satisfied than younger students with a number of aspects of advanced education. In particular, they seem to feel they have better relations with the faculty. Perhaps this is due to their maturity and their willingness to approach the faculty, because of their age. It may also be due to a somewhat greater attention and regard shown an older student by many faculty members. In short, older students do as well as younger students in advanced study, and they seem to be somewhat more satisfied with their course of study.

Chapter 13

The Effects of Marriage on Graduate and Professional School Students

Stories of the struggling married young graduate or professional school students are common. They face bills, low paying jobs, diapers, macaroni and cheese four nights a week, sputtering Volkswagens, and when they are lucky, cheap wine. They are supposed to have to squeeze their studying between their other duties. Clearly such stressful conditions should interfere with students' academic progress. Do they really?

The analyses reported in this chapter were designed to find some answers to this question. In the augmented sample, there were 1480 single students, 627 married students without children, and 268 married students who had children. We compared the responses of these three groups.

The students do not seem to differ in backgrounds. Students who were married or single were equally often rich and poor, black and white, from families of high and low educational attainment, male and female, and Protestant and Catholic. Their undergraduate grades were very similar. They had relied on much the same sources of advice and information in choosing a graduate or professional school, except that the married students had relied a little less on the advice of friends, relatives, and parents.

Married students were a little more often in debt (44 percent of the married students with children, 29 percent of the married without children, and 34 percent of the single). The costs of family life almost certainly made these students borrow more. Interestingly, married and unmarried students financed their educations in much the same way, with two exceptions.

Married students obviously relied more on their spouses' employment. It is interesting that the peak of such reliance is among the married students without children, where 78 percent consider their spouses' employment a source of income and 57 percent consider it a major source. The corresponding figures for married students with children were 52 and 40 percent. Probably many of the students who had children needed to find additional sources of income themselves, and many of their spouses probably stopped working to care for the children. Married students were also more likely to have used veterans benefits to pay for their educations: 8 percent of the unmarried, 13 percent of the married without children, and 28 percent of the married with children used veterans benefits.

Married students worked a little more often than unmarried students: the figures for the unmarried, married, and married with children groups were (42, 46, and 53 percent respectively), particularly in jobs outside the university. They also attended full-time a little less often (97, 97, 90). Marriage seemed to have little effect on students' academic performance. Of the students who received standard grades, 57 percent of the unmarried had grades of B+ or higher compared to 61 percent of the married without children and 62 percent of the married with children. Grades of A- to A+ were attained by 37, 45, and 45 percent of the groups, respectively.

If marriage and children seem to have no deletrious effects on grades, what about other aspects of graduate and professional school? Do married and unmarried students have the same kinds of educational experiences? Their descriptions of many aspects of their professors' behaviors were the

same. Their views of the administrative environment were the same, as were their perceptions of the general atmosphere of their departments and schools. Their views of other students were about the same with one exception. Single students were more likely to feel that there were many student cliques (61, 59, 47). The views of married students were more positive toward several aspects of the academic program: they less often felt that the course work was dull (49, 45, 37), less often reported that they did not like the course work, but it was required for their career (44, 42, 32), and they more often felt there was a choice of courses than did the unmarried students (50, 57, 61).

Married and unmarried students rated the adequacy of their schools' facilities and policies virtually the same. Their ratings of the adequacy of admissions practices, formal degree requirements, assistantships, libraries and facilities, and departmental and faculty advising were very similar. The personal reactions of married and unmarried students were approximately the same, although married students were slightly more likely to report that their expectations were being fulfilled (55, 58, 65), and that they were attending their first choice of school (53, 57, 64). These are small differences, however.

Married and unmarried students held about the same opinions of proposed reforms. They viewed proposed reforms in admissions and innovations the same way. In the area of formal requirements and grading, married students were slightly less favorable to pass-fail grading (57, 52, 46). Married students were unexpectedly slightly less favorable to the lowering of tuition (62, 59, 49).

The graduate and professional school experience seems to be much the same for married and unmarried students. Their descriptions of the experience, and their reactions to it were virtually the same. Their answers differed on only six questions of 141. The directions of these differences suggest that married students were somewhat more satisfied with their schools and departments. The married student may or may not be more harried than the unmarried, but they seem to be just as happy about the experience.

Part Seven: Students' Reactions to Proposals for Reforms in Graduate and Professional Education

In this part we report students' feelings about changes in admissions policies, formal requirements and grading, innovations, and finances and support.

Chapter 14

Proposals for the Future: Students' Opinions About Proposed Reforms in Graduate and Professional Education

There have been disputes about American graduate and professional education virtually from their beginnings in this country. (Everett Walters [1965] has described those early controversies and how the American University had evolved from "a continuation of European and native forces.") William James, in his 1903 essay on "The Ph.D. Octopus" charged that degrees such as the Ph.D. stifle freedom of thought, do not automatically produce good teachers, are signs of snobbery, and were often valueless as indicators of the worth of a professor. The nature of medical education was debated and changed following the 1910 Flexner report. Law, too, as reflected in the pages of the Journal of Legal Education, has studied, reported and exhorted itself to seek the best teaching methods and curricular arrangements.

Graduate and professional education is, in fact, continually in a state of controversy about its proper character. These controversies are likely to continue as long as knowledge and society change. Changes in knowledge will affect the curriculum, teaching methods, and requirements. Revolutionary and evolutionary changes in society will affect the purposes and conduct of higher education. It is unlikely that debate about graduate and professional education will really ever stop. The recent report of the Panel on Alternate Approaches to Graduate Education provides ample evidence on this point.

With these considerations in mind, let us turn to some of the current controversies in advanced education. These controversies are not all new. Some deal with fundamental problems, including the conflicting values of egalitarianism and excellence. We asked students for their opinions about

issues in four areas: admissions, formal requirements and grading, structural innovations, and finances and support.

Admissions. Admissions is not now, if it ever was, a completely objective matter of requirements, grades, and test scores. It has always involved the personal qualities of the applicants and the special preferences of the departments and schools. Of course, admissions policies have also long been criticized on many grounds and from many sides. To investigate this area, we included several items to find out what graduate and professional school students thought about some of the issues in admissions that reflect the swirl of bias and controversy. Overall, the majority of students agreed to only one of six proposals about admissions, as shown in Table 14.1. Some 59 percent felt that admissions should be on the basis of talents in addition to academic ability. The students seemed to indicate that they believed that capacities other than the ability to get good grades were needed for success in their field. The response to the items discussed in Chapter 4 support this interpretation. Students there indicated they thought that such traits as self-discipline and determination and writing skill were more important than specific knowledge of certain subject matters. It is interesting that more medical students agreed with the idea of using nonacademic abilities in admissions than any other group. The roles of medical student and a doctor certainly involve much more than sheer academic capacity. In the physical sciences and engineering, the field with the smallest proportion agreeing with the statement, the academic and practical skills needed may overlap more than in other fields.

In addition to the high level of agreement with the item, there was a high level of student comment about the idea. The comments suggested a wide

Table 14.1

Students Reactions to Proposed Reforms in Advanced Education*

Reform	Group: Grad. Arts Humanities	Grad. Biol. Science	Grad. Physical Science, Eng.	Grad. Social Science	School of Education	Law School	Medical School	Other Professional	Total
Admissions									
More women should be admitted to this department or school	35	51	52	57	23	64	63	45	49
More blacks and other minority group members should be admitted to this department, even if they do not meet the usual minimum requirements	16	23	17	38	24	36	31	27	26
Admissions requirements should be made higher, so that fewer people will enter advanced study, and, eventually, few people enter the job market in the field	35	29	27	31	27	21	4	19	22
Admissions should be on the basis of talents in addition to academic ability	56	62	52	62	57	55	71	60	59
More minority students should be admitted here, even if some qualified majority group students would be excluded	21	20	19	36	20	57	39	25	27
Each program should establish a fixed quota of number of students admitted	24	21	17	20	26	23	18	23	23
Formal Requirements and Grading									
There should be no required classes after the first year	36	41	37	48	31	55	14	32	36
There should be more credit for independent study	58	52	46	64	52	56	36	49	50
All grading should be on a pass/fail basis	40	42	36	52	46	48	72	46	49
The language examinations should be dropped as a requirement	28	48	38	48	31	7	21	23	28
Poorly performing students should be weeded out in the first year of their studies	48	47	47	54	42	36	30	42	43
Doctoral examinations are much too long and should be shortened	26	21	21	36	17	7	10	13	17
There should be more interdisciplinary programs to broaden advanced study	64	63	57	69	52	41	39	52	53
There should be a published statement of what "satisfactory progress" toward advanced degrees means	59	58	57	67	50	27	39	46	58
The program should be lightened, so that students will go through faster	50	24	21	32	20	22	29	25	24

*Note: Figures show percentage of each group agreeing with each statement, either strongly or with reservations.

Table 14.1 (Cont.)

eform	Group								
	Grad. Arts Humanities	Grad. Biol. Science	Grad. Physical Science, Eng.	Grad. Social Science	School of Education	Law School	Medical School	Other Professional	Total
nnovations									
There should be two kinds of degrees in this field, one for researchers, one for practitioners and/or teachers	48	37	42	52	47	17	42	35	39
All students should be required to do some practical work as part of their education	64	66	72	74	71	71	71	69	70
All students should be required to do some teaching	56	56	49	52	50	13	26	32	38
Programs should be developed that would admit students to advanced study after three years of college	54	49	47	58	54	44	59	49	51
Credits should be allowed for teaching experience	64	56	51	69	61	15	25	40	45
The scheduling and structure of the academic programs should be re-organized to meet the special needs of women	24	28	19	38	27	19	23	20	23
Finances and Support									
All students should receive scholarships so they could concentrate on their studies	46	40	35	59	28	33	50	33	38
Something like the Yale plan, by which students pledge some percentage of their future income so that their present costs are met, should be available to every student	61	59	60	69	50	37	69	56	61
Scholarships or assistantships should be based as much on need as academic ability	58	61	58	70	57	62	71	62	62
"Package" deals should be made available -- i.e., scholarship, work, and loan	69	66	66	75	64	68	68	64	67
Tuition should be lowered	59	52	49	64	52	57	57	53	55

range of opinion. One law student, for example, was ready to abandon present procedures entirely.

> Modifying LSAT & LSDAS procedures etc. will have little if any bearing on reforming admissions policies. If most law schools would refrain from placing so much reliance on the now easily obtainable "objective" factors LSDAS makes available, and attempt a forthright subjective selection of candidates, the entire process would benefit.

A few students supported the idea of sole use of academic information for admissions.

> Admissions should be based upon academic ability. I don't care what the color or creed. Admission of a low-achieving or ill-prepared student of minority or majority group is a disservice to such a student.

Most comments, however, were in favor of the use of nonacademic information for admissions. However, the opinions varied as to which nonacademic information should be used. Some favored personality measures.

> Admissions committees ought to make a concerted effort to look at applicants as people rather than grade point indices and GRE scores. Perhaps some personality assessments could be made to aid in predicting success (personal as well as academic) in graduate school. For clinical psychology, prediction of academic success (as it is now viewed) should not be the sole admissions criterion, when it is so obvious that many variables other than academic success are vitally important in the field.

A number of students emphasized the importance of motivation.

> What is greatly lacking in your present testing system is a means by which motivation is measured. My aptitude, as measured by your test, is only average. Because of my mediocre score, I was almost denied admission at any law school. Only a freak chance enabled me to be accepted. But my success in summer employment tells me I will be a very good lawyer.
>
> I would strongly advise you look into David McClelland's work on motivational testing. The present system completely fails in this regard.

Some emphasized the ability to relate to people.

> I feel that the quality of the physicians about to come out of this generation will be inferior, and detrimental to medicine.
>
> For some reason, one of the main criterion for accepting medical students is academic achievement and the ability to memorize. Too few students can really relate to other people--even in their own field. We need more people as doctors, fewer academicians.
>
> The graduating students with perhaps less academic ability but more heart will be as good, if not better MD's. Knowledge of facts is helpful to good medicine, but not to the patient.
>
> Patients would get better care, or at least feel that he gets better care in the company of another man--not a symbol of omnicience.
>
> I really think that med schools should lower their standards and look at personalities more closely than grades or numbers.

Finally, some students expressed concern that some of the talents needed for high level work in their fields were slighted by present admissions practices.

> I believe that far too much weight is given to the Graduate Record Exam; I fail to see how the Exam can determine the <u>essential</u> qualities of a scientist--creativity, persistence in attacking difficult problems, and a wide range of knowledge of principles in the sciences & philosophy. It would seem that graduate schools should concentrate more on recommendations from teachers who knew the student well as an undergraduate and could assess his ability to generate new ideas and not dogmatically hold to a few theories and hypotheses. I believe that a knowledge of the students' undergraduate grades <u>and</u> the type of courses he took (and at what school he took the courses) are a far better indicator of the students' intellectual capacities than an anxiety-provoking all-day exam.

The students did not consider restriction of admission to the field as a solution to the problems of graduate and professional school. A scant 23 percent were in favor of fixed quotas on the number of students admitted, and only 22 percent agreed that "Admissions requirements should be

made higher, so that fewer people will enter advanced study, and, eventually, few people enter the job market in the field." The highest support for this idea was among the students of arts and humanities, the fields where unemployment among Ph.D.'s is highest, and lowest among the students of medicine, a field with no job crisis.

A few students felt that too many people were entering their field.

> Too many applicants are being admitted into law schools. As a result job market is being saturated and law schools will be putting themselves out of business as well as their graduates.

Most students, however, seemed to feel that any qualified and interested student should be able to study in the field.

Opinion was split about the idea that "more women should be admitted to this department or school." Interestingly, there is almost a perfect negative correlation between the proportion of women in the fields and the proportion agreeing with the statement. Law and medicine have the fewest women, and are the most favorable to admission of more women; education and arts and humanities have the most women, and are the least favorable to the idea. The only exception is social science, which, consistent with its general liberalism, is more in favor of the admission of more women than one would expect from the percentage of women in the field. In general, answers to this item seemed to be a function of the percentage of women currently in the field.

Some students commented on the general position of women in advanced education.

> Women feel strongly discriminated against in applying to graduate school (not at ----- so much, where the man/women ratio is more equal in social sciences) and because so pitifully few professors and heads of departments are women (this ratio is a bit ridiculous at ------) A concerted effort must be made to involve women in professional training and improve their self-concepts as professionals.

Two questions were asked that bore on the admission of minority students. The questions were designed to place the issue in a realistic perspective. Very few students would deny admission to minority students who were as able and qualified as bright WASP students. But that is not the choice that is facing graduate and professional schools. The schools must deal with the demands of minority students, many of whom have poor academic preparation and poor test scores. When faced with this more realistic choice the students were not very liberal. Only a little more than a quarter agreed that "More blacks and other minority group members should be admitted to this department, even if they do not meet the usual minimum requirements" or that "More minority students should be admitted here, even if some qualified majority group students would be excluded." The social science students were predictably among the most favorable toward these two statements. It is somewhat surprising to also find law and medical students among the most favorable to the ideas. The other graduate fields were equally unsympathetic to the ideas.

Medical and law schools have often been criticized for the conservatism of their admission policies. It is striking that law and medical students were usually the most liberal of all student groups. It is also striking that arts and humanities students were usually among the most conservative.

There was a good deal of comment on these items. Most students took a strictly equalitarian approach to the question, supporting the same standards for everyone.

> I regret the recent trend of accepting students based on minority requirements. Qualifications should be determinative. I believe that aid should be given to minorities, but exceptions operate as discrimination in reverse.

Other students commented on the economic feasibility of admissions of minority students.

> Students should be admitted strictly on the basis of talent with no bias (sexual, racial, etc.) either for or against.
>
> Numbers of students should be governed by (a) outside market demand (b) ability of school to produce increased number of graduates without decrease in quality, (c) number of qualified applicants.

Other students felt that graduate and professional schools cannot erase years of earlier discrimination.

> I am not a bigot, although my choices would seem to indicate otherwise. I do not believe in allowing unqualified people, regardless of the reason, fault, or weight of blame, into a program and excluding qualified people. This is a post hoc attempt at placation which I believe should be insulting to the minorities and self-defeating in its attempt. With the costs of higher education being what they are, it would be economically ridiculous to attempt further education of unqualified people. The same amount of money would be better spent at the problem's origin: the primary and secondary schools. When the minorities are then qualified, fixed quotas of qualified people are the obvious answers.

Other students felt that special admissions policies for minority students was racism in reverse.

> The implication ... is that if one who does not favor the quota system is racist. I, however, feel that to admit

> on group bases (quota or special admission policy) denies the individuality of the applicant and to decide admission on the basis of a quota is racist.

Some students pointed to the harmful effects of admitting poorly qualified students.

> Admissions should be based solely on qualifications which change with time and should have some degree of flexibility. Applicants to public institutions should never be refused nor accepted on the basis of race, color, sex or religion nor on the basis of any public opinion poll. The admission of unqualified persons, simply because of sex or minority group membership, often results in failure which is then blamed on the institution as discrimination. The admission of more women and more minority group members can never occur if the individuals do not first take the initiative and apply; however, it should be well publicized that any qualified person would be accepted if he applied.

A few students felt that minority students need to be viewed with an appreciation of their differences from the WASP culture.

> Blacks and other minority groups should be admitted with financial assistance and not judged by the culturally biased tests and marks. Other more 'qualified' students (whatever that means) will find other schools anyway. But my solution is that anyone who wants to enter should be admitted. Tokenism is not the answer.

Formal requirements and grading. The curriculum and academic standards are the heart of academic programs. The curriculum defines what the discipline and the faculty consider most important to know about the field. Academic standards define the level of performance expected of students. In the contemporary scene, the controversies seem to center around the extent to which there should be certain requirements at all, and the extent to which traditional standards can be satisfied by nontraditional activities.

Students were asked to indicate their opinions of nine possible policies. The students were most strongly favorable toward a clarity in definitions; 58 percent agreed that "There should be a published statement of what "satisfactory progress" toward advanced degrees means." The strongest backers of this idea are the social science students, an area of multiple ambiguities; the students feeling the least need for clarity are the law and medical students where the curriculum and "progress" are already clear.

Students who commented on this item were generally in favor of it.

> Courses should be planned ahead and given to the students at least a year in advance.

Some commented on related specific problems.

> The reading list covers so many works that in order to read them all, one must either read superficially, in which case one might as well not read them at all, or be prepared to spend 2 years preparing. (Or just guess at which works will be tested, and cross one's fingers.)
>
> If the reading list must be kept in its present form, would it not be kind to send each student admitted for the fall term a copy of the reading list along with his notice of admission? At least, the student would have the entire summer to get started on it.

Students were in least favor of the idea that "Doctoral examinations are much too long and should be shortened;" only 17 percent of the students agreed with this idea. Of course, students in the professional fields, where doctoral examinations are not part of the usual procedures did not agree, but the level of agreement was also low in the graduate fields.

In spite of the interest of graduate and professional school deans in

shortening the period of study, students were not very excited about the idea. Just less than quarter felt that "The program should be tightened, so that students will go through faster. The peak of support for this idea was only at 32 percent among the social science students.

Students who commented about the idea of "tightening the program" were generally in favor of it, emphasizing the costs of the duration of advanced education.

> Biggest problem in professional school--takes much too long--become anxious to start earning a living and building a future.

Some students also emphasized the duplication of undergraduate work:

> It takes too long. I'll be 27 to 29 before I can enter practice and 25 when I finish medical school. I would prefer to be earning my own keep, now, instead of being subsidised and needing money from my family. There ought to be more programs to accellerate the education process. This can be done (is done in a few programs) by eliminating the duplication of college and medical school. Eight years is now required for the two; 6 or 7 should be enough.

A few professional students thought time spent in the formal academic work was too long.

> All medical schools should have shortened curriculums available to all students who are interested. Four years of formal medical is not necessary. More actual practice time (which means less time in school) should be emphasized in med school.

Students seemed to be in favor of more interdisciplinary programs, which would almost certainly broaden rather than "tighten" a program. The graduate fields, particularly social science, were the most favorable to interdisciplinary programs, and the professional fields, particularly law and medicine, the least favorable.

An idea related to that of "tightening the progra..," the "weeding out" of poorly performing students, got a mixed reception among the students. Overall, 43 percent agreed that "Poorly perfor..ing students should be weeded out in the first vear of their studies." Only 30 percent of the medical students and 36 percent of the law students agreed, in contrast to 54 percent of the social science students. These results may be due to the greater structure and clarity of the professional programs. The clarity of the requirements in the professions may preclude any special need to "weed out" students in the minds of students in those fields.

Only a few students seemed hard-nosed about the elimination of students in their comments.

> Graduate school is entirely too easy. Entrance requirements should be stricter and more people should be flushed out.

Opinion was also divided about credit for independent study. Students in the social sciences and arts and humanities, where independent study is already fairly common, were the most favorable toward more independent study, whereas students in medicine, where independent study may be somewhat irrelevant, were the least favorable. However, law students were also favorable toward greater independent study.

Nearly all students who commented about independent study were in favor of it. Some emphasized their dissatisfaction with the present system.

> I am distressed to find preservation of lecture system, rather than innovation of more independent study, self-pacing, etc. I find curriculum constrictive and time-wasting in this regard.

Some students felt that, as graduate or professional school students, they should be sufficiently mature to devise their own program.

> There should be much more opportunity for independent study: first-year students should not be discouraged from independent work. It seems to me that once somebody gets into graduate school he should be allowed to have the freedom to set up his own program around formal requirements which may not be relevant to what a student wants to do.

me emphasized the positive benefits of independent study.

> There are a number of variations of independent study, pass/fail courses in universities and colleges at present, which are experiencing a variety of success. A product of such programs, even the poorer ones, must be an increase in communication of ideas and problems between their students and their professors in addition to increased communication between the students themselves. Such a product is certainly worth the additional problems which might be found in maintaining this type of program.

Medical students were also least favorable to a related idea, the elimination of required classes after the first year. Law students and social science students were in most favor of the elimination of required classes after the first year. Law students seem to want some liberalization of requirements in their answers to several questions in this area. Furthermore, as one law student commented, although almost everything is elective after the first year, the actual freedom may be constrained:

> The student of law should be allowed much greater flexibility in course selection after 1st year. Impressive catalogue listings, half of which do not appear in actual course offerings have the effect of channelling the student into too common a form.

Medicine, law, and other professional fields rarely have language requirements, so when we asked students about their opinions about the language

examination requirement, they typically did not answer the question, which accounts for the low percentage of students in these fields who agreed with the item. Among the graduate fields, dropping the language examination requirement was favored most by students in biological science and social science; dropping the requirement was favored least by the arts and humanities students, presumably because of the relevancy of the requirement in their field.

Finally, the opinion of students seemed to be as divided as the opinions of professors and administrators on the question of pass/fail grading. The most ardant supporters of pass/fail grades were the medical students, most of whom, as we saw in Chapter 4, are already in pass/fail systems. The most conservative students on this question were the physical science and engineering students. This is generally consistent with their attitudes toward tests, and suggests that, as a group, they support traditional grading and testing procedures.

Students had strong opinions about grades, most of them critical. Many of them are the same criticisms that are made of undergraduate grades.

> The grading system is absurd. The final exams, as given, rarely measure anything more than the amount and variance of knowledge a given student can regurgitate. For the quality of students now being admitted to the law school entirely too many are flunking out. This, in part seems to be based on grading variances by the professors within the various sections.
>
> * * *
>
> Entirely too much emphasis is placed on grades, i.e., class standing. This often reflects the person's ability to take an examination; and not necessarily his understanding of the material.
>
> Grades should be on a pass/fail or fail-one-above-one level.

Some students were critical of the techniques of giving and posting grades.

> I am distressed by the implacability of the grading system--if a prof. wishes to draw fine lines he should be compelled to take greater pains in his preparation of exams.
>
> Also, professional license gives no right to delay posting of grades--I have yet to notice a real improvement in grading that justifies increased time in grading. If fine lines are to be drawn, they should all be done in a short time to maximize uniform criteria.

Some questioned the rationality of fine distinctions among equally bright students.

> I think the grading system needs reevaluation. Competition is keen and exam taking places a premium on the memorization of soon--forgotten details and does not give enough recognition to a basic understanding of the course material. Since the students at -------- are from a highly selective group, it seems unnecessary to set up artificial divisions by grades on <u>one</u> 3-hour exam.

Other students emphasized the complexity of grading itself.

> I feel strongly about the present grading system--I would prefer more pass/fail type systems in graduate school. As one's knowledge begins to broaden, I don't think it is possible to "test" a person on his ability to retain certain specific bits of information. Rather, I would prefer to judge a person on the manner in which he would solve problems requiring independent research rather than memory. It is difficult for me to understand how one can be judged incompetent in a specific area simply because he has failed to remember the answers to 6 or 7 specific questions during a semester. Obviously thousands of questions may have been asked which he possibly knew but never had the chance to prove. Since there must be a cut-off made, a pass/fail system would adequately perform this task.

Finances and support. The section on students' finances in Chapter 3 showed that students in different fields differed in the manner by which they supported themselves. Most students had to budget their finances very carefully, and it is unlikely that very many students were completely satisfied with their support. Some have to go into debt, some have to work at jobs with no relation to their studies, some must rely on their parents, and some are supported by their spouses. How might financial support be improved so that there would be sufficient aid for all who needed it? A number of plans have been proposed, and we asked students for their opinions of some of the most widely discussed plans.

Students favored most the "package deals" involving combinations of scholarships, work, and loans. Some two-thirds of the students favored this idea, and the degree of support did not vary too much between fields.

Students also favored the idea that "Scholarships or assistantships should be based as much on need as academic ability." Overall, 82 percent favored the idea; the most favorable were the medical students, 71 percent of whom favored the idea, the least favorable were the education students, 57 percent of whom favored the idea.

Students were more divided on the idea that "Something like the Yale plan, by which students pledge some percentage of their future income so that their present costs are met, should be available to every student." About six in ten students favored this plan overall, and about seven in ten of the medical and social science students favored it. Perhaps skeptical of the legal basis for the plan, only 37 percent of the law students were in favor.

Students were also split in their opinions about whether "All students should receive scholarships so they could concentrate on their studies." Fewer than four in ten students advocated this policy overall, but nearly six in ten of the social science students and five in ten of the medical students favored the policy. Only about three in ten law and education students favored the policy.

Finally, the majority of students (55 percent) favored the lowering of tuition.

These questions stimulated a number of students to comment on the difficulties of financing their educations.

> Worst problem is money. Nobody seems to have enough, and tuition (especially out-of-state) is prohibitive ($500+ per quarter). If it weren't for my parents, I'd never have gone to grad school. Blame: the state legislature for reducing the entire university's budget by 6%.

Some students concentrated their criticisms on the distribution of aid funds.

> Many parents have already overextended themselves financially in providing a college education for their children. Medical students, especially are punished for their parents' generosity and ambitions (which made the students not qualify under the stringent loan and scholarship need requirements). Medical students in addition, because of their future presupposed high earning capacity are expected to go heavily into debt and live frugally until the age of 26 or more. There is no reason why adequate funds to match those still given out in graduate (Ph.D.) education shouldn't be available for medical education.

Some students concentrated on the inequities the present situation leads to.

> The financing of advanced education is undemocratic in that students from well to do families do not face the long period of comparative poverty while earning their degrees

that students from poorer families do. This tends to discourage poorer students from entering the prolonged programs. Tuition for medical school ought to be payed for by progressive taxes on the most wealthy people, not by the students.

A number of students favored full or partial support for advanced study.

What the education system needs is a fund to provide every student with adequate financial resources on a loan at an interest rate. Then education will be available to all economic groups.

* * *

Parents should not be expected to contribute towards the costs of their child's graduate school education. Scholarships and loans should be available to all students who request them and can show personal need.

* * *

Financial aid to medical students is absurdly low. National health care will soon be a reality thereby holding physicians to a lower income. I have no objection to that, but medical students should be supported fully or at least in part so that the tremendous debt they presently start with will be obviated.

Other innovations. Because of their changing nature, reflecting a changing society, the graduate fields and the professions are the subject of many proposals for changes. These proposals include questions about the nature of their degrees, the emphasis that should be placed on practical work, and recognition of the needs of certain types of students. In our survey we could not ask about all the possible proposals for change of course, but we did ask students for their opinions about some of the most widely discussed ideas.

The first proposal is an old one "There should be two kinds of degrees in this field, one for researchers, one for practitioners and/or

teachers." A little less than four in ten students supported the dual degree concept. The students in law, a field in which there is little "research" per se and in which most degree holders do become "practitioners," did not favor the idea. Students in the social sciences in which the division of practitioner and researcher roles is sharper, were most in favor of the idea. The idea also received some support in medicin which may reflect the division between the practicing MD and the medical researcher. Interestingly, the idea also had supporters in the arts and humanities, in which one would have thought the teaching and scholarly roles were fairly well combined.

Some students commented on this question and the need to recognize the different needs of students with different goals.

> The smartest thing any graduate school could do would be to create two separate degrees in each field. In this way you could obtain a degree with specialization in research, teaching or both. (Undergraduate schools do essentially the same thing when they offer a liberal arts degree or an education degree.) Each degree should require approximately the same courses in the major field. But researchers should be allowed to specialize rather than fulfill a requirement for a certain number of credits. And people planning to teach should be allowed to spend more time in that area to gain experience. Doesn't it seem a bit ridiculous to require exactly the same things of all graduate students regardless of their individual use of graduate experience later?

Other students who commented pointed out some requirements if the separation of degrees is to be successful.

> One question I feel strongly about and would like to explain: It would be helpful to have separate programs for research and practical/teaching degrees only if it could be done without downgrading the non-research degree. Graduate schools get so wrapped up in producing research and Ph.D.'s to produce more research that they are often oblivious to the importance and difficulty of preparing good teachers.

> Thus the "teaching degree" is considered "second class," a necessary evil that clutters up the dept. and gets in the way of "higher" pursuits. I find this attitude sometimes expressed towards those working "just" on a masters even though the work is identical to that of Ph.D. candidates at the same level. Yet it is the masters candidate who must do considerable work irrelevant to his future goals, to the great neglect of the preparation he actually needs.

Seven in ten students felt that "All students should be required to do some practical work as part of their education." The level of support for the idea was about the same in every field. Some of the reasons for the level of support appear in students' comments.

> The optional research-teaching-professional skills balance I feel has not yet been achieved in my program (Organizational Psych.). Heavy emphasis on research-academics. Would like program to provide more opportunity for practical experience outside of research and teaching. Skill training is still something that students for the most part. have to get on their own.

* * *

> More of the questions should have been directed toward reform of the methods of teaching in law school: the casebook method should not be relied on as heavily as it is. A more down-to-earth, practical experience method should be instituted, with practical on-the-job experience during at least one summer.

* * *

> I have been most disillusioned with the practical training and experience in my field. I believe graduate students are too intellectualized anyway and the field of counseling psychology would be far better off <u>requiring</u> practical experience <u>especially</u> of those intending research as their career.

* * *

> I think law school greatly overemphasizes academic abilities. Law schools should provide more opportunities for practical experience by expanding clinic programs and perhaps subsidizing clerkships with law firms.

Students were not as positive toward teaching experiences as "practical work." Only 45 percent thought that "Credits should be allowed for teaching experience." However, students in graduate fields were much more favorable to the idea than were students in the professions. A similar division appeared in opinions about whether "All students should be required to do some teaching." Although only 38 percent of the total sample agreed with the idea, slightly over half the students in graduate fields agreed, in contrast to fairly small proportions of students in the professions. Some of the reasons students had mixed feelings about teaching were revealed in their comments. For example, some were concerned with who would pay for the teaching, and how much would be paid.

> This department has a policy requiring students on outside fellowships to teach for 2 years on 1/3 of the pay given to students who only have teaching assistantship stipends.

Other students were skeptical about the worth of required teaching to the taught.

> I feel that requiring <u>all</u> students to teach would be an injustice to the undergraduates. It is clear in many cases that some of the grad students <u>cannot</u> teach.

Students were split in the opinions about the value of shortened undergraduate programs. About half the students in each field agreed that "Programs should be developed that would admit students to advanced study after three years of college." The lowest level of support was among the law students, among whom 44 percent agreed, and the highest level of support was among the medical students, among whom 59 percent agreed. Perhaps these differences can be related to the differences in specificity of preparation for the field.

Finally, we come to a proposal which reflects the growing feminist movement in this country: "The scheduling and structure of the academic programs should be reorganized to meet the special needs of women." Less than a quarter of the total sample agreed, and even among the social science students fewer than four in ten agreed. The comments of the graduate and professional school students provide some rationale for the low level of agreement. Some students, for example, denied the idea that women were "different."

> Women are people. Women do not have "special needs."

Others felt that women did not require special consideration of their characteristics.

> And what are the "special needs" of women? It seems to me that in this field--as in others--women can compete equally with men!

Other students felt that women's situation would be worsened by special treatment.

> Why should women be given special treatment? Doing something of this nature would serve only to further differentiate the men from the women -- What kinds of special needs do women have -- one day off per month or pregnancy leave? -- Women who are capable enough to enter professional school can certainly adjust without babying techniques.

Others argued that there <u>was</u> a need for sensitivity to women.

> Structure of academic programs does not meet the special needs of women <u>at all</u>. There is a dire need to give special considerations for pregnancy leaves, for example.
>
> The cut-back in monies in A & S Graduate school seems to have been at the expense of minority groups (women, blacks).

Other students were quick to point out that consideration of special needs did not entail a lowering of standards.

> I don't feel that departmental admissions policies discriminate against women. . . . Schedules should be flexible enough to meet the needs of women, e.g., evening classes, part-time loads, longer period to fulfill requirements, but academic requirements should not be altered.

Finally, a few students felt that the real solution is a greater sensitivity toward the needs of graduate and professional school students.

> When I indicated that scheduling ought to be revised for the special needs of women, I had in mind anyone, male or female, who by reason of age or other responsibilities, such as supporting a family, cannot take a full two, three, or four years of consecutive study. I did not have in mind lowering standards of performance, but allowing more flexibility in time towards degree.
>
> There were too few specific questions on women. I am not a militant; I think, for instance, that women should be employed on a basis of percentage of heads of household, not percentage in population. The same should apply to blacks, Chicanos, Indians, etc.

Of the 26 reforms presented to students for their reaction, the majority of students favored only nine. Only one of these was in admissions, suggesting that most students find present admissions procedures reasonably satisfactory. They would just like to see more talents evaluated by admissions committees. Two of the nine are in the area of formal requirements and grading. Students supported interdisciplinary programs and clear statements of the definitions of satisfactory progress. These results are consistent with those in Chapter 7 where we found that students generally seemed satisfied with formal degree requirements.

Two of the nine were in the innovations. A scant majority favored admitting students after three years in a special college curricula. In contrast, the largest majority for any question was for the idea of requiring all students to do some practical work. It is difficult to know what students meant by "practical work" and the definition probably

varied from field to field. However, it is clear that students seem to be seeking some way to break out of their ivory towers into the real world.

Four of the nine reforms favored by students were in the area of finances. Students favored the lowering of tuition, "package" arrangements to meet costs, awarding scholarships as much for need as ability and "something like the Yale plan." The only financial reform rejected by the students was the idea that all students should receive scholarships. Thus, students seemed to reject handouts, but would favor some reasonable reforms in their financial support which would lighten the financial burdens of advanced study.

In sum, of a great many reforms, students were most in favor of those dealing with the costs of advanced education and with the idea of making advanced education more practical.

Part Eight: Summary of the Results for Each Field and Conclusions

In this part, we pull together the various analyses presented in earlier pages and attempt to present pictures of the students in each of the graduate and professional fields we have studied. Then we attempt to draw some conclusions from our results.

Chapter 15

The Results Summarized for Each Field

The Arts and Humanities Experience

The arts and humanities graduate students had often begun work in their fields as college freshmen. As seniors they were majoring in arts and humanities and hoped to make their career in the field. They believed in their creative ability and felt supported in their belief by the encouragement of their college professors. They were usually highly verbal, but were usually relatively low in mathematical ability and interest in science. They were the remnants of a much larger number of seniors who had said they planned to study arts and humanities at the graduate level.

The arts and humanities students had used the same sources of information in choosing a school that most other students had used.

Arts and humanities students were a little less in debt than the average student, but their sources of support in the first year of graduate school were about average. The only exception was that a good many, nearly a third, were teaching assistants. They were satisfied with the opportunities for teaching and felt that they could act in a professional role as teaching assistants.

Their teaching experiences may be a good preparation for their eventual careers, since some 79 percent planned careers in some form of teaching. They planned to get their degree later than students in any other field.

Arts and humanities students gave higher ratings than other students to the importance of creativity, writing skill, and knowledge of a foreign language to success in their field. They also gave the lowest rating to the importance of mathematics.

Perhaps because of the broad scope of their field, they least often said they crammed before a test and most often participated in classroom discussions. However, they said they studied longer than students in other graduate fields. They reported relatively little incidence of keen competition for grades. They seldom found the work dull although they sometimes thought the courses did not complement each other. They described their professors in much the same terms used by other students. They also did not believe that their programs taught practical skills, which is consistent with their view that most of their classmates were less interested in money than in helping other people.

Arts and humanities students were less satisfied than other students with the formal aspects of their departments. They gave low ratings to their administrators. They did not feel that administrators were receptive to their ideas, responsive to the needs of the students, or involved students in governance. They also felt that their departments did not help students find assistantships, find financial aid or supervise thesis research. They were even skeptical about the extent to which student organizations reflected student opinion.

Perhaps as a result of this dissatisfaction, arts and humanities students least often felt their hopes for graduate school were being met, and fairly often reported they would strongly consider changing to another school.

Arts and humanities students were fairly conservative about admissions. They were not particularly in favor of admitting more women to their departments and were least in favor of admitting more blacks. In fact, they favored the raising of admissions requirements so that fewer people would enter their field. However, once students were admitted, most arts and humanities students would like to see them move more quickly to their degrees than they do now by means of a tightened program.

In sum, arts and humanities students were oriented toward teaching and seemed to feel that their departments would prepare them to teach, even while they did little to help the students get through graduate school efficiently.

The Biological Science Experience

The biological sciences students were academically successful students who were good at science, and who had been interested in science for many years. They seemed to be very much in the academic research track. They planned careers in university research and teaching (48 percent) more often than any other group. Another 16 percent planned careers in research in industry or nonprofit organizations. When they chose their department, they also used the academic advice of the departments they applied to more than other students. They frequently relied on scholarships for financial support, although one in three was working as a teaching assistant and a quarter were working

as research assistants. They did not feel the costs forced students into debt or forced them to defer marriage.

They had more positive attitudes toward tests than students in other areas, considering the tests as comprehensive, as allowing sufficient time, as being unbiased against minorities, and as not being oriented toward middle class whites. Interestingly, they reported they studied somewhat less than other graduate students, and they relatively seldom felt that their field required much more studying than their undergraduate college.

They were generally positive toward their departments' courses and facilities. They gave high ratings to their departments' opportunities for research, creative work, variety of courses and innovative programs on an individual basis. They felt their curricula allowed sufficient time for thoughtful consideration of the content. They were quite satisfied with the availability and quality of laboratory facilities, and the equipment needed for their work. They were less satisfied with study and lounge space.

They felt their departments had informal atmospheres. They reported that their professors encouraged out of class contact with students. They also felt their professors clearly explained their subjects and were good teachers. They were also impressed with their professors' research ability and dedication to research.

They were satisfied with their departments in many academic areas, including aid in finding assistantships and financial aid, guidance in selection of course work, selection of thesis subject, and supervision

of thesis research. They also felt that the difficulty of meeting steps to their degree goals were about right.

They were about as satisfied as other graduate students with their departments' general academic requirements and assistantships. They felt that language requirements should be dropped and that all students should be required to do some teaching.

In sum, graduate students in the biological sciences were strongly interested in research, and seemed to be satisfied with their departments' arrangements to carry them to this goal.

The Physical Science and Engineering Experience

Physical science and engineering graduate students had received good grades in undergraduate school and had exhibited their interest and talent in science for many years. In choosing their departments they had relied a good deal on the information provided by the schools to which they had applied. Of all students they relied least on the advice of friends, relatives, and parents. They felt the tests they had taken for admission assessed abilities relevant for their field and that they were not biased against blacks or other minorities. They also rejected the idea that the tests were inferior to an essay test.

Because of the large research funds available for research in physical science and engineering, there are funds for research assistantships and teaching assistantships. Thus, most students in the physical sciences and engineering held assistantships, and thus did not have to rely as much as other students on their parents or loans.

About a fifth of the graduate students in the physical sciences and engineering planned careers in research in industry, another fifth planned to combine research with university teaching, and about a quarter planned careers in professional practice.

In the opinion of the students, the physical science and engineering academic program provides opportunities for research and creative work, opportunities for interdisciplinary work and considerable choice in courses. The students felt that they did not have to use study techniques different from their undergraduate days, but that they did face keen competition for grades. The study techniques they used were to write down almost everything their professors said and not to rely as much as other students on textbooks. They felt their professors were objective and clear, if somewhat didactic. They reported that most of their professors were excellent lecturers as well as top notch researchers, who have the respect of their students. The students said their professors gave them a clear idea of how well they were doing, and were friendly and accessible to students, even if they did not encourage classroom discussion. The students felt their professors kept their personal political and professional feelings out of their classes. Perhaps because they felt they were objectively evaluated, the students felt the grading system was fair, and few saw any reason to change to pass/fail grading.

Physical science and engineering students felt their departments were pretty conventional and conservative. Although they felt their departments did not attempt to orient new students, they gave high

ratings to their departments' help in finding jobs, assistantships and financial aid. They were also positive about their departments' efforts at advising. Students felt that their departments' formal degree requirements were good. They were satisfied with the number of formal steps, the proportion of major and minor courses allowed, and the opportunities for independent study. They were also reasonably satisfied with most aspects of assistantships: the salary, the steps to appointment, the award process, the relevancy of the work, the relation of the work to the field, the chance to act as a professional, and the chances for undergraduate teaching. Students were also well satisfied with the library, laboratory, and computer facilities.

This high level of satisfaction with the program was reflected in the students' personal level of satisfaction. More often than students in any other field, they reported that their expectations were being fulfilled, that they were treated as colleagues, and that they were attending their first choice of departments. Like their biological science contemporaries, physical science and engineering students were not enthusiastic about admitting minority students if they did not meet standard admissions criteria or if they displaced able majority students. They were also skeptical of quota systems.

Physical science and engineering graduate students describe their departments as academically traditional and rigorous. However, they feel that the clarity and objectivity of the field, and the help of their departments and faculties make the academic demands easier to meet.

The Social Science Graduate Experience

Only a minority of the students who had planned to study a social science in graduate school were actually doing so a year later. It is difficult to perceive reasons why so many students do not follow through with their plans. The students who were studying a social science had used directories and guides to choose a school more often than other students, and had relied on the advice of their parents, counselors, and professionals in the field less often than other students. They most often felt that admissions tests for advanced study were oriented toward whites and biased against blacks.

The career plans of social science students were split among teaching, research, and practice. The largest percentage of any field planned careers as government executives.

Social science students described their academic programs pretty much as other students described theirs. They did report more participation in classroom discussions and more questions in class. They were also more satisfied than other students with the reasonableness of the language requirements and the supervision of students' course work. They seemed to feel a little distant from their departments. They reported few attempts to orient new students, felt that their departments were unresponsive to student needs, and that their professors were more interested in research than teaching.

The social science students were the most personally dissatisfied of all the groups of students. They most often reported that they had expected to be treated like colleagues but were treated like students,

that they were not attending their first choice of department, that they would seriously consider changing to another department, and that they would seriously consider changing to another field. It is hard to explain this level of dissatisfaction, since social science students did not seem to be markedly less satisfied than other students with most specific aspects of their departments. Perhaps the students attracted to the social sciences tend to be more critical than other students.

Social science students did describe their departments, professors, and fellow students as quite liberal. To some degree, the high degree of liberalism explains why social science students were in favor of so many reforms in graduate and professional education. Of 26 reforms, social science students favored 13, more than any other group of students. In the admissions reforms they favored the admission of more blacks and other minority students, even if they did not meet the usual requirements. They concentrated most of their fire in the sector of formal requirements and grading. They, more than other students, felt there should be no required classes after the first year, that there should be more credit for independent study, and that there should be more interdisciplinary programs. They also more often felt that poorly performing students should be weeded out after the first year, that language requirements should be dropped, that doctoral examinations should be shortened, and that there should be published statements of the definitions of "satisfactory progress." They also were more in favor of the innovations of allowing credit for teaching experience, having separate degrees for reseachers

and practitioners, and reorganizing academic programs to meet the special needs of women. Finally, they more often felt that all students should receive scholarships, or at the very least, tuition should be lowered.

In sum, graduate students in the social sciences described their departments in much the same terms used by students in other disciplines. They did feel their departments were liberal. They were personally less satisfied than other students with their departments and would like to see them reformed in many ways.

The Graduate Education Experience

Education students worked more often than other students and they worked outside the university much more often than other students. They frequently had family responsibilities as well. Consequently, education students more often studied part-time, carried fewer units and reported that they devoted less time to their studies than other students. The great majority of education students planned careers in a school classroom or a school administrative office.

Education students had relied on about the same sources of information that other students used to select a school. When it came to admissions tests, however, the education students were skeptical of the relevance of their content to the actual work of the field, and doubted their accuracy. They also considered tests obstacles rather than aids to candidates and felt that they were oriented toward the white, middle class culture. They were also unimpressed with the speed and helpfulness of their departments' admissions decisions.

Education students were not particularly impressed with their departments. They felt their administration communicated poorly with them and did not involve them in governance. They seemed to regard the academic work as uninteresting and unchallenging. They often felt the work was dull, and that it did not stimulate them. They felt that the work required about as much effort and about the same skills as undergraduate school. They felt that most students did not work very hard and did not show much interest in academic activities outside the classroom. They gave relatively low ratings to the clarity of formal requirements, and the relevance of the requirements to the work in the field. However, they felt they had ample time to consider the content of the curriculum.

Education students gave a low overall rating to their professors, although they felt their professors were helpful advisors and were interested in reform in the field.

Perhaps because so many education students were working, they were least in favor of the idea of providing all students with scholarships, the proposal for a graduate version of the Yale plan, and the idea that scholarships should be based as much on need as ability.

In short, education students described relaxed, if somewhat unchallenging, and unstimulating programs.

The Law School Experience

The students who entered law school usually had good college grades. Most of them were men. They were from well to do families which encouraged their plans for professional school. They were confident in their ability to handle the work in law school. Their general level of self-confidence was high. Almost all of them had planned to go to law school as college seniors and most of them had considered it during high school. There were few recruits from other fields. Most law students planned to enter practice with a company or with a firm with partners. Most of the students had talked with their friends and relatives about their plans for law school and many had talked with practicing lawyers. The law students also often relied on the financial support of their parents. They also used their personal savings to meet their bills. Few had scholarships or fellowships. Few were working, partly because nearly all of the students attended law school full time, most carried 13 or more units, and most studied twenty or more hours a week.

Perhaps the best words to describe the first year of law school are 'work' and 'competition'. They worked so hard that they often felt they had little time to think about the content of the curriculum. Besides their long hours of study, law students felt they had to use new skills for a different kind of study than they had done in undergraduate school. They seemed to use every study technique they could think of. They felt that they were in sharp competition with other

students who were bright, hard working, independent and ambitious. They sometimes felt that other students formed cliques, possibly as a result of competition. However, in the main, they felt other students were friendly and they enjoyed some extra-curricular activities together.

The effort of law students must be especially hard work since many of them felt that the work was dull and many said they didn't like it. They thought it was primarily directed toward the teaching of practical skills. Few felt there were adequate opportunities for creative work or research or for innovative programs. They were also dissatisfied with opportunities for independent study.

Law students often considered their departments proper, conventional and formal. They seldom felt they received very good guidance or advise from their departments in academic or nonacademic areas. Many law students also felt that their professors were formal and difficult to approach for any kind of advice or help. Students were dissatisfied with advising in general. And law students may need help, since relatively few students felt their professors gave them a clear idea of the subject or a clear view of how they were doing or gave them useful feedback on tests and assignments. Law students did say their profesors took strong stands on issues, had liberal views, and were interested in reform in the field. In the traditions of law schools, professors award grades over the entire grade range, although most of the law students had A or B averages in college. As one possible consequence, law students often felt that the grading

was unfair and that grading should be on a pass-fail basis. As another possible consequence, law students' conceptions of their academic and leadership abilities declined more than students in any other field.

How would law students like to see their schools change?

- They would like to see more women admitted although they felt that no special effort should be made to meet the needs of women. They also would like to see more blacks in law school.

- Law students seemed to prefer a lessening of competition; they did not think that poorly performing students should be weeded out after the first year, and would like to have no required classes after the first year.

- They considered law a pragmatic field with little "research" in the scientific sense, and consequently felt that there was no need for separate degrees for researchers and practitioners since virtually all lawyers are, in some way, "practitioners".

- Like other students they would like to see something done to alleviate the costs of their educations.

In sum, law students felt they were in costly, competitive, high pressure, and formal environments.

The Medical School Experience

Almost all medical students had planned to study medicine for several years. Most of the students were male, and most were from middle class and upper class homes. Some 60 percent planned professional practice with partners, 16 percent planned to practice alone,

and 12 percent planned to be employed as a professional. Almost all were attending school full time, and few were working. Few were currently in debt, but many of them expected to accrue debts to be able to complete their educations. Most of the medical students relied on their parents to meet their bills. They also frequently relied on scholarships and loans from their schools, as well as loans from banks. They felt that many students had to defer marriage and that many also went into debt.

Medical students had also relied on the advice of their parents when they had selected a school. They had also consulted their friends and relatives, preprofessional advisors, professionals in the field and admissions officers. They also consulted the publications of the Association of American Medical Colleges. Finally, they frequently visited the schools they were considering. The medical students obviously took great care in selecting a school.

Medical students believed their field required knowledge of the biological sciences, regular study habits self-discipline and determination. They saw little need for writing skill or creativity. These views of the requirements are consistent with medical students' actual study practices. They reported that they studied long and hard, and that they memorized detailed facts. They also reported that they seldom asked questions either during or after class, and that they did not participate in classroom discussions.

It is a little puzzling as to why the medical students did not ask many questions since, compared to students in other disciplines,

they said their professors did not explain their subject particularly clearly, did not give much helpful feedback on tests, and generally were not very helpful as advisors. Furthermore, they gave relatively low ratings to their professors on their teaching and lecturing ability, and on their ability to stimulate student learning. However, they did seem to say their professors did not inject their own opinions into their classes, and they felt that there was a strong esprit' de corp between students and faculty.

Although medical students did not feel their programs offered many choices or opportunities for research, creative work, work in other areas, or individualized programs, they felt the work was interesting and stimulating. Although they reported that students had to work so hard they had little time to think about what they were studying, they also reported that there was little competition for grades and that student cliques and academic cheating were rare, probably because most schools were using pass/fail grading systems.

Medical students were quite satisfied with their departments, feeling their departments had helped them adjust to medical school and helped them deal with such details as housing and work for their spouses. They also felt the administration was responsive to their needs, receptive to their ideas, and open to their participation in governance. The students were also satisfied with the laboratories and equipment provided by the department.

Overall, the medical students seemed more satisfied with their schools than students in any other discipline. They least often would

consider different fields or different schools. The medical students' satisfaction with their schools as they are was reflected in their reactions to several proposed reforms of advanced education. For example, few medical students saw any reason to abandon required classes after the first year, to allow more credit for independent study, to allow more interdisciplinary work, or to allow credits for teaching. Few felt any need to have a published statement of the definitions of "progress." They favored the same pass/fail systems that most of their schools were using. They did not favor "weeding out" students after the first year, a policy seldom used in medical school. Thus, in a number of areas, they saw no reason to change their schools. However, they did favor changes in admissions and finances. They would like to see admissions made on talents in addition to academic talent. They favored the admission of more women and more minority students. In finances, medical students favored the ideas of giving all students scholarships, of basing the award of scholarships on need as much as ability, and some version of the Yale plan.

In short, medical students did not have an easy time in meeting the costs of medical school. They were quite satisfied with their departments, although they did not give high ratings to some of the particular aspects of their academic experience.

Chapter 16 -- Conclusions

Graduate and professional education is in a time of change. Many of its policies and practices are under fire from critics with a variety of viewpoints. Many reforms have been suggested. Do the results of our study support or refute the criticisms? What do the results suggest in the way of reform?

The focus of many criticisms is admissions. Graduate and professional schools are criticized as being the tool of a sexist and racist society. Our results did show that, a year after they graduated from college, women worked more often than men, and women attended graduate or professional school less often than men. Men were about half again as likely to be in advanced study as women (37.9 percent of the men were in advanced study, compared to 25.4 percent of the women), even though the women had had better grades in college. Of course, much of this difference might be expected because the women had less often planned to continue their educations when they were seniors. This suggests that capable college women should be given more encouragement to consider graduate or professional school than they are now. Perhaps counseling, information or awareness programs could increase the numbers of college women who apply for advanced study. However, even if more women did apply, more effort would probably be needed to get them in. Our survey revealed that even the women who had planned to go on were less likely than the men to actually attend graduate or professional school (74.9 percent of the men who had planned to go on to advanced study were in some form of advanced study a year later, compared to

64.6 percent of the women who had planned to go on). The difference was even larger when we examined the extent to which students were in the specific field they had planned to enter; women followed through with their plans only three quarters as often as the men. The degree to which women followed through with their plans less than men varied by area, with the largest difference in medicine, and the smallest in law. Women may see law as a career which has an impact on society, and which has an adaptable schedule. The overall results indicate that the women who do not enter their original field of choice tend to go into education. About one in every four women in advanced education was in education, in contrast to about one in sixteen men. In sum, compared to men, women less often planned to pursue advanced studies; when women did plan advanced studies, they less often followed through with their plans; when they did attend graduate or professional school they were more likely to be in education. Remember that women, on the average, had better undergraduate academic achievement records than men. The loss of the talent represented by these facts is large and serious. What can be done? Unfortunately, there are few suggestions for changes at the graduate or professional school level from our results. Finances do not seem to be the problem. Women seemed to have just as much access to fellowships and scholarships as men, and women held assistantships just as often. Men and women in advanced study worked to about the same extent. Nor is counseling a panacea. Analyses of the senior data indicated that men and women reported about the same degree of encouragement from faculty, and they considered the same sources of advice to be valuable in deciding about future plans. The differences in the attendance

patterns do not seem to be easily explained by anything that could be affected by a simple change in the practices or policies of the graduate or professional schools. Rather, the differences seem to be due to a long term lack of confidence among many women, which may be difficult to change. Changes in policies at the graduate level will certainly help, particularly the kind of frankly sexist attitudes held by some professors and department chairmen that Heiss (1970) found. However, it seems that the differences between men and women at the graduate and professional school level will be eradicated only as part of a general change in our society's attitude toward women, and women's own attitude toward themselves.

The subtle and nearly unconscious discrimination against women contrasts sharply with the condition of minority students, particularly blacks. Blacks went on to graduate or professional school as often as whites did, although they had poorer grades in undergraduate school. Blacks received more financial aid, and greater assistance from their schools than did whites. The analyses reported in Chapter 9 suggest that the graduate and professional schools are doing a great deal already to provide open access to advanced study for blacks and to make the graduate or professional school experience as comfortable as possible for them. Although more can always be done, it appears that most graduate and professional schools can scarcely be regarded as biased against blacks. The opposite seems to be more often the case.

In sum, there is little evidence that graduate and professional schools are deliberately biased against women and blacks. Womens' lower rate of attendance seems due to their level of confidence in their ability and

right to pursue advanced study. Blacks, at least in our study, pursued advanced study as often as whites, and seemed to receive greater aid from their institutions. While it is possible that unconscious bias exists among some professors and that bias could be challenged, it appears that the schools could generally change few policies to make themselves any more equalitarian than they are now. One possible exception is to provide more flexibility for the schedules of women, although this is essentially a minor variation on what is already done.

It might be difficult to effect such changes however, since the majority of the students in our sample opposed the idea; in fact less than one in four favored it. Student comments indicated that they generally favored the system as it is now, and would consider such changes to be sexism in reverse. It is also striking that students seemed to oppose the idea of admitting more minority students, if they do not meet the usual admissions criteria, at the very time many of their institutions' admissions officers were doing just that. Only about a quarter of the students favored the admission of minority students who did not meet the usual criteria. In contrast, most of the departments studied by Heiss (1970) had some kind of special admission policy for minority students, although they were reluctant to announce the fact. Consistent with this study, Heiss reports that the institutions seem to make a concerted effort to recruit promising minority students and to obtain financial aid for them. Again, then, the institutions appear to be making a strong effort to recruit and retain minority students, in some cases, it appears, to a greater extent than their non-minority students might agree with.

We found that the traditional obstacles to students from poor backgrounds still seem to exist to some degree. Less privileged students planned to continue their educations a little less often than more privileged students, and when they did plan to go on, they did not as often follow through with their plans. The advantage of the more privileged was strongest in the professional fields of medicine, law, and business. The need for financial aid, counseling and information about low cost programs remains, particularly in the more costly professional programs. We saw that present financial aid seems to be based about equally on need and ability, a formula few people would disagree with. Perhaps there simply needs to be more aid available, or at least made more accessible. Students in costly fields, such as medicine, or fields with relatively few scholarships, such as law, frequently had to go into debt to be able to pursue their studies. Greater availability of aid funds in these fields seems especially important. The students in our study strongly agreed that some improvements in financing should be made. They would consider "something like the Yale plan," by which students would pledge some percentage of their future incomes to meet their present needs and package arrangements of scholarships, loans and jobs. They would like to see more emphasis on need in awarding scholarships and assistantships. They would like to see tuition lowered. All of these results suggest that graduate and professional school students would like to see some rational, fair, and readily available financial aid so they could pursue their studies without financial stress. Perhaps a national aid program, something like Basic Educational Opportunity Grant program at the undergraduate level could be developed at the graduate level.

Another focus of criticism is the specific procedure used for admissions. Admissions tests have born the brunt of many criticisms. Our results indicate that many graduate and professional school students make the same criticisms. Many think the tests are oriented toward a white middle class culture, focus on narrow academic abilities, and do not accurately assess their abilities. To these points it may be argued that the tests merely reflect the interests of the graduate and professional schools. They reflect the white middle class culture of the schools; the abilities, attitudes, and behaviors that the schools look for and reward are, by and large, the ones that the white middle class culture looks for and rewards. The tests focus on just the academic abilities that the schools consider important. Studies have shown the tests to be useful predictors of academic performance, if not perfect ones. Testing organizations have undertaken a spate of research to show that tests are not biased in a technical sense. Others have met the criticism head-on and argued for the legitmacy and validity of tests (Stanley, 1972). Whatever the criticisms and defenses, one point should be reemphasized: admissions tests have been and are merely the technical apparatus for the evaluation of students' academic promise; an apparatus which is especially efficient in predicting grades. Because of this basic purpose of admissions tests, many criticisms of them are really criticisms of traditional academic procedures and values. The tests probably should be broadened, just as graduate and professional education should be broadened. But changing the tests would not very quickly change graduate or professional education.

Such changes may be slow. As we have seen, graduate and professional school students appear to find satisfactory most of their institutions' policies and practices. In admissions, they do not seem to favor a change in admissions standards, even for such a widely valued goal as equality for minority students. Of course they would like to see admissions based on evidence of talents beyond the strictly academic ones. Perhaps it is here that the best hope for change lies. As the graduate and professional schools come to realize that academic achievement is only one of many components in success in their fields, and perhaps a small one at that (Hoyt, 1965), they may seek better ways to identify and evaluate the non-academic abilities which are also related to success.

The schools' attempts to orient new students seemed to get low scores from students in every field. Clearly, the departments and schools could do a better job. In some cases, the graduate or professional students' associations have tried to provide the information that new students need. In others, a kind of underground press exists which serves the same functions. It is important, particularly in the graduate fields, for students to have accurate, up to date information. Some students follow the wrong paths and inadvertently waste a great deal of precious time, thus extending their studies. Some find that they have to go back to pick up basic skills and techniques which they need before they can move ahead. Departments and schools have a responsibility to help new students avoid such floundering by giving adequate orientation and adequate catalogs, pamphlets or other materials to each applicant.

The quality of teaching is criticized at all levels of education. Apparently, most graduate and professional school students think their professors' teaching is fairly good. They described the majority of their professors as friendly, clear, objective, and concerned with their teaching. However, they also seemed to feel that their professors were not very helpful as advisors. Of course, professors have many other duties outside the classroom, and need to attend to them. However, it might be useful if departments could encourage their professors to consult with their students by providing time in the schedule for them to do so, and by providing rewards to professors for doing so. Much of the stress of the first year of study might be eliminated if students had more contact with their professors about their academic progress. Graduate students seemed to think the formal requirements for their degrees were reasonable, but the professional school students seemed to want greater breadth and flexibility in the courses they could take.

Another persistent criticism of education, at all levels is that is is too removed from the pragmatic realities of the world. Advanced education, in particular, is criticized for its ivory towers. Many students seemed to agree with the criticism, and would like to see their programs become more practical. They may be partly concerned about their own future job prospects, but many have other reasons. They sense that their fields are moving further from society as their research and scholarly studies become more and more technical and more concerned with the specifics and niceties of the field. This feeling seems to exist even among students in the "applied" fields. Perhaps they see that the pressures to publish have

resulted in a waterfall of "literature" which is writen more to be published than to truly add to the field. Perhaps they sense the danger in a system which leads some people to ask "How can I get something in print?" rather than "What is most important to do?"

Because of the increase in our knowledge, and the increased demands placed on our graduate and professional schools, we need to examine the organization and practices of the schools. This study has attempted to study those organizational structures and practices through the perceptions and experiences of first year students. It appears that much may need to be changed, but that, by and large, our graduate and professional schools are doing a creditable job of training our future scholars, teachers, researchers, practitioners and professionals.

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Appendix A. Comparisons of the Follow-up Sample Respondents with Non-respondents

The senior survey records of individuals who were sent the follow-up questionnaire were studied in a series of analyses. The records of students who responded were compared with those who did not to examine the possibility of response bias. The comparisons of respondents and non-respondents were made in three ways: 1) for all students who were sent the follow-up questionnaire, 2) for those students who had indicated that they planned to go on to graduate or professional school the next fall; and 3) for those students who did not plan further study the next fall. The results are described for the areas of academic performance, personal and background characteristics, educational plans and aspirations, and college experiences.

Academic Performance. The undergraduate grades of respondents and non-respondents in all courses and major field courses are shown in Table A.1. There is a very slight tendency for the non-respondents to have lower grades than respondents, but the size of the differences appears to have very little importance. There were also virtually no differences between the respondents and non-respondents in their responses to twelve attitudinal statements about their self-evaluations of their academic ability, their motivation for grades, and their attitudes toward grading (not shown).

Background and Personal Characteristics. The comparisons of respondents and non-respondents to selected background and personal characteristic items are shown in Table A.2. There were no differences or very small differences between the respondents and non-respondents on sex, marital status, parental education, family income, parental religion, and parental encouragement of further academic work. However, there are some

Table A.1

Undergraduate Grades of Respondents and Non-respondents

Grades in all courses	Students planning advanced study		Students not planning advanced study		All students	
	Responded	Did not respond	Responded	Did not respond	Responded	Did not respond
D or lower	0	0	0	0	0	0
D+	<1	<1	<1	<1	<1	<1
C	4	6	13	15	7	8
C+	20	23	33	39	24	27
B	33	33	29	26	32	31
B+	27	25	17	13	24	21
A to A+	13	11	5	4	11	9
Grades in Major courses						
D or lower	0	0	0	0	0	0
D+	0	0	0	0	0	0
C	2	3	6	7	3	4
C+	8	9	16	17	10	11
B	26	27	34	35	28	30
B+	33	33	29	27	32	31
A to A+	30	26	14	12	25	22

Table A.2

Personal and Background Characteristics of Respondents and Non-respondents

Characteristic	Students planning advanced study		Students not planning advanced study		All students	
	Responded	Did not respond	Responded	Did not respond	Responded	Did not respond
Sex						
Male	68	70	53	55	64	66
Female	32	30	47	45	36	34
Ethnic group						
Black	3	8	3	8	3	8
White	92	85	93	87	92	85
Oriental	1	2	1	1	1	2
Spanish speaking	1	1	<1	<1	<1	<1
Other	2	4	3	3	2	4
Marital status						
Single	67	67	58	54	64	63
Engaged	11	11	16	18	13	13
Married, no children	13	13	16	17	13	14
Married, children	8	8	10	10	8	9
Fathers' education						
Less than high school	17	18	24	26	19	20
High school graduate	23	22	27	27	24	24
Part college	18	19	17	17	18	19
College graduate	20	19	16	16	19	18
Graduate degree	21	21	15	13	20	19
Mothers' education						
Less than high school	12	15	18	17	14	15
High school graduate	37	34	39	38	37	35
Part college	21	23	21	21	21	22
College graduate	20	18	16	18	19	18
Graduate degree	9	9	6	5	8	8

Table A.2 (continued)

Characteristic	Students planning advanced study		Students not planning advanced study		All students	
	Responded	Did not respond	Responded	Did not respond	Responded	Did not respond
Family income						
<$5,000	5	6	6	8	5	7
$5,000- $7,999	8	8	10	10	9	8
$8,000-$11,999	20	18	22	21	20	19
$12,000-$19,999	27	24	26	25	27	25
$20,000-$29,999	14	14	12	9	13	13
$30,000 and over	14	14	10	12	13	13
Don't know	9	12	10	11	9	12
Parental religion						
Protestant	51	49	58	58	53	51
Catholic	25	27	26	26	26	26
Jewish	12	11	4	3	10	9
Other	7	8	7	9	7	8
None	4	5	4	4	4	4
Father's encouragement						
Discouraged	1	2	1	2	1	2
Neither encouraged or discouraged	29	28	48	47	35	33
Encouraged	31	30	21	22	28	28
Strongly encouraged	30	31	11	11	25	25
Not applicable	6	6	13	13	8	8
Mother's encouragement						
Discouraged	2	2	1	2	1	2
Neither encouraged or discouraged	29	28	48	47	35	34
Encouraged	34	34	24	24	31	31
Strongly encouraged	32	32	12	13	26	26
Not applicable	3	3	11	11	5	5

differences in the percentages of students from various ethnic groups. The overwhelming majority among both respondents and non-respondents were white, but there were approximately twice as many blacks, orientals and "others" among the non-respondents than among the respondents. Clearly, the samples of respondents does not include a sufficient number of minority members to be completely representative. Separate analyses of the black students indicated that the blacks who responded were very similar to the blacks who did not. However, overall, the sample under-represents black and other minority students.

Other analyses, not shown, indicated that respondents and non-respondents differed very little in age, military status, family size and indebtedness, and proportion of parents foreign born.

Plans and Aspirations. The degree goals and fall plans of respondents and non-respondents are shown in Table A.3. The distributions of degree goals were virtually identical for the groups. Likewise the distributions of plans for the following fall are very similar (the responses of all students only include the nonacademic plans, since these were the only ones common to all groups). The non-respondents included slightly more students who planned to work full time, and,among students planning advanced study, slightly more students who planned to study the arts and humanities. However, these differences are small and the overall distributions of plans are nearly the same. Other analyses, not shown, showed that students who responded and those who did not gave a distribution of responses which were virtually the same for their plans for the year when they planned to obtain their degrees, and for the definiteness of their plans.

Table A.3

Degree Goals and Educational Plans of Respondents and Non-respondents

	Students Planning advanced study		Students not planning advanced study		All students	
	Responded	Did not respond	Responded	Did not respond	Responded	Did not respond
Degree Goal						
Bachelor's degree	2	2	30	31	10	11
Master's degree (M.A., M.S., M.B.A., etc.)	46	44	58	56	49	47
Doctor of Philosophy (Ph.D.)	23	23	5	5	18	17
Doctor of Education (Ed.D.)	3	3	1	2	2	2
Doctor of Arts (D.Arts)	1	1	1	1	1	1
Doctor of Medicine (M.D.)	10	10	1	1	7	7
Doctor of Dental Science (D.D.S.)	2	1	1	1	1	1
Doctor of Veterinary Medicine (D.V.M.)	1	1	1	1	1	1
Bachelor of Laws (LL.B.)	5	5	2	2	4	4
Doctor of Jurisprudence (J.D.)	8	9	1	1	6	6
Doctor of Divinity (D.D.)	1	1	0	0	1	1
Other	1	2	1	1	1	1
Plans for the Following Fall						
Working full time at a job I expect to make a career	15	17	55	52	26	27
Working full time at a job which will probably not be my career	9	10	32	37	16	18
Noncareer military service	2	2	12	10	[illegible]	4

Table A.3 (continued)

	Students planning advanced study		Students not planning advanced study		All students	
	Responded	Did not respond	Responded	Did not respond	Responded	Did not respond
Plans for the Following Fall (continued)						
Career in military service	1	1	3	3	1	1
Marriage	10	10	16	17	12	12
Graduate study in an arts or humanities field	16	19				
Graduate study in a biological or physical science field	17	16				
Graduate study in a social science field	16	15				
Professional study in business	10	10				
Professional study in law	12	14				
Professional study in medicine	11	10				
Professional study in engineering	6	6				
Professional study in education	11	10				
Professional study in social work	1	1				
Professional study in architecture	1	1				
Professional study in dentistry	2	1				

College Experiences. The responses of respondents and non-respondents to series of questions about their undergraduate experiences were highly similar with no differences of any size. (Because the groups were so similar, these data are not shown in a table). These variables include friends' encouragement of plans for advanced study, work experiences in college, extent of changes in major field, extent of changes in vocational choice, reasons for changing vocational choice, extent of interruptions of study, and reasons for interruption of study.

Conclusion. Respondents and non-respondents did not essentially differ in academic success and attitudes, socioeconomic status, sex, religion, age, marital status, military status, plans and aspirations or college experiences. Blacks and other minority students were somewhat underrepresented in the respondents to the followup. However, with this one exception, the followup sample seems to be a good approximation to the total sample. There seems to be no systematic response bias, except for a slight underrepresentation of minority students.

Appendix B. Development of the Augmented Sample

In the design of the project it was decided to obtain an additional sample of first year graduate and professional school students so that certain within-field analyses could be conducted. For example, we were interested in the variation in teaching practices among medical schools. By examining school to school variability, we could attempt to find answers to such questions.

To develop a reasonably representative sample, a sampling frame was developed. Within the graduate fields, six fields were selected to represent the diversity of such fields. To represent the humanities, lists of English and history departments were developed; to represent the sciences, lists of biology and chemistry departments were developed; to represent the social sciences, lists of psychology and economics departments were developed. Departments were chosen from this list to include departments of varying size, region of the country, type of control of the university, and "quality" as assessed by the American Council on Education ratings. Schools were chosen from listings of law and medical schools on a random basis. These random sample lists were shown to representatives of the Law School Admissions Council and the Association of American Medical Colleges, who agreed that they represented the breadth and diversity of schools in their professions.

Schools and departments were invited to participate in the study by letter. The schools and departments which agreed to participate were sent sufficient numbers of a questionnaire to administer to all their first year students. The questionnaire, The Graduate and Professional School Survey, was exactly like the questionnaire sent to the follow-up

sample, The College Graduate Survey except that it included several basic background items. The questionnaires were administered at the same time as the College Graduate Survey, in the Spring of 1972.

Altogether, there were ten law schools, ten medical schools, and 13 to 15 departments in each graduate field. The graduate departments included a wide variety of departments, as did the law and medical school samples. The individual institutions included seemed to be reasonably representative of their fields. However, many of the departments were able to contact only a portion of their first year students, and many were unable to obtain a very high response rate. For these reasons a good many of the departmental results are based on too few cases for reliable statistical analyses. The number of such departments precluded the kinds of within field analyses originally planned. However, the sampling of departments and schools appeared to be reasonably representative. Furthermore, analyses of the characteristics of the students in the augmented sample with those in the follow-up sample showed them to be highly comparable. For these reasons, the augmented sample was considered to be reasonably representative of first year students. It was used in some analyses as a check on the results in the follow-up sample. It was also used in some analyses because certain technical features made the tape easier to use.

Senior Predictors of Working Full Time

Senior Variable	Correlation
Senior plans to work	.52
Level of degree aspiration	-.32
Parents' level of educational attainment	-.24
MCAT-Science score	-.24
"I have the ability to complete the advanced work needed to become a doctor, lawyer, or university professor"	-.22
Senior major in education	.21
GPA in all courses	-.21
Age when first thought of advanced study	.19
Self rating on scholarship	-.18
GRE-Verbal score	-.16
GRE-Mathematical score	-.16
Fathers' encouragement of advanced study	-.15
Mothers' encouragement of advanced study	-.15
GPA in major field	-.15
"I would rank among the best in a graduate or professional school"	-.15
Senior plan to study medicine	-.15
Number of offers of financial aid	-.14
Self-rating on scientific ability	-.14
Freshman major in education	.14
"I would be able to get mostly A's in graduate or professional school"	-.14
"I would rank among the best in my class in college"	-.13
Senior major in science	-.13
Senior major in social science	-.13
Senior plan to pursue graduate study in science	-.13
Marital status (1=single, 2=engaged, 3=married, 4=married with children)	.12
Freshman vocational choice in medicine	-.12
Self-rating on writing	-.12
Senior plan to study law	-.12
LSAT score	-.11
Held assistantship in the field	-.11
Sex (1=male, 2=female)	.10
Family income	-.10
Friends' encouragement of advanced study	-.10
Raised in Jewish religion	-.10
Working as an undergraduate	.10
Extent of involvement in activism	-.10
Senior plans to pursue graduate study in social science	-.10

Stepwise Multiple Regression Results

With Plans

Variable	R	Final Weight
Senior plan to work	.52	.47
MCAT-Science score	.53	-.14
Age first considered advanced study	.54	.17
Senior major in education	.55	.16
Sex: Male	.55	-.07
Senior major in science	.55	.32
Freshman vocational choice in medicine	.56	-.11

Without Plans

Parents' level of education	.24	-.08
MCAT-Science score	.30	-.15
Senior major in education	.35	.16
Age first considered advanced education	.37	.12
"I have the ability to complete advanced work"	.38	-.08
Freshman vocational choice in medicine	.38	-.07
GPA in all courses	.39	-.06
Marital status	.40	.05

Senior Predictors of Pursuing Graduate Study in Arts and Humanities

Variable	Correlation
Senior plans to pursue graduate study in arts and humanities	.46
Senior major in arts and humanities	.33
Senior vocational choice in arts and humanities	.21
Freshman vocational choice in arts and humanities	.19
GRE-Quantitative score	-.14
Encouragement of college faculty important in decisions to pursue graduate study	.14
Self-rating on scientific ability	-.13
GPA in major field	.12
High income important in vocational choice	.12
Self-rating on creativity	.11
Self-rating on mathematical ability	-.11
Self-rating on mechanical ability	-.11
Senior major in science	-.10
GRE-Verbal score	.10
Self-rating on writing ability	.10
Self-rating on artistic ability	.10
Senior plan to work	-.10

Stepwise Multiple Regression Results

With Plans

Variable	R	Final Weight
Senior plan to study arts and humanities	.46	.37
Senior major in arts and humanities	.48	.13
GRE-Verbal score	.49	.10
GRE-Quantitative score	.49	-.10
GPA in major field	.50	.06

Without Plans

Senior major in arts and humanities	.33	.28
GPA in major field	.34	.09
GRE-Quantitative score	.36	-.16
GRE-Verbal score	.37	.12
High income important in vocational choice	.38	-.06

Senior Predictors or Pursuing Graduate Study in Biological or Physical Science

Variable	Correlation
Senior plans to pursue graduate study in science	.62
Senior major in science	.43
GRE-Quantitative scores	.31
Self-rating on Scientific Ability	.31
Freshman vocational choice in science	.31
Self-rating on Mathematical Ability	.27
Working with people rather than things important in vocational choice	-.27
Number of offers of financial aid	.27
Held an assistantship in the field	.26
Level of degree aspiration	.18
Senior plans to work	-.18
GPA in all courses	.14
Senior major in social science	-.14
Making a contribution to knowledge important in vocational choice	.14
"I would be able to get A's in graduate or professional school"	.13
Being of service to others important in vocational choice	-.13
Encouragement of college faculty important in decision to pursue advanced study	.13
Self-rating on mechanical ability	.12
Senior major in arts and humanities	-.12
GPA in major field	.11
Self-rating on scholarship	.11
Self-rating on skill in relating to others on an individual basis	-.11
"I would rank among the best in my class in college"	.10
"I would be able to complete the academic work needed to become a doctor, lawyer, or university professor"	.10

Stepwise Multiple Regression Results

With Plans

Variable	R	Final Weight
Senior plan to study science	.62	.55
Encouragement of college faculty	.66	.21
Senior major in science	.67	.15
Working with people rather than things important in vocation choice	.68	-.10

Without Plans

Variable	R	Final Weight
Senior major in science	.42	.31
Working with people rather than things important in vocational choice	.46	-.17
Encouragement of college faculty	.49	.13
GRE-Quantitative	.50	.14
Making a contribution to knowledge important in vocational choice	.52	.11
Held an assistantship in the field	.53	.10

Senior Predictors of Pursuing Graduate Study in Social Science

Variable	Correlation
Senior plans to pursue graduate study in social science	.50
Senior major in social science	.29
Senior plans to work	-.14
Freshman major in social science	.13
Level of degree aspiration	.13
Freshman vocational choice in social science	.13
Self-rating on scholarship	.11
Extent of involvement in activism	.10

Stepwise Multiple Regression Results

With Plans

Variable	R	Final Weight
Senior plan to study social science	.50	.45
Senior major in social science	.51	.11
Level of degree aspiration	.52	.08

Without Plans

Senior major in social science	.29	.26
Senior plans to work	.31	-.08
Self-rating: on scholarship	.32	.07
Freshman vocational choice in social science	.32	.05
Level of degree aspiration	.33	.04

Senior Predictors of Pursuing Study of Law One Year Later

Variable	Correlation
Senior plans to study law	.80
Freshman vocational choice of law	.37
Level of degree aspiration	.28
LSAT score	.26
Senior major in social science	.20
Senior plans to work	-.19
"I have the ability to complete the work needed to become a doctor, lawyer, or university professor"	.18
Encouragement of faculty important in decision to pursue advanced study	-.15
Freshman major in social science	.15
Parents' level of educational attainment	.14
Age when first considered advanced study	-.14
Sex (Male = 1, Female = 2)	-.13
Self-rating on writing ability	.13
Status and prestige important in vocational choice	.13
Family income	.12
Extent of involvement in activism	.12
High income important in vocational choice	.12
Number of offers of financial aid	-.12
Fathers' encouragement of advanced study	.11
Self-rating on leadership ability	.11
Mothers' encouragement of advanced study	.10
Raised in Jewish religion	.10
Senior major in science	-.10
Freshman major in prelaw	.10
Self-rating on scholarship	.10
Self-rating on ability to act when limited facts are available	.10
Independence important in vocational choice	.10
Senior plans to pursue graduate study in science	-.10

Stepwise Multiple Regression Results

With Plans

Variable	R	Final Weight
Senior plans to study law	.80	.78
LSAT score	.81	.10

Without Plans

Freshman vocational choice of law	.36	.29
LSAT score	.43	.21
Senior major in social science	.45	.12
High income important in vocational choice	.46	.07
Encouragement of faculty	.47	-.11
"I have the ability to complete the work needed to become a doctor, lawyer, or university professor"	.48	.08
Status and prestige important in vocational choice	.49	.08

Senior Predictors or Pursuing the Study of Medicine

Variable	Correlation
Senior plans to pursue study of medicine	.82
Freshman vocational choice of medicine	.50
Senior major in premedicine	.36
Senior major in science	.30
Level of degree aspiration	.28
Self-rating on scientific ability	.27
Age when first considered advanced study	-.27
MCAT-Science score	.25
Freshman major in premedicine	.25
Senior plans to work	-.21
"I have the ability to complete the academic work to become a doctor, lawyer, or university professor"	.19
GPA in all courses	.18
Parental level of educational attainment	.17
Self-rating on mathematical ability	.15
Held assistantship in major field	.15
Being of service to others important in vocational choice	.14
Self-rating on scholarship	.14
Sex (Male=1, Female=2)	-.13
Fathers' encouragement of advanced study	.13
Mothers' encouragement of advanced study	.13
Getting higher income important reason for pursuing advanced study	-.13
GPA - in major field	.11
"I would rank among the best in my class in college	.11
Encouragement of college faculty important in decision to pursue advanced study	-.11
Family income	.10
Senior major in social science	-.10
Working with people more important than things in vocational choice	.10

Stepwise Multiple Regression Results

With Plans

Variable	R	Final Weight
Senior plan to study medicine	.82	.70
Freshman vocational choice in medicine	.83	.13
MCAT-Science score	.83	.10
Senior major in premedicine	.84	.08

Without Plans

Variable	R	Final Weight
Freshman vocational choice in medicine	.50	.42
MCAT-Science score	.56	.23
Senior major in premedicine	.61	.30
Senior major in science	.63	.19
Service to others important in vocational choice	.64	.11
Freshman major in premedicine	.65	-.11

COLLEGE GRADUATE SURVEY

- Please use [illegible]
- [illegible] scanning machine does not detect pencil marks and [illegible] be sure to mark your [illegible]
- Please make heavy black marks that completely fill the [illegible]
- Please erase completely any mark you wish to change
- Please make no stray marks anywhere on the questionnaire. Our scanning machine looks through the paper and stray marks may affect responses on the back
- Omit answering any questions which you think are too personal

Examples of IMPROPER marks

✓ ✗ ○

Examples of PROPER marks

● ● ●

NAME

1. What is your marital status?

- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]

2. Mark the choices below that best describe the activities that occupy most of your time. If you are doing two things simultaneously, mark both.

- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]

IMPORTANT: If you are attending a graduate or professional school, go to question 6. If you are not now attending graduate or professional school, please answer questions 3 through 5 and return the questionnaire.

3. If you are not now attending graduate or professional school, do you have any plans for such study in the future?

- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]

CONTINUED ON NEXT PAGE

4. If you are not now attending a graduate or professional school, what are the reasons for your decision? (Mark all that are important.)

5. If you are not now attending a graduate or professional school because of insufficient funds, how much would you have to save to attend?

If you are not now attending graduate or professional school and have completed questions 1 through 5, please put the questionnaire in the return envelope and put it in the mail.

If you are still going, please go on to question 6.

PLEASE DO NOT MAKE

ANY MARKS

IN BLANK AREAS

6. If you marked graduate or professional school in question 2, please indicate the field and the highest level of degree you plan to attain below.

Masters level degree (M.B.A., M.A., etc.)
Doctoral level degree (Ph.D., L.L.B., J.D., M.D., etc.)

Field of study

- Agriculture
- Architecture
- Art or music field
- Biological science field (Botany, Zoology, etc.)
- Business
- Dentistry
- Divinity School
- Education
- Engineering
- Humanities field (English, classics, etc.)
- Interdisciplinary program
- Law
- Medicine
- Nursing
- Pharmacy
- Physical science field (Mathematics, etc.)
- Social science field (Sociology, Psychology, Economics, etc.)
- Social work
- Veterinary medicine
- Other

7. When do you expect to obtain the degree you marked in the last question? (Blacken one circle.)

- 1972
- 1973
- 1974
- 1975
- 1976 or later
- I don't know

8. Are you attending full-time or part-time?

- Full time
- Part time

9. How many units or semester hours are you now carrying?

- 7 to 12
- 13 or more

10. Are you now working full or part time? (Count assistantships and other university employment.)

- ○ No
- ○ Part-time
- ○ Full-time

11. If you are working, how many hours a week do you work?

- ○ 1 to 10
- ○ 11 to 20
- ○ 21 to 30
- ○ 31 to 40
- ○ 41 or more

12. If you are working, what kind of job do you have? If you have more than one job, mark the one that takes the most time.

- ○ Research assistantship or equivalent
- ○ Teaching assistantship or equivalent
- ○ Other university employment
- ○ Employment outside the university in a job relevant to my studies
- ○ Employment outside the university in a job not relevant to my studies

13. Please indicate how much you have borrowed to attend graduate or professional school, how much you were in debt when you entered graduate or professional school, and how much you think you will have to borrow to complete your degree study.

(1) Amount borrowed
(2) Amount in debt
(3) Amount need to borrow

- ①②③ None
- ①②③ Less than $1,000
- ①②③ $1,000 to $1,999
- ①②③ $2,000 to $2,999
- ①②③ $3,000 to $4,999
- ①②③ $5,000 to $7,999
- ①②③ $8,000 or more

PLEASE DO NOT MAKE

ANY MARKS

IN BLANK AREAS

14. Approximately what overall average grades have you received so far in graduate or professional school? (Important: if your college does not use letter grades – A, B, C, etc. – please mark the letter grade that is the closest equivalent to your grade average.)

- ○ D or lower (1.49 or lower)
- ○ D+ (1.50 – 1.99)
- ○ C (2.00 – 2.49)
- ○ C+ (2.50 – 2.99)
- ○ B (3.00 – 3.24)
- ○ B+ (3.25 – 3.49)
- ○ A to A+ (3.50 – 3.99)
- ○ All A's (4.00)
- ○ Our school uses a pass fail system.

15. How important are each of the following sources of support for your graduate or professional school studies?

(1) Not a source
(2) A minor source
(3) A major source

- ①②③ Parental or family aid
- ①②③ Spouse's employment
- ①②③ Scholarship or fellowship from your graduate or professional school
- ①②③ Scholarship or fellowship, from outside the university
- ①②③ Loan from a bank or similar source
- ①②③ Loan from the school of your choice
- ①②③ Research assistantship or equivalent
- ①②③ Teaching assistantship or equivalent
- ①②③ Other university employment
- ①②③ Employment outside the university
- ①②③ Personal savings
- ①②③ Veteran's benefits

16. What admission test did you take for admission to the graduate or professional school you are now attending? (Blacken only one circle.)

- ○ GRE
- ○ LSAT
- ○ MCAT
- ○ ATGSB
- ○ Miller's Analogy
- ○ None of the above (skip to q. 18)

CONTINUED ON NEXT PAGE

17. What are your feelings about this test?

	Disagree	Agree with reservations	Strongly agree
	○	○	○
	○	○	○
	○	○	○
	○	○	○
	○	○	○
	○	○	○
	○	○	○
	○	○	○
	○	○	○

18. How helpful were each of the following in choosing a graduate or professional school?

	Not helpful	Helpful	Very helpful
	○	○	○
	○	○	○
	○	○	○
	○	○	○
	○	○	○
	○	○	○
	○	○	○
	○	○	○
	○	○	○
	○	○	○

19. What kind of occupation do you expect to enter on completion of graduate or professional school?

- ○
- ○
- ○
- ○
- ○
- ○
- ○ Employed professional practice
- ○ Self-employed business

- ○
- ○
- ○

- ○ Manual labor, factory work
- ○
- ○ Clerical or sales work
- ○ Other

PLEASE DO NOT MAKE

ANY MARKS

IN BLANK AREAS

23 How descriptive is each of the following of your present situation at school? If the item doesn't apply to you, leave it blank. Be sure to respond to each item.

Not descriptive
Somewhat descriptive
Very descriptive

Administration

Other students

The Academic Program

The Academic Program (continued)

The General Atmosphere

24 How important would you rate each of the following for success in graduate or professional study in your field?

Not important
Somewhat important
Very important

CONTINUED ON NEXT PAGE

25. How do you feel about your department in the areas listed below? If the item doesn't apply to your field, or if you feel you don't know how to respond, skip the item.

(1) Unsatisfactory
(2) Adequate
(3) Very good

Admissions

Formal Degree Requirements

Assistantships

Library and Facilities

(1) Unsatisfactory
(2) Adequate
(3) Very good

Departmental and Faculty Advising

26. Some suggested reforms or changes in graduate or professional education are listed below. What do you think of each of them? If the item doesn't apply to your field, or if you feel you don't know how to respond, skip the item.

(1) Agree strongly
(2) Agree with reservations
(3) Disagree with reservations
(4) Disagree strongly

Admissions

① ② ③ ④ More women should be admitted to this department or school.

① ② ③ ④ More black and other minority group members should be admitted to this department, even if they do not meet the usual minimum requirements.

① ② ③ ④ Admissions requirements should be made higher, so that fewer people will enter advanced study and, eventually, fewer people enter the job market in the field.

① ② ③ ④ Admissions should be on the basis of talents in addition to academic ability.

① ② ③ ④ More minority students should be admitted here, even if some qualified majority group students would be excluded.

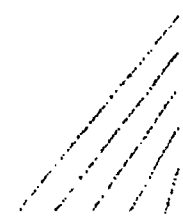
① ② ③ ④ Each program should establish a fixed quota of number of students to be admitted.

Formal Requirements and Grading

① ② ③ ④ There should be no terminal degrees after the first year.

① ② ③ ④ There should be more emphasis on independent study.

① ② ③ ④ All grading systems should be abolished and [illegible]



Thank you for completing the questionnaire. Please return it in the enclosed postage paid envelope.

PLEASE DO NOT MAKE

ANY MARKS

IN BLANK AREAS

COLLEGE SENIOR SURVEY

Please print only as many letters as will fit within the boxes on the right for your Name and Address.

1. NAME

Print Last Name

Print First Name | Middle or Maiden

2. HOME ADDRESS

Number, Street and Apartment Number

City and State | Zip Code

FOR ETS USE ONLY

3. BIRTH DATE

Please blacken the appropriate circles on the right for month, day, and year of birth.

Be sure to fill in circles for any zeros.

Month	Day	Year
○ JAN.	0 0	0 0
○ FEB.	1 1	1 1
○ MAR.	2 2	2 2
○ APR.	3 3	19-- 3 3
○ MAY	4	4 4
○ JUNE	5	5 5
○ JULY	6	6
○ AUG.	7	7
○ SEPT.	8	8
○ OCT.	9	9
○ NOV.		
○ DEC.		

To those completing this questionnaire: This questionnaire is part of an extensive study of college seniors being conducted by Educational Testing Service at the request of the Association of American Medical Colleges, the Graduate Record Examinations Board, and the Law School Admission Test Council. You are probably asked to fill out many questionnaires and are very busy at this time of your life. But we have a special reason for asking you to fill out this one. As you know, colleges and universities are criticized from many sides today and are facing many problems. This questionnaire attempts to gain information about how students choose careers, how they finance their education, the obstacles to further education they may face, and most important, the opinions they hold about higher education. We hope this information will provide suggestions for improving colleges and universities and for better ways to help students acquire and afford higher education.

In order to learn how students enter jobs, careers, graduate or professional schools, the seniors who participate will be sent another questionnaire in a year. This follow-up questionnaire will be designed to find out what students are doing at that time -- the kinds of jobs they have, the kinds of graduate or professional schools they are attending, their attitudes about them, and so on.

In order to send you this follow-up questionnaire, we have asked for your name and address above, which will be used only for the purposes of the second questionnaire. Your answers to both questionnaires will be kept confidential. They will not form any part of your college record and will not be shown to anyone. Some use will be made of all the data from the questionnaires which will be included in statistical reports. These reports, however, will not reveal your identity or the identity of your college or any groups referred to.

We hope you will answer all the questions that apply to you, but you should feel free not to answer any questions that you consider too personal or confidential for any reason. Thank you for your cooperation.

Leonard L. Baird
Project Director
Educational Testing Service

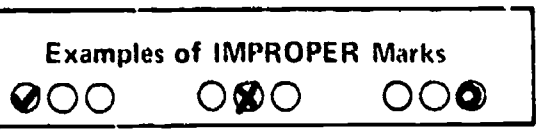
ETS 2267

NCS F-1074A(Series T)

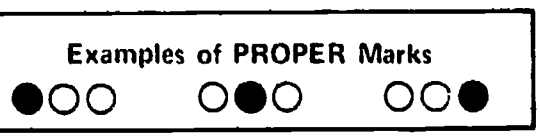
DIRECTIONS

- Use only soft black lead pencil (No. 2).
- Do NOT use ink or ball point pen.
- Make heavy black marks that completely fill the circle.
- Erase completely any marks you wish to change.
- Make NO stray marks anywhere on this questionnaire.
- Omit any questions which you think are too personal.

Examples of IMPROPER Marks



Examples of PROPER Marks



1. Your sex:

- ○ Male
- ○ Female

2. How old will you be on December 31 of this year? (Blacken only one circle.)

- ○ 17 or younger
- ○ 18
- ○ 19
- ○ 20
- ○ 21
- ○ 22
- ○ 23
- ○ 24 to 29
- ○ 30 or older

3. How do you describe yourself?

- ○ American Indian or Native American
- ○ Black, Afro-American or Negro
- ○ Mexican-American or Chicano
- ○ Oriental or Asian-American
- ○ Puerto Rican or Spanish-speaking American
- ○ White or Caucasian
- ○ Other

4. What is your marital status?

- ○ Single
- ○ Engaged
- ○ Married, no children
- ○ Married, one or more children
- ○ Widowed, divorced, separated

5. What is your current military status?

- ○ Does not apply to me.
- ○ I have been in the service.
- ○ I have gone through a year of the lottery and am no longer eligible for the draft.
- ○ I have an educational deferment.
- ○ I have some other type of deferment.
- ○ I am 4-F.
- ○ I have a low classification (3 or 4).
- ○ I am 1-A, with a low lottery number.
- ○ I am 1-A, with a high lottery number.

6. Indicate the highest educational level attained by your parents.

	Father	Mother
8th grade or less	Ⓕ	Ⓜ
Part high school	Ⓕ	Ⓜ
High school graduate	Ⓕ	Ⓜ
Part college	Ⓕ	Ⓜ
College graduate	Ⓕ	Ⓜ
Graduate or professional degree requiring work beyond college graduation	Ⓕ	Ⓜ

7. Which of the following is your best estimate of your parents' combined yearly income before taxes?

- ○ Less than $3,500
- ○ $3,500 – $4,999
- ○ $5,000 – $7,999
- ○ $8,000 – $11,999
- ○ $12,000 – $19,999
- ○ $20,000 – $29,999
- ○ $30,000 and over
- ○ I don't know

8. How do your parents and your best friends feel about your attending graduate or professional school?

	Father	Mother	Best friends
This question does not apply to me.	Ⓕ	Ⓜ	Ⓡ
Discouraged me from attending.	Ⓕ	Ⓜ	Ⓑ
Have neither encouraged nor discouraged me.	Ⓕ	Ⓜ	Ⓑ
Encouraged me to attend.	Ⓕ	Ⓜ	Ⓑ
Strongly encouraged me to attend.	Ⓕ	Ⓜ	Ⓑ

9. How many people are fully dependent for financial support on your parents or legal guardian? (Do not count yourself or your parents.)

- ○ None
- ○ One
- ○ Two
- ○ Three
- ○ Four
- ○ Five or more

10. How many brothers or sisters do you have that are presently attending college?

- ○ None
- ○ One
- ○ Two
- ○ Three
- ○ Four or more

11. Blacken one circle in each column.

	Religion in which you were reared	Your present religious preference
Protestant	○	○
Roman Catholic	○	○
Jewish	○	○
Other	○	○
No formal religion	○	○
None	○	○

12. Were either of your parents born in another country?

- ○ No
- ○ Yes, my mother.
- ○ Yes, my father.
- ○ Yes, both parents.

13. Approximately what overall average grade have you received so far in college?
(Important: if your college does not use letter grades -- A, B, C, etc. -- please mark the letter grade that is the closest equivalent to your grade average.)

All of my college courses	Courses in my major field
○	○ D or lower
○	○ D+
○	○ C
○	○ C+
○	○ B
○	○ B+
○	○ A to A+

14. Please mark the choice for each statement that best expresses your opinion.

(1) Strongly disagree
(2) Disagree
(3) Agree
(4) Strongly agree

① ② ③ ④	Getting good grades is the most important thing in college
① ② ③ ④	I want to achieve academic honors
① ② ③ ④	I try to work up to the limit of my abilities in all my classes
① ② ③ ④	I would rank among the best in academic ability in my class in college
① ② ③ ④	I have the ability to complete the advanced work needed to become a doctor, lawyer, or university professor
① ② ③ ④	Regardless how others may grade my work, I think my academic work is good
① ② ③ ④	I think I would be able to get mostly A's in a graduate or professional school
① ② ③ ④	I would rank among the best in my class in graduate or professional school
① ② ③ ④	Getting good grades is important only to gain admission to graduate or professional school or to get a good job
① ② ③ ④	Competitive pressure to get high grades inhibits creativity
① ② ③ ④	Grades are based less on real learning than on memory and agreeing with the professor
① ② ③ ④	All college grades should be on a pass/fail basis

15. Have you ever worked full or part time? (Do not count summer employment.)

- ○ No
- ○ Part time as a college student
- ○ Full time as a college student
- ○ Full time for about 1 year but not as a college student
- ○ Full time for 2 - 3 years but not as a college student
- ○ Full time for more than 3 years but not as a college student

PLEASE GO ON TO NEXT PAGE

16. Below is a list of different fields grouped into general categories. Please blacken only one for each of the following:
    (1) Your vocational choice when you were a college freshman
    (2) Your original major when you were a college freshman
    (3) Your current vocational choice
    (4) Your current major
    (5) If you plan to attend graduate or professional school, your planned field of study in graduate or professional school

Agriculture and Forestry
① ② ③ ④ ⑤ Agriculture
① ② ③ ④ ⑤ Fish and Game Management
① ② ③ ④ ⑤ Forestry
① ② ③ ④ ⑤ Soil Conservation

Arts and Humanities
① ② ③ ④ ⑤ Arts and Sculpture
① ② ③ ④ ⑤ Architecture
① ② ③ ④ ⑤ Creative Writing
① ② ③ ④ ⑤ Drama and Theater
① ② ③ ④ ⑤ English and English Literature
① ② ③ ④ ⑤ Foreign Language and Literature
① ② ③ ④ ⑤ Journalism
① ② ③ ④ ⑤ Music
① ② ③ ④ ⑤ Philosophy
① ② ③ ④ ⑤ Radio--TV Communications
① ② ③ ④ ⑤ Speech
① ② ③ ④ ⑤ General Education or Liberal Arts
① ② ③ ④ ⑤ Other Arts and Humanities

Biological and Physical Sciences
① ② ③ ④ ⑤ Anatomy
① ② ③ ④ ⑤ Astronomy
① ② ③ ④ ⑤ Biology or Genetics
① ② ③ ④ ⑤ Botany
① ② ③ ④ ⑤ Chemistry
① ② ③ ④ ⑤ Earth Sciences
① ② ③ ④ ⑤ Geography
① ② ③ ④ ⑤ Geology or Geophysics
① ② ③ ④ ⑤ Mathematics or Statistics
① ② ③ ④ ⑤ Meteorology
① ② ③ ④ ⑤ Oceanography
① ② ③ ④ ⑤ Physics
① ② ③ ④ ⑤ Physiology
① ② ③ ④ ⑤ Zoology or Entomology

Business and Law
① ② ③ ④ ⑤ Accounting
① ② ③ ④ ⑤ Business Administration
① ② ③ ④ ⑤ Data Processing
① ② ③ ④ ⑤ Finance
① ② ③ ④ ⑤ Industrial Relations
① ② ③ ④ ⑤ Law
① ② ③ ④ ⑤ (Prelaw)
① ② ③ ④ ⑤ Secretarial Science

Education
① ② ③ ④ ⑤ Counseling and Guidance
① ② ③ ④ ⑤ Elementary Education
① ② ③ ④ ⑤ Physical Education
① ② ③ ④ ⑤ Secondary Education
① ② ③ ④ ⑤ Other Education

Engineering
① ② ③ ④ ⑤ Aeronautical
① ② ③ ④ ⑤ Chemical or Nuclear
① ② ③ ④ ⑤ Civil
① ② ③ ④ ⑤ Electrical or Electronic
① ② ③ ④ ⑤ Industrial
① ② ③ ④ ⑤ Mechanical
① ② ③ ④ ⑤ Other Engineering

Health Fields
① ② ③ ④ ⑤ Dental Hygiene
① ② ③ ④ ⑤ Dentistry
① ② ③ ④ ⑤ (Predentistry)
① ② ③ ④ ⑤ Dietetics
① ② ③ ④ ⑤ Medicine
① ② ③ ④ ⑤ (Premedicine)
① ② ③ ④ ⑤ Medical Technology
① ② ③ ④ ⑤ Mortuary Science
① ② ③ ④ ⑤ Nursing
① ② ③ ④ ⑤ Occupational Therapy
① ② ③ ④ ⑤ Optometry
① ② ③ ④ ⑤ Osteopathy
① ② ③ ④ ⑤ Pharmacy
① ② ③ ④ ⑤ Physical Therapy
① ② ③ ④ ⑤ Veterinary Medicine
① ② ③ ④ ⑤ X-ray Technology

Social Science and Religion
① ② ③ ④ ⑤ Anthropology
① ② ③ ④ ⑤ Economics
① ② ③ ④ ⑤ History
① ② ③ ④ ⑤ Home Economics
① ② ③ ④ ⑤ Library and Archival Science
① ② ③ ④ ⑤ Political Science
① ② ③ ④ ⑤ Psychology
① ② ③ ④ ⑤ Social Work
① ② ③ ④ ⑤ Sociology
① ② ③ ④ ⑤ Theology and Religion
① ② ③ ④ ⑤ Other Social Science

Trade, Industrial, and Technical

① ② ③ ④ ⑤ Aviation
① ② ③ ④ ⑤ Construction
① ② ③ ④ ⑤ Drafting
① ② ③ ④ ⑤ Electricity and Electronics
① ② ③ ④ ⑤ Industrial Arts
① ② ③ ④ ⑤ Metal and Machine
① ② ③ ④ ⑤ Mechanical
① ② ③ ④ ⑤ Other Trade

① ② ③ ④ ⑤ My field of training is not included in the fields listed above
① ② ③ ④ ⑤ Housewife
① ② ③ ④ ⑤ Undecided

PLEASE BE SURE THAT NO MORE THAN FIVE CIRCLES HAVE BEEN MARKED IN THE LIST ABOVE.

17. If you took the Graduate Record Examinations (GRE), Law School Admission Test (LSAT), Medical College Admission Test (MCAT), or Admission Test for Graduate Study in Business (ATGSB), please indicate your score by blackening the appropriate circles below. An example is given for a score of 580.

EXAMPLE:

Score 580
⓪ ⓪ ●
① ① ①
② ② ②
③ ③ ③
④ ④ ④
● ⑤ ⑤
⑥ ⑥ ⑥
⑦ ⑦ ⑦
⑧ ● ⑧
⑨ ⑨ ⑨

GRE		LSAT	MCAT Science	ATGSB
Verbal	Quant.			
⓪ ⓪ ⓪	⓪ ⓪ ⓪	⓪ ⓪ ⓪	⓪ ⓪ ⓪	⓪ ⓪ ⓪
① ① ①	① ① ①	① ① ①	① ① ①	① ① ①
② ② ②	② ② ②	② ② ②	② ② ②	② ② ②
③ ③ ③	③ ③ ③	③ ③ ③	③ ③ ③	③ ③ ③
④ ④ ④	④ ④ ④	④ ④ ④	④ ④ ④	④ ④ ④
⑤ ⑤ ⑤	⑤ ⑤ ⑤	⑤ ⑤ ⑤	⑤ ⑤ ⑤	⑤ ⑤ ⑤
⑥ ⑥ ⑥	⑥ ⑥ ⑥	⑥ ⑥ ⑥	⑥ ⑥ ⑥	⑥ ⑥ ⑥
⑦ ⑦ ⑦	⑦ ⑦ ⑦	⑦ ⑦ ⑦	⑦ ⑦ ⑦	⑦ ⑦ ⑦
⑧ ⑧ ⑧	⑧ ⑧ ⑧	⑧ ⑧ ⑧	⑧ ⑧ ⑧	⑧ ⑧ ⑧
⑨ ⑨ ⑨	⑨ ⑨ ⑨	⑨ ⑨ ⑨	⑨ ⑨ ⑨	⑨ ⑨ ⑨

18. We are interested in your own estimation of your special talents and abilities. Please mark the heading that you think best describes your ability in each area, compared with other seniors at your college. (This may be hard to do, but please give your best estimate.)

(1) Below average
(2) Average
(3) Above average
(4) Top ten percent
(5) Top one percent

① ② ③ ④ ⑤ Writing ability
① ② ③ ④ ⑤ Artistic ability
① ② ③ ④ ⑤ Musical ability
① ② ③ ④ ⑤ Scholarship
① ② ③ ④ ⑤ Scientific ability
① ② ③ ④ ⑤ Mechanical ability
① ② ③ ④ ⑤ Leadership ability
① ② ③ ④ ⑤ Reading ability
① ② ③ ④ ⑤ Acting ability
① ② ③ ④ ⑤ Clerical ability
① ② ③ ④ ⑤ Speaking ability
① ② ③ ④ ⑤ Mathematical ability
① ② ③ ④ ⑤ Sales ability
① ② ③ ④ ⑤ Athletic ability
① ② ③ ④ ⑤ Skill in relating to others on an individual basis
① ② ③ ④ ⑤ Sympathy for others in trouble
① ② ③ ④ ⑤ Perseverance
① ② ③ ④ ⑤ Reliability
① ② ③ ④ ⑤ Creativity
① ② ③ ④ ⑤ Memory
① ② ③ ④ ⑤ Ability to act when limited facts are available

PLEASE DO NOT MAKE

ANY MARKS

IN

BLANK AREAS

PLEASE GO ON TO NEXT PAGE

19. The following questions deal with various things you may have done during college. Please mark all that you have done.

- ○ Attended concerts fairly often
- ○ Regularly read books unrelated to any courses that I have taken
- ○ Regularly watched the news on television
- ○ Regularly read a news magazine
- ○ Was elected an officer of a class
- ○ Was elected president or officer of one or more student organizations
- ○ Organized a college political group or campaign
- ○ Worked actively in an off campus political organization
- ○ Attended one or more regional or national meetings of scholarly or professional societies in my field
- ○ Won a prize, award, or other special recognition for work in my field
- ○ On my own (not a course assignment) read scholarly or professional books in my field
- ○ Worked actively in a student movement to change institutional rules, procedures, or policies
- ○ Initiated or organized a student movement to change institutional rules, procedures, or policies
- ○ Participated in one or more demonstrations for some political or social goal, such as civil rights, free speech for students, etc.
- ○ Received a high rating (Good, Excellent) in a state or regional music contest
- ○ Participated in a state or regional speech or debate contest
- ○ Had a major part in a play
- ○ Won a prize or award in an art competition
- ○ Edited the college paper, yearbook, or literary magazine
- ○ Had poems, stories, essays, or articles published in a public paper or magazine
- ○ Won first, second, or third prize in a science contest
- ○ Had an assistantship in a scientific field
- ○ Was elected or appointed to a college office with power to influence institutional policy
- ○ Won a letter in athletics

20. How important have the following been to you in your choice of a vocational field?

	Not important	Important	Very important
High income	○	○	○
Independence (extent to which you can work on your own)	○	○	○
Being of service to others	○	○	○
Security	○	○	○
Opportunity for leadership	○	○	○
Interest in the work activities	○	○	○
Lack of interest in other fields	○	○	○
Allows more free time than other fields	○	○	○
Makes use of my special talents and abilities	○	○	○
Interest in working with people rather than with things	○	○	○
Requires shorter education than other fields	○	○	○
Interest in travel	○	○	○
Status, prestige	○	○	○
Opportunity to get ahead rapidly	○	○	○
Desire to make a contribution to knowledge	○	○	○

21 What is the highest degree you realistically expect to attain?

- ○ Bachelor's degree
- ○ Master's degree (M.A., M.S., M.B.A., etc.)
- ○ Doctor of Philosophy (Ph.D.)
- ○ Doctor of Education (Ed.D.)
- ○ Doctor of Arts (D. Arts)
- ○ Doctor of Medicine (M.D.)
- ○ Doctor of Dental Science (D.D.S.)
- ○ Doctor of Veterinary Medicine (D.V.M.)
- ○ Bachelor of Laws (LL.B.)
- ○ Doctor of Jurisprudence (J.D.)
- ○ Doctor of Divinity (D.D.)
- ○ Other

22. When do you expect to obtain the degree you marked in the last question? (Blacken one circle.)

- ○ 1971
- ○ 1972
- ○ 1973
- ○ 1974
- ○ 1975
- ○ 1976 or later
- ○ I don't know

23. During your college career, how many times did you change your major or vocational choice?

(1) Number of times changing major field
(2) Number of times changing vocational choice

① ② Never changed
① ② Changed once
① ② Changed twice
① ② Changed three times or more

24. If you changed your vocational choice, why did you do so? (Mark all reasons for most recent change.)

- ○ Original choice seems to have few jobs open
- ○ Could not meet requirements of first choice
- ○ New choice offered a better financial future
- ○ New choice makes better use of my training
- ○ New choice suits my talents, aptitudes, and interests better
- ○ First choice was only tentative until I decided what I was really interested in
- ○ Training for first choice would have cost too much
- ○ Just lost interest in first choice
- ○ Just drifted into present choice

25. Did you discontinue your education for any interval(s) of more than six months between the time you graduated from high school and your current year in college?

- ○ No
- ○ Yes, for about 6 months to 1 year
- ○ Yes, for about 1 2 years
- ○ Yes, for 3 or more years

26. If yes, what was the primary reason for this interruption in your studies?

- ○ Military service
- ○ Illness
- ○ Academic difficulties
- ○ Disciplinary action by the college
- ○ Financial problems
- ○ Travel
- ○ Participation in political activity
- ○ Marriage
- ○ Pregnancy
- ○ I was tired of being a student
- ○ I wanted time to reconsider my career goals
- ○ Other

27. Mark the choices below which describe what you expect to be doing this fall. If you expect to be doing two things simultaneously, mark both. If you are considering two alternative plans, mark only the more probable.

- ○ Working full time at a job I expect to make my career
- ○ Working full time at a job which will probably not be my career
- ○ Noncareer military service
- ○ Career in military service
- ○ Marriage
- ○ Graduate study in an arts or humanities field
- ○ Graduate study in a biological or physical science field
- ○ Graduate study in a social science field
- ○ Professional study in business
- ○ Professional study in law
- ○ Professional study in medicine
- ○ Professional study in engineering
- ○ Professional study in education
- ○ Professional study in social work
- ○ Professional study in architecture
- ○ Professional study in dentistry

28. How definite are the plans you marked in the last question?

- ○ Definite
- ○ Fairly definite, but subject to change
- ○ Indefinite

29. How important has each of the following been in helping you make up your mind about your plans for after graduation?

Not important
Important
Very important

- Ⓝ Ⓘ Ⓥ Directories or guides to graduate or professional study
- Ⓝ Ⓘ Ⓥ Publications of national test programs such as GRE, LSAT, MCAT, etc.
- Ⓝ Ⓘ Ⓥ Advice from a counselor at my college
- Ⓝ Ⓘ Ⓥ Advice from the university departments or schools I applied to
- Ⓝ Ⓘ Ⓥ Advice from friends or relatives
- Ⓝ Ⓘ Ⓥ Advice from parents
- Ⓝ Ⓘ Ⓥ Advice from a graduate or professional school admissions office
- Ⓝ Ⓘ Ⓥ Advice from a preprofessional advisor
- Ⓝ Ⓘ Ⓥ Advice from a professional in the field (not a college professor)
- Ⓝ Ⓘ Ⓥ Visit from someone recruiting for a school

PLEASE GO ON TO NEXT PAGE

30. Please indicate how much you have borrowed to complete your undergraduate education and how much of that amount still remains to be paid.

	Borrowed	Remains to be paid
None	Ⓑ	Ⓡ
Less than $1,000	Ⓑ	Ⓡ
$1,000 to $1,999	Ⓑ	Ⓡ
$2,000 to $2,999	Ⓑ	Ⓡ
$3,000 to $4,999	Ⓑ	Ⓡ
$5,000 to $7,999	Ⓑ	Ⓡ
$8,000 or more	Ⓑ	Ⓡ

If you applied to a graduate or professional school, answer items 31 through 41. If you did not apply to a graduate or professional school, skip to item 42.

31. On what basis will you attend? (Blacken only one circle.)

- ○ Full time
- ○ Part time
- ○ Not sure
- ○ Will not attend

32. Referring back to the graduate or professional field you marked in item 27, to how many institutions in this field have you applied, how many acceptances have you received, and how many have offered financial aid?

	None	One or two	Three or more
Number applied to	○	○	○
Number of acceptances	○	○	○
Number offering financial aid	○	○	○

33. Have you also applied to a graduate or professional school in a field other than the field you marked in item 27?

- ○ No
- ○ Yes, a law school
- ○ Yes, a medical school
- ○ Yes, a graduate school
- ○ Yes, a business school
- ○ Yes, some other kind of school

34. When did you first think of going to graduate or professional school? (Blacken only one circle.)

- ○ Before high school
- ○ During high school
- ○ During first two years of college
- ○ During last two years of college

35. When did you definitely decide to go to graduate or professional school? (Blacken only one circle.)

- ○ Before high school
- ○ During high school
- ○ During first two years of college
- ○ During last two years of college

36. How important have each of the following been in your decision to attend graduate or professional school?

	Not important	Important	Very important
Desired vocational field requires an advanced degree	Ⓝ	Ⓘ	Ⓥ
Improve chances of receiving a good salary, promotions, etc.	Ⓝ	Ⓘ	Ⓥ
Parents' encouragement	Ⓝ	Ⓘ	Ⓥ
Greater prestige	Ⓝ	Ⓘ	Ⓥ
Encouragement of college faculty	Ⓝ	Ⓘ	Ⓥ
Postpone military obligation	Ⓝ	Ⓘ	Ⓥ
Unable to find satisfactory employment	Ⓝ	Ⓘ	Ⓥ
Interest in learning more about my field	Ⓝ	Ⓘ	Ⓥ
Received a fellowship or scholarship	Ⓝ	Ⓘ	Ⓥ

PLEASE DO NOT MAKE

ANY MARKS

IN BLANK AREAS

PLEASE GO ON TO NEXT PAGE

37. In the list below, please indicate how important each influence was in your choice of the graduate or professional school you expect (or expected) to attend next fall.

Not important / Important / Very important

- The high caliber of the program offered in my field
- The chance to work under a particular faculty member
- Large department or professional school
- Small department or professional school
- Advice of a teacher at another school
- I had attended the university as an undergraduate
- Desirable location — urban
- Desirable location — suburban or rural
- Offer of financial assistance
- As a resident of the state, I do not have to pay out-of state tuition fees
- Close to my home
- Excellent chances of being admitted
- Friendly social climate
- Liberal racial attitudes
- School has reputation for being active in social causes
- Church-related institution
- Reputation as a "teaching" school
- Reputation in research and research facilities
- Prestige of institution
- Can earn a degree in shorter time
- Unstructured grading system

38. How important do you estimate each of the following would be for you as a source of support during your graduate or professional school career?

(1) Not a source / (2) A minor source / (3) A major source

- Parental or family aid
- Spouse's employment
- Scholarship, or fellowship from your graduate or professional school
- Scholarship, fellowship, or award from outside the university
- Loan from a bank, savings and loan association, or similar source
- Loan from the school of your choice
- Research assistantship or equivalent
- Teaching assistantship or equivalent
- Other university employment
- Employment outside the university
- Personal savings
- Veteran's benefits

39. In order for you to attend graduate or professional school, how much annual financial assistance would you need, and how much of that amount would you have to borrow?

Need to have / Must borrow

- None
- Less than $1,000
- Between $1,000 and $2,000
- Between $2,000 and $3,000
- Between $3,000 and $4,000
- More than $4,000

PLEASE DO NOT MAKE

ANY MARKS

IN BLANK AREAS

10. When you applied to graduate or professional schools, how often did the following happen?

This happened at
(1) None of the schools I applied to
(2) Some of the schools I applied to
(3) Most of the schools I applied to

① ② ③ I had trouble getting as much information about the school as I needed
① ② ③ I got a quick response to my initial request for information
① ② ③ I felt I was treated as an individual
① ② ③ I had trouble finding out what the specific requirements for admission were
① ② ③ The application deadlines were too early
① ② ③ The factors the school considered important for admission were never made clear
① ② ③ The school may have discriminated against me

41. To what extent do you think each of the following help or hinder one's chances of acceptance to graduate or professional school?

(1) Hinders one's chances
(2) Neither helps nor hinders
(3) Helps some
(4) Helps a great deal

① ② ③ ④ Good over all college grades
① ② ③ ④ Marked improvement in recent grades
① ② ③ ④ Good grades in major field
① ② ③ ④ Relationship between college major and graduate or professional field
① ② ③ ④ Broad (well rounded) undergraduate course pattern
① ② ③ ④ High scores on admissions test
① ② ③ ④ High scores on other tests
① ② ③ ④ Strong faculty recommendations
① ② ③ ④ Good interview
① ② ③ ④ Unusual job or other experience
① ② ③ ④ Outstanding student leadership
① ② ③ ④ Being Black, Chicano, Puerto Rican or American Indian
① ② ③ ④ Being a woman
① ② ③ ④ Geographic background

42. If you are not planning to attend graduate or professional school in the fall, do you have any plans for such study in the future?

○ No
○ Possibly, after I work for a few years
○ Possibly, after I finish military service
○ Possibly, but I have no idea when
○ Definitely, after I work for a few years
○ Definitely, after I finish military service
○ Definitely, but I have no idea when

43. If you are not planning to attend graduate or professional school this fall, what are the reasons for your decision? (Mark all that are important.)

○ Simply do not want to
○ Can enter and succeed in my field without further education
○ Cannot afford it
○ Undergraduate grades are not high enough
○ Am tired of being a student
○ Have family responsibilities
○ Low admission test scores (GRE, LSAT, etc.)
○ Discouraged by undergraduate faculty
○ Anxious to enter job market
○ Have not been accepted by any of the graduate or professional schools of my choice
○ Have military obligations
○ Other

PLEASE DO NOT MAKE

ANY MARKS

IN

BLANK AREAS

PLEASE GO ON TO NEXT PAGE

44. Please describe your present college by rating it on the following characteristics:

Not descriptive	Somewhat descriptive	Very descriptive
N	S	V	There is poor communication between administration and students.
N	S	V	Students are friendly.
N	S	V	College is intellectually stimulating.
N	S	V	College is proper and conventional.
N	S	V	There is an active social and dating life.
N	S	V	College emphasizes religious and ethical values.
N	S	V	Has a friendly, approachable faculty.
N	S	V	Rules are strictly enforced.
N	S	V	There is keen competition for grades.
N	S	V	Students are treated like numbers.
N	S	V	There is much school spirit.
N	S	V	Has a liberal environment.
N	S	V	Has an informal environment.
N	S	V	The teaching is excellent.
N	S	V	Students are very bright.
N	S	V	There are lots of student cliques.
N	S	V	College is cold and impersonal.
N	S	V	College helps students become mature.
N	S	V	Students are independent.
N	S	V	Students often change majors.
N	S	V	Many students have jobs.
N	S	V	Is in a closely knit community.
N	S	V	Students are involved in governance.
N	S	V	College is committed to social change.
N	S	V	Professors are often absent from class.
N	S	V	There is a lot of radical activity.
N	S	V	Professors are more concerned with research than teaching.
N	S	V	There is a lot of drinking.
N	S	V	Drugs are easily available.
N	S	V	Academic cheating is fairly common.
N	S	V	Most students think that traditional politics are ineffective in leading to social change.

45. Please indicate the approximate percentage of time you lived in each of the following during your college attendance. (Should total about 100 percent.)

None	0–25%	26–50%	51–75%	76–100%	
○	○	○	○	○	College residence hall
○	○	○	○	○	Fraternity or sorority
○	○	○	○	○	Apartment or room off campus
○	○	○	○	○	At home with parents
○	○	○	○	○	With relatives
○	○	○	○	○	Other

PLEASE DO NOT MAKE

ANY MARKS

IN

BLANK AREAS

46. Please respond to the following statements for each of the five types of schools listed below. We would like to know whether you think each of the statements is generally True (T), or generally Not True (NT). Please give your best estimate, even if you feel you cannot say for sure.

Medical School		Law School		Graduate School of Arts and Sciences		Graduate School of Education		Graduate School of Business		
T	NT	T	NT	T	NT	T	NT	T	NT	
○	○	○	○	○	○	○	○	○	○	There is intense competition for grades.
○	○	○	○	○	○	○	○	○	○	The faculty is friendly and readily accessible to students.
○	○	○	○	○	○	○	○	○	○	The teaching is excellent.
○	○	○	○	○	○	○	○	○	○	There are many opportunities for research and creative work
○	○	○	○	○	○	○	○	○	○	It requires much more studying than undergraduate college
○	○	○	○	○	○	○	○	○	○	It requires a much different kind of studying than college.
○	○	○	○	○	○	○	○	○	○	It allows considerable choice in courses students may take
○	○	○	○	○	○	○	○	○	○	Primarily teaches skills and practical training.
○	○	○	○	○	○	○	○	○	○	I would not like the course work, but it is required for the career I have chosen.
○	○	○	○	○	○	○	○	○	○	The course work is dull.
○	○	○	○	○	○	○	○	○	○	The course work is very stimulating.
○	○	○	○	○	○	○	○	○	○	It requires many long hours of hard work
○	○	○	○	○	○	○	○	○	○	Many students have to defer marriage to get through.
○	○	○	○	○	○	○	○	○	○	Students are more concerned about money than in helping people.
○	○	○	○	○	○	○	○	○	○	The costs are so great that many students go into debt
○	○	○	○	○	○	○	○	○	○	Qualified blacks have a hard time getting into these schools.
○	○	○	○	○	○	○	○	○	○	Women are discriminated against by the admissions policies.

47. In this question we are interested in your views of whether the statements are generally True (T) or Not True (NT) for the five fields below. We are interested in your views regardless of your plans for post-graduate education or your choice of a vocation.

Business		College Teaching and Research		Elementary/Senior School Teaching		Law		Medicine		
T	NT	T	NT	T	NT	T	NT	T	NT	
○	○	○	○	○	○	○	○	○	○	Highly respected by the public.
○	○	○	○	○	○	○	○	○	○	Allows a great deal of individual freedom.
○	○	○	○	○	○	○	○	○	○	Is a very secure profession.
○	○	○	○	○	○	○	○	○	○	Requires hard work and long hours
○	○	○	○	○	○	○	○	○	○	Provides a very good income.
○	○	○	○	○	○	○	○	○	○	One can help other people.
○	○	○	○	○	○	○	○	○	○	Constantly challenging and interesting.
○	○	○	○	○	○	○	○	○	○	Requires a great deal of creativity.
○	○	○	○	○	○	○	○	○	○	High level of intelligence necessary to succeed
○	○	○	○	○	○	○	○	○	○	Is a high pressure occupation.
○	○	○	○	○	○	○	○	○	○	One can be his own boss
○	○	○	○	○	○	○	○	○	○	One's political views affect his success in the field
○	○	○	○	○	○	○	○	○	○	Good chances to contribute to advancement of knowledge
○	○	○	○	○	○	○	○	○	○	Requires a great deal of time spent away from one's family
○	○	○	○	○	○	○	○	○	○	There is a great shortage of qualified people
○	○	○	○	○	○	○	○	○	○	There is an overabundance of qualified people.
○	○	○	○	○	○	○	○	○	○	Has a rather rigid but unwritten code of social behavior
○	○	○	○	○	○	○	○	○	○	Success depends largely on a pleasing personality.

Thank you for completing this questionnaire. If you have any comments about the questionnaire, your college, or graduate plans, please write to Leonard Baird, Educational Testing Service, Princeton, New Jersey 08540.