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ABSTRACT

The third in a series of four monographs, this study focuses on Black engineering students at Purdue University who persisted, withdrew, or transferred. A survey of the students was conducted to determine factors that influence retention and attrition of Black American students in engineering. A comparison of the pre-college and college characteristics of Black and non-Black freshmen engineering persisters, transfers, and withdrawals is also included. Survey results indicate that the prevailing reasons for attending Purdue were its academic quality and the type of academic programs available. The more important reasons for studying engineering related to salary, job opportunities and an interest in problem solving. Most Black students who were admitted to Purdue but later cancelled, attended college elsewhere, usually in engineering. Engineering persisters were more apt to be achievement-oriented and more often participated in professional activities and programs designed to assist Black students. The transfers changed their career decisions most frequently due to low grades and lack of interest. The survey also indicated that college grades were much more significantly and positively related to persistence in engineering for both Black and non-Black students than pre-college variables. It is concluded that admissions policies primarily based on relative high school performance and supportive programs appear to be the keys to assuring Black Americans equal access to engineering careers. The survey instrument and sample survey responses are appended.
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Recruitment and Retention of Black Americans
in Engineering at Purdue

3. ENGINEERING STUDENTS: PERSISTERS, WITHDRAWALS, TRANSFERS

by

Arthur J. Bond, William K. LeBold and Majoice Thomas

Purdue University

West Lafayette, Indiana 47907

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ENGINEERING STUDENTS: PERSISTERS, WITHDRAWALS, TRANSFERS

Arthur J. Bond, William K. LeBold and Majoice Thomas

Purdue University

ABSTRACT

Black Americans who began in engineering at Purdue and persisted, transferred or withdrew were asked to respond to a 1974 follow-up survey; 62 of 126 surveyed or 49% did so. The prevailing reasons for attending Purdue were its academic quality and the type of academic programs available. The more important reasons for studying engineering related to salary, job opportunities and an interest in problem solving. Most black students who were admitted to Purdue but later cancelled, attended college elsewhere, usually in engineering. The main reasons for cancelling were financially related.

Engineering persisters were more apt to be achievement oriented and more often participated in professional activities and programs designed to assist black students. The transfers changed their career decisions most frequently due to lower grades and interests. The withdrawals were more apt to have done so due to academic difficulties, low spirits, loneliness and pressure and strain; yet the majority of withdrawals said they would do it again if they had it to do over, and most planned to return to Purdue in engineering.

Analysis of variance was also used to compare within black and non-black engineering persisters, transfers and withdrawals. College grades were much more significantly and positively related to persistence in engineering for both black and non-black students than pre-college variables. Admissions policies primarily based on relative high school performance and supportive programs appear to be the keys to assuring Black Americans equal access to engineering careers.

ENGINEERING STUDENTS: PERSISTERS, WITHDRAWALS, TRANSFERS¹

Arthur J. Bond, William K. LeBold and Majoice Thomas

Purdue University

I. Introduction

This is the third of four monographs which represents a comprehensive study of the factors associated with attracting and retaining Black Americans in engineering at Purdue. The first report was concerned with trends and statistical analyses; the second with a study of the expectations of 1974 Purdue engineering freshmen regarding college, Purdue and engineering; and the last one focuses on post-college activities of black B.S. graduates who studied engineering dealing primarily with their further pursuits and retrospective look at their past engineering careers. This monograph focuses on a survey of students to determine factors that influence retention and attrition of Black American students in engineering and a comparison of the pre-college and college characteristics of black and non-black freshman engineering persisters, transfers and withdrawals.

II. Purpose and Objectives

A Survey of Current and Former Engineering Students was conducted in 1974 to obtain information that influenced Black American engineering

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student decisions to remain in engineering at Purdue, transfer to other fields at Purdue, or withdraw. This was augmented by a statistical analysis of college and pre-college variables which compare all Black Americans entering engineering during the years 1967-70 with the 1969 and 1970 non-black engineering freshmen.

The general objectives of this monograph are:

1. To determine those factors which influence persisters, transfers and withdrawals in their decision to attend Purdue and study engineering.
2. To determine similarities and differences between groups concerning their opinions of the academic and other supportive programs and services at Purdue.
3. To determine those factors related to persistence in engineering, transferring to non-engineering fields or withdrawing from college.
4. To compare black and non-black persisters, transfers and withdrawals on college and pre-college variables.
5. To determine the factors associated with the decisions of Black American students who are admitted to Purdue but later cancel.

III. Method

The Survey of Current and Former Engineering Students was sent to three groups of Black Americans that enrolled as engineering students between the years 1966-74. The survey sample was subdivided into three groups consisting of those who were still enrolled or persisting in engineering, those who transferred out of engineering but remained at Purdue in non-engineering programs and those that withdrew from Purdue University. A facsimile of the questionnaire and the percentage

responding to each question by group is given in Appendix A. Appendices B, C and D are replicas and percentage responses for parts of the survey forms sent only to persisters, transfers and withdrawals respectively. Appendix E includes the results of the 1972-74 Purdue Black Engineering Cancellation Study. Table 1 summarizes the returns.

TABLE 1

PERCENTAGE AND NUMBER OF RETURNS IN 1974
SURVEY OF CURRENT AND FORMER BLACK PURDUE
ENGINEERING STUDENTS ENTERING BETWEEN 1966-74

<u>Group</u>	<u>No. Sent</u>	<u>No. Received</u>	<u>% Received</u>
Persisters	47	33	70%
Transfers	15	10	67
Withdrawals	64	19	30
TOTAL	126	62	49

A total of 62 responses was obtained from the 126 questionnaires mailed, which represented almost a 50% return. The response from students that remained at Purdue was much higher than from those no longer in attendance, with the response being 33 of 47 (70%) for persisters, 10 of 15 (67%) for transfers, compared with 19 of 64 (30%) for withdrawals. The poor return from the latter group is a major limitation of this study, but telephone interviews with non-respondents suggested that the withdrawal responses received may be fairly representative of the withdrawal group.

An analyses of variance of pre-college and college variables (College Board scores, high school rank, grades, etc.) on black students entering Purdue during the years 1967-70 and non-black Purdue students for the years 1969 and 1970 were conducted to provide a comprehensive comparative study of all persisters, transfers and withdrawals, regardless of whether or not they participated in the survey.

In the discussion that follows, some responses from the survey will be grouped together in an attempt to summarize the more important factors related to black students' decisions to enter Purdue, study engineering and persist, transfer or withdraw. The comparative data of persisters, transfers and withdrawals will be analyzed by individual items. Inasmuch as the survey information represent fairly small sample sizes, care is advised when making general statements concerning the comparisons; this is particularly true of the withdrawal responses.

IV. Results of Survey

The response to the questionnaire indicates that most of the Black Americans enrolled at Purdue because of its reputation and programs available to them. This is seen in Question 3 (Appendix A), which asked, in essence, why come to Purdue? Their response, in order of preference, was:

- | | |
|---------------------------------|-----|
| 1. Academic quality of college | 94% |
| 2. Type of academic program | 92% |
| 3. Prestige of institution | 83% |
| 4. Variety of programs | 71% |
| 5. Wanted to go away to college | 71% |

While the above factors were generally of great influence to all three groups, the withdrawals also appear to have been strongly influenced by parents, teachers and friends. This is demonstrated in the same question, where 50% of the withdrawals indicated high school friends were "very" or of "some" importance as compared to 15% and 10% for the persisters and transfers respectively. This outside influence factor on withdrawals and, to a lesser extent transfers, will be seen as important further in the study. Purdue's academic quality and variety of programs were more

important factors to persisters and withdrawals than to those who transferred to other programs.

When asked if minority students should get special consideration at or after being admitted to Purdue (question 4), more than half of the respondents felt they should; the transfers were less apt to agree than the persisters or withdrawals. Only 7% felt minority students should not get special consideration at admission and 17% after admission; the remaining respondents qualified their responses.

The time of decision to pursue engineering posed in question 5 tends to show that there are no differences among the persisters, withdrawals and transfers; they decide over a gradual period through their pre-college school years. The median time being the sophomore year in high school.

The aspiration level as it pertains to formal education is high among all groups. The response to question 6 indicates 74% expect to obtain the B.S. degree, 57% plan to obtain a master's degree and 21% plan to obtain the doctor's degree. None of the withdrawals had obtained junior college diplomas, but 20% planned to do so; this was higher than any of the other groups.

Question 7 asks about the factors that influenced the student's decision to study engineering. Table 2 lists in rank order those factors rated as "very" or "fairly" important by at least half of the total group surveyed as well as those factors on which there were significant differences between groups. Higher importance was given by withdrawals compared to the persisters or transfers on visits to industrial plants, hobbies, teachers in high school and high school counselors.

When asked about tutorial assistance (questions 8 and 9), the majority of the respondents sought assistance (62%). However, 40% of the

TABLE 2

FACTORS RATED AS "VERY" OR "FAIRLY" IMPORTANT IN DECISIONS TO STUDY
ENGINEERING BY AT LEAST ONE-HALF OF THE TOTAL GROUP SURVEYED OR
FACTORS IN WHICH THERE WERE SIGNIFICANT DIFFERENCES BETWEEN GROUPS

FACTORS	TOTAL	PERSISTERS	TRANSFERS	WITHDRAWALS
1. Salary of the profession	83%	85%	67%	90%
2. Opportunity to get ahead rapidly	80	82	67	90
3. Interest in problem solving	79	76	78	90
4. I thought I would like this type of work	78	75	78	90
5. Security of the profession	75	76	56	90
6. Prestige of the profession	74	78	56	80
7. Independence (work on your own)	69	69	56	80
8. Leadership in the profession	67	70	56	70
9. High school subjects	65	64	44	90
10. Hobbies	52	52	56	100*
11. Interest and aptitude tests	60	58	44	80
12. Being of service to others	50	46	33	80
13. Work experiences	58	58	44	70
14. Radio, T.V., newspapers	55	53	44	70
15. Books or periodicals	50	46	33	80
16. Teachers in high school	38	27	44	70*
17. Visits to industrial plants	38	27	22	90***
18. High school counselors	35	27	22	70*

* $p < .05$ Based on Chi-Square analysis of frequencies

*** $p < .001$ Based on Chi-Square analysis of frequencies

withdrawals felt that they did not need such services compared to 17% of the persisters and 20% of the transfers. The Counselor Tutorial (CT) program was felt to be extremely helpful by withdrawals (33%) and the persisters (35%), but none of the transfers. A little over half of the respondents indicated they had tutorial help either informally from class mates (40%), professors (38%), teaching assistants (49%) or formally through the Counselor Tutorial class (40%) provided incoming freshmen beginning in 1971. The latter was given more helpful ratings by persisters (60%) and withdrawals (67%) than transfers (25%). Other tutorial assistance was deemed helpful by 84% of all respondents; 95% of the persisters, 71% of the transfers and 60% of the withdrawals.

Of the programs available at Purdue designed to help high school and college students, question 10, the levels of participation were as follows for key programs:

	<u>Total</u>	<u>Persisters</u>	<u>Transfers</u>	<u>Withdrawals</u>
Society of Black Engineers	70%	88%	20%	33%***
Black Cultural Center	61	63	57	44
Counselor Tutorial Program	42	44	20	44
Professional Engr. Societies	36	48	33	0*

* $p > .05$

*** $p > .001$

Participation in the available activities varied greatly between groups with marked differences appearing with respect to the Society of Black Engineers (SBE) and a Professional Engineering Society (PES). The participation levels were the Society of Black Engineers, 88% of the persisters, 20% of the transfers and 33% of the withdrawals, and in Professional Engineering Societies, 48% of the persisters, 33% of the transfers and 0% of the withdrawals. Most of the organizations and/or activities

listed in question 10 received favorable ratings with the exception of fraternities and sororities, which were rated fair to poor by 75% of all respondents. The SBE and the cooperative program were most favored, receiving excellent to good responses of 94% overall, 97% of persisters, 75% of transfers and 89% of withdrawals.

The importance of reasons given for career choices was asked in question 11 and received a similar response to question 7, which asked about important reasons for studying engineering. The highest percentage of "very" important rating were given for the following:

	<u>Total</u>
1. This is a well-paying career	69%
2. Job openings are generally available	69%
3. There are opportunities for rapid career advancement	64%

The response to item 12 indicated that over half of the respondents received a majority of their college related expenses from either employment (59%) or from their parents (56%). Other significant sources of support were scholarships, fellowships or grants (federal 37%, state 19%, other 41%) and college work study programs (39%). No statistically significant differences were observed between persisters, transfers and withdrawals in sources of support.¹

Question 13, which asks a number of questions concerning things done since entering college, indicates that almost two-thirds of the total group of Black American engineering students had failed at least one subject. Also, 21% of the persisters, 100% of the transfers and 50%

¹The data in Appendix E indicates that Black Americans admitted to Purdue in engineering, who cancelled before enrolling, went to other colleges largely due to more adequate financial support.

of the withdrawals had changed major fields and 18%, 70% and 50% respectively had changed career choices. A most significant item is that 80% of the withdrawals considered their dropping out of college temporary, but only 20% permanently; 21% of the persisters and 50% of the transfers had temporarily dropped out of college since entering.

Most of the respondents discussed vocational and career plans with friends (88%) and/or family (83%), followed by college advisors (64%). The responses were similar for all three groups. The students who transferred or withdrew also sought advice from the Dean of Students' office, 62% and 56% respectively, as compared to only 10% of the persisters.

The time spent studying changed drastically for all respondents from high school vs. college, as evidenced by responses to question 16. Based on self reports of the overall group, 41% vs. 6% studied 1 to 10 hours per week, and 24% vs. 12% studied 11 to 15 hours per week; 32% vs. 52% studied 16-35 hours per week and 8% vs. 38% studied 36 or more hours per week in high school and college respectively. At Purdue all groups studied more in high school with 40% vs. 90% studying at least 16 hours weekly. The average study time for persisters and withdrawals was approximately 21 to 25 hours, and for the transfers the average fell between 26 to 35 hours. On the high end of the scale 36% of the persisters studied 36 or more hours compared to 22% of the transfers and only 11% of the withdrawals.

The majority of the respondents reported receiving B (34%) and C (54%) grades in their major subjects (question 17). A significantly higher proportion of the withdrawal students reported high or A grades (33%) in their major than the persisters (0%) and transfers (0%); they were also most likely to report low or D-F grades (33%), than persisters

(0%) and transfers (0%). No significant differences in groups were reported in average grade in all subjects; B grades (30%) and C grades (60%) being reported by the total respondents.

Question 18, which addresses experiences and impressions of Purdue, shows that, in most instances, there is strong feeling that there are not enough minority students at Purdue and the climate is somewhat unfriendly toward minorities (items 32 and 34) and no favoritism is shown by professors. There is also a feeling that there is poor communication between administration and students, a proper and conventional atmosphere where rules are enforced, and a tendency to be cold and impersonal where students are treated like numbers. Although there is a consensus that students are friendly and that an informal environment exists, there are a lot of student cliques. The primary strength of Purdue as perceived by most of the black respondents is in its intellectual climate where the teaching is excellent, the faculty friendly and approachable, and there is keen competition for grades. They felt that counselors are generally available and helpful and there is somewhat of a consensus that there is adequate tutorial assistance available to students.

Question 20 addressed itself to the kinds of adjustments students had to make upon entering Purdue. There were no significant differences between groups. The most frequently reported adjustments were "getting used to the social climate" (85%), "improving study habits" (72%) and "adjusting to less free time" (60%); 68% said these adjustments were difficult or very difficult.

Question 22 provided respondents with an opportunity to indicate whether or not they liked or disliked statements related to the need to achieve. Most respondents tended to "like" statements which reflect

a high need to achieve, e.g. returning to a task previously failed (70%), doing something over to get it right (81%) and tend to "dislike" activities that avoided achievement-oriented tasks, e.g. giving up on a problem (81%), quitting a difficult project too tough for me (83%). There were few differences between the groups; however, 94% of the persisters and 90% of the transfers, but only 40% of the withdrawals liked "setting difficult goals for myself". Fifty-five percent of the persisters but only 20% of the transfers and 10% of the withdrawals liked "working on tasks so difficult, I can hardly do them" and 88% of the persisters liked "working for someone who will accept nothing but the best that is in me" compared to 80% of the transfers and 30% of the withdrawals.

Appendix B includes questions addressed solely to those who persisted in engineering. The indications are strong that the Black American engineering persister knew upon entry what he desired to study and tended to stick with that decision. Most of them intended to get the B.S. and secure employment upon graduation (59%), but 31% indicated a desire to further their formal education either in engineering (21%) or another discipline (10%). There was consensus among persisters that the primary reason they persisted in engineering at Purdue were the excellent job opportunities (86%), financial rewards (75%) and prestige and satisfaction available (79%) in engineering. Persisters also indicated they were always very interested in engineering (68%), found the courses interesting (68%), there were learning (61%) and challenging (86%) experiences and opportunities to be creative and original (64%).

The respondents who transferred out of engineering answered the questions included in Appendix C. Of these 69% made the transfer in the third semester (from Electrical Engineering, 67%; and Aeronautical

Engineering, 33%, into either Industrial Management, Science or Technology, all receiving 33% of the transfers). The most common reason for transferring was poor performance in course work (67%). The other reasons listed, all receiving a 33% ranking, were: 1) engineering courses interesting but others more so, 2) engineering not what they thought it was, 3) friend interested them in another field, 4) interest and aptitude tests, 5) loneliness and 6) low spirits.

The withdrawals (respondents to Appendix D) typically withdrew at the end of the academic year, 42% after the second semester, 25% after the fourth semester and 17% after the sixth semester. At the time of their withdrawal 54% had attended 3 to 4 semesters and 36% had attended only 1 to 2 semesters. Most of this group initially chose Electrical Engineering (50%) with 17% having chosen Aeronautical or Civil Engineering. Forty-six percent had enrolled in another college or university, 27% had worked temporarily and another 27% permanently. However, 54% planned to return to Purdue in engineering, while another 9% indicated they would pursue engineering elsewhere; 67% indicated they would enroll in engineering at Purdue if they could do it over again. The major reasons for withdrawing from Purdue or engineering were again headed by academic difficulties (73%), low spirits (73%), followed by loneliness (54%), and pressure and strain (54%).

V. Analysis of Pre-College and College Variables

To attain more complete data about black engineering persisters, transfers and withdrawals and their non-black counterparts, analyses of variance on over 25 variables were conducted. Table 3 presents a detailed summary of the analysis of variance results of black engineering

students that entered Purdue from 1967 to 1970 after four and nine semesters and for non-black engineering students that entered in 1969 and 1970 after four semesters. There were no significant mean differences on the College Board scores for black engineering persisters, transfers or withdrawals after four semesters except for the Chemistry Achievement examination where the mean scores were highest for the persisters (571), followed by withdrawals (475) and the transfers (437). The College Board scores for non-black students who entered in 1969 usually are significantly different for those who persist, transfer or withdraw. When comparing the means for the black vs. non-black students, it is readily seen that there is a difference of from a half to a full standard deviation (50-100 points) on each of the College Board scores. It is interesting to note that the persisters among the black students tend to take about the same number of semesters of mathematics and science, as the non-black students; the analysis of variance shows no significant difference in means between black persisters, transfers and withdrawals and similar results for non-black students in 1969. However, in 1970 non-black persisters tend to have slightly more English, mathematics and science as well as higher high school grades in each area. The high school rank of black and non-black persisters is usually higher than the non-persisters, but not statistically significant after four semesters for black students.

At the college level, most of the variables were statistically significant for both the black and the non-black students. Typically the non-black students consistently achieve higher grades and accumulate more hours than does the black student. Also, the persisters among both the black and non-black students have higher grades and accumulate more credits than the transfers or withdrawals.

Upon analyzing, the same variables as before (for black students only), but after nine semesters, even more significant differences were observed for black students. Two pre-college variables, SAT-Mathematics and Chemistry Achievement scores are statistically significant and are higher for persisters than for transfers or withdrawals. High school work also is now statistically significant. In all college variables the persisters perform at the highest level followed by the transfers and then withdrawals.

VI. Summary and Conclusions

In summary, it can be seen that Black Americans who chose Purdue did so because of its academic quality, the variety of programs offered, the prestige of the university, as well as affording them a chance to attend college away from home. Those who arrived at their decision to study engineering did so because of the salary, security and prestige of an engineering career as well as having a genuine interest in the area and an interest in problem solving. The transfers and withdrawals were more apt to indicate that outside influences, i.e. parents, teachers, counselors and friends, played a large role in their decision to enter Purdue and engineering.

Academic difficulties and interests combined with personal problems, i.e. loneliness, pressure, being a member of a minority group, etc., were the apparent factors in the decisions of many to transfer or withdraw. The academic difficulties indicated in the survey are borne out also when analysing the academic pre-college and college profiles. Those who transferred and even more so the withdrawals were not as likely to take advantage of programs and organizations designed to help

black students including the various counseling, tutoring and professional groups such as the Society of Black Engineers. Those who persist in engineering seem to be more achievement oriented and were more willing to devote many hours of study to achieve their goals than were the transfers or withdrawals.

When viewing the entire survey and its implications, several tentative conclusions can be drawn. Black students that persist in engineering tend to have similar backgrounds to those who transfer or withdraw, but there are differences in the extent to which they participate in various programs designed to retain them in engineering. Perhaps greater efforts should be made to encourage their participation in activities such as the Counselor Tutorial program and the Society of Black Engineers. Purdue University can take pride in the fact that the programs developed to aid in the retention of black students in engineering have served a definite positive function by providing needed services in both academic and social areas. However, the university should also be sensitive to the fact that minority students believe that there should be more minority students, that they should be given special consideration at and after admission and that many minority students view the climate as unfriendly to minority students.

A last but very important point should be made. A black engineering student's academic performance and retention are not as likely to be measured by traditional means, i.e. College Board scores, high school grades and credits. However, college performance does provide the best measure of academic performance and retention. Therefore continued admissions of black students based on their past successes with relation to their peers in high school and continued supportive programs in college appear to be the keys to assuring blacks equal access to engineering careers.

TABLE 3

SUMMARY OF ANALYSIS OF VARIANCE RESULTS FOR PRE-COLLEGE AND COLLEGE VARIABLES FOR
PERSISTERS, TRANSFERS AND WITHDRAWALS AFTER FOUR AND NINE SEMESTERS FOR 1967-70
BLACK STUDENTS AND AFTER FOUR SEMESTERS FOR 1969 AND 1970 NON-BLACK STUDENTS

Variable	Group	BLACK				NON-BLACK			
		1967-70				1969		1970	
		4 Semesters		9 Semesters		4 Semesters		4 Semesters	
		Mean	F	Mean	F	Mean	F	Mean	F
SAT-Verbal	Persisters	483	2.47	490	1.79	533	19.53	535	8.49
	Transfers	447		456		502	***	510	***
	Withdrawals	431		441		501		519	
	Total	460		460		522		527	
SAT-Mathematics	Persisters	543	1.91	578	6.10	646	32.16	643	19.38
	Transfers	500		492	**	608	***	609	***
	Withdrawals	500		504		616		628	
	Total	521		521		634		633	
Achievement-English	Persisters	479	1.00	497	2.54	535	14.17	535	5.11
	Transfers	456		467		511	***	514	**
	Withdrawals	447		447		503		522	
	Total	466		466		525		528	
Achievement-Mathematics	Persisters	539 ²	.95	604 ²	2.43	637	.30	648 ²	24.09
	Transfers	458		515		606		606	***
	Withdrawals	489		484		633		623	
	Total	516		516		627		634	
Achievement-Chemistry	Persisters	521	5.80	543	6.76	564	33.52	577	30.19
	Transfers	437	**	460	**	514	***	520	***
	Withdrawals	475		460		514		537	
	Total	492		492		547		537	
High School Units-English	Persisters	7.8	1.24	8.0	.031	8.2	2.96	8.0	8.92
	Transfers	8.1		8.0	*	8.1		7.6	***
	Withdrawals	8.1		8.0		8.1		8.0	
	Total	8.0		8.0		8.2		7.9	
High School Units-Mathematics	Persisters	7.8	.81	7.9	.065	8.1	2.93	8.2	10.32
	Transfers	8.3		8.0		8.0		7.7	***
	Withdrawals	7.9		7.9		8.1		8.3	
	Total	7.9		7.9		8.1		8.1	
High School Units-Science	Persisters	6.7	.14	6.9	1.17	6.4	4.12	7.0	7.72
	Transfers	6.6		6.3		6.1	*	6.5	***
	Withdrawals	6.4		6.5		6.3		6.9	
	Total	6.6		6.6		6.4		6.8	
High School Grade-English ¹	Persisters	6.3 ²	1.03	5.5 ²	1.11	7.7 ²	4.00	6.5	16.00
	Transfers	6.0		6.5		---		6.1	***
	Withdrawals	5.3		5.4		5.0		5.9	
	Total	5.9		5.9		7.0		6.3	

¹High School Grade - 9=A, 8=A-, 7=B+, 6=B, 5=B-, 4=C+, 3=C, 2=C-, 1=D or F.

²Based on less than 25 cases

* p < .05, ** p < .01, *** p < .001

Variable	Group	BLACK				3-18 NON-BLACK			
		1967-70				1969		1970	
		4 Semesters		9 Semesters		4 Semesters		4 Semesters	
		Mean	F	Mean	F	Mean	F	Mean	F
High School Grade- Mathematics ¹	Persisters	5.9 ²	.29	6.0 ²	1.12	7.3 ²	.02	7.4	26.21
	Transfers	5.7		6.3		---		6.7	
	Withdrawals	5.1		4.9		7.0		6.7	
	Total	5.6		5.6		7.3		7.1	
High School Grade- Science	Persisters	6.3 ²	1.56	5.5 ²	.276	7.3 ²	1.75	7.2	31.66
	Transfers	6.0		5.9		---		6.4	***
	Withdrawals	5.3		6.2		5.0		6.4	
	Total	5.9		6.0		6.3		6.9	
High School Rank	Persisters	87.2	2.63	89.3	4.06	87.2	35.24	86.6	31.99
	Transfers	85.6		86.3	*	83.3	***	77.5	***
	Withdrawals	78.2		77.8		80.2		81.5	
	Total	84.0		84.0		85.3		83.8	
Mathematics Grade-Sem 1 ³	Persisters	4.1	5.79	4.2	3.5	4.9	93.95	4.8	85.09
	Transfers	3.4	**	3.5	*	4.3	***	4.1	***
	Withdrawals	3.1		3.3		3.8		3.8	
	Total	3.6		3.6		4.6		4.5	
Chemistry Grade-Sem 1 ³	Persisters	4.0	6.38	4.4	6.7	4.7	51.36	4.6	66.35
	Transfers	3.9	**	3.6	**	4.2	***	4.0	***
	Withdrawals	2.9		3.1		3.8		3.7	
	Total	3.7		3.7		4.5		4.3	
Physics ³ Grade- Sem 1	Persisters	No Data Available				4.9	5.01	5.1	1.67
	Transfers					4.3	**	4.6	
	Withdrawals					4.2		4.8	
	Total					4.8		5.0	
Communications Grade-Sem 1 ³ (or English)	Persisters	4.9	9.54	4.8	2.96	4.7	33.70	4.9	28.43
	Transfers	4.4	***	4.5		4.5	***	4.7	***
	Withdrawals	3.7		4.1		4.2		4.3	
	Total	4.4		4.4		4.6		4.7	
Sem-1 Hours	Persisters	15.4	7.85	16.8	5.16	16.2	82.95	16.2	81.87
	Transfers	14.4	**	14.1	**	15.1	***	15.1	***
	Withdrawals	12.7		13.4		14.1		13.8	
	Total	14.3		14.3		15.6		15.5	
Sem-2 Hours	Persisters	15.4	4.62	15.1	.92	16.1	87.55	16.2	78.52
	Transfers	14.2	*	13.9		14.9	***	14.8	***
	Withdrawals	13.1		14.4		13.0		13.4	
	Total	14.5		14.4		15.4		15.4	
Sem-3 Hours	Persisters	12.3	1.75	14.2	6.15	13.8	25.12	14.0	1.75
	Transfers	13.9		12.7	**	15.2	***	14.6	
	Withdrawals	10.4		9.1		---		10.9	
	Total	12.4		12.4		14.1		14.0	
Sem-4 Hours	Persisters	12.3	1.26	12.1		No Data Available			
	Transfers	14.0		13.9					
	Withdrawals	---		12.0					
	Total	12.9		12.9					

³ College Grade - 6=A, 5=B, 4=C, 3=D, 2=F

Variable	Group	BLACK				3-19 NON-BLACK			
		1967-70				1969		1970	
		4 Semesters		9 Semesters		4 Semesters		4 Semesters	
		Mean	F	Mean	F	Mean	F	Mean	F
Sem-1 GPA	Persisters	4.4	11.92	4.5	7.22	4.8	132.63	4.8	112.63
	Transfers	3.9	***	3.9	***	4.4	***	4.3	***
	Withdrawals	3.4		3.6		4.0		4.0	
	Total	4.0		3.9		4.6		4.6	
Sem-2 GPA	Persisters	4.2	15.50	4.4	13.25	4.7	122.27	4.8	66.97
	Transfers	4.1	***	3.8	***	4.4	***	4.4	***
	Withdrawals	3.1		3.3		3.6		4.0	
	Total	3.8		3.8		4.5		4.6	
Sem-3 GPA	Persisters	4.0	10.76	4.1	3.6	4.7	5.8	4.7	1.82
	Transfers	3.8	***	3.8	*	4.6	***	4.6	***
	Withdrawals	2.6		3.2		3.1		3.2	
	Total	3.7		3.7		4.6		4.6	
Sem-4 GPA	Persisters	3.9	1.42	4.2	5.3	No Data Available			
	Transfers	4.2		4.1	**				
	Withdrawals	---		3.3					
	Total	4.0		4.0					
Grad Hours-2	Persisters	30.1	12.47	30.5	5.47	38.3	4.02	32.2	133.68
	Transfers	26.7	***	26.1	**	35.4	*	29.5	***
	Withdrawals	24.1		26.7		43.8		26.9	
	Total	27.6		27.6		38.5		30.8	
Grad Hours-3	Persisters	41.9	4.34	45.0	7.89	51.9	16.26	45.5	4.67
	Transfers	39.6	*	38.4	***	48.8	***	43.5	*
	Withdrawals	33.6		35.5		42.0		35.3	
	Total	40.0		40.0		50.7		45.2	
Grad Hours-4	Persisters	52.3	.65	56.8	7.9	No Data Available			
	Transfers	49.7		51.3	***				
	Withdrawals	---		42.5					
	Total	51.5		51.5					
Grad GPA-2	Persisters	4.3	22.51	4.4	12.24	4.8	118.6	4.8	97.45
	Transfers	4.1	***	4.0	***	4.4	***	4.4	***
	Withdrawals	3.3		3.5		3.9		4.1	
	Total	4.0		4.0		4.6		4.6	
Grad GPA-3	Persisters	4.3	14.62	4.4	7.66	4.8	15.0	4.8	19.86
	Transfers	4.1	***	4.1	***	4.5	***	4.5	***
	Withdrawals	3.4		3.7		3.8		3.8	
	Total	4.1		4.1		4.7		4.7	
Grad GPA-4	Persisters	4.3	.00	4.5	7.13	No Data Available			
	Transfers	4.3	**	4.3	**				
	Withdrawals	---		3.9					
	Total	4.3		4.3					

		No.	%	No.	%	No.	%	No.	%
No. of Cases	Persisters	39	48.1	23	28.4	872	64.8	679	61.0
	Transfers	16	19.8	27	33.3	246	18.3	234	21.0
	Withdrawals	22	32.1	31	38.1	229	16.9	201	18.0
	Total	81	100.0	81	100.0	1346	100.0	1114	100.0

Only complete data cases used in analysis.

APPENDIX A

PERCENTAGE OF TOTAL RESPONSES TO THE SURVEY OF CURRENT
AND FORMER PURDUE ENGINEERING STUDENTS

Item (Number of Cases)	Total (59)	Persisters (33)	Transfers (10)	Withdrawals (19)
1. Did you graduate from an Indiana high school?				
1. No	53	61	40	40
2. Yes	47	39	60	60
2. Are you enrolled in a college or university this semester?				
1. Yes, undergraduate, full-time	81	94	90	30***
2. Yes, undergraduate, part-time	2	0	0	10
3. Yes, graduate, full-time	0	0	0	0
4. Yes, graduate, part-time	0	0	0	0
5. No	17	6	10	60
3. For each reason listed below, place a check to indicate the extent to which it influenced your decision to attend Purdue.				
1. Geographical location				
Very; some	55	61	40	50
Little; none	45	39	60	50
2. Close to home				
Very; some	44	44	40	50
Little; none	56	56	60	50
3. Wanted to go away to college				
Very; some	71	75	60	70
Little; none	29	25	40	30
4. Academic quality of college				
Very; some	94	100	70	100***
Little; none	6	0	30	0
5. Lower cost				
Very; some	40	39	40	40
Little; none	60	61	60	60
6. Prestige of the institution				
Very; some	83	88	90	60
Little; none	17	12	10	40
7. Type of academic program				
Very; some	92	94	90	90
Little; none	8	6	10	10
8. Coeducation				
Very; some	42	39	30	60
Little; none	58	61	70	40
9. Public institution				
Very; some	26	21	20	50
Little; none	74	79	80	50
10. Physical facilities				
Very; some	47	42	60	50
Little; none	53	58	40	50
11. Large institution				
Very; some	51	52	60	40
Little; none	49	48	40	60
12. Variety of programs offered				
Very; some	71	81	40	70*
Little; none	29	19	60	30
13. Parents' encouragement				
Very; some	43	36	50	60
Little; none	57	64	50	40
14. Teachers' encouragement				
Very; some	31	21	40	56
Little; none	69	79	60	44
15. Counselor's encouragement				
Very; some	30	30	20	40
Little; none	70	70	80	60
16. Other adult encouragement				
Very; some	36	36	20	50
Little; none	64	64	80	50

Item	Total	Persisters	Transfers	Withdrawals
17. Friend's encouragement				
Very; some	28	27	10	50*
Little; none	64	64	80	50
18. Non-Purdue college friend's encouragement				
Very; some	12	13	0	20
Little; none	72	73	90	50
19. High school friends				
Very; some	21	15	10	50**
Little; none	79	85	90	50
20. Older brothers and sisters				
Very; some	21	18	30	20
Little; none	79	82	70	80
21. Special programs available				
Very; some	30	36	20	20
Little; none	70	64	80	80
22. Received scholarship				
Very; some	36	30	50	40
Little; none	64	70	50	60
23. Only institution admitted into				
Very; some	2	0	0	11
Little; none	98	100	100	89
4. Do you feel minority students should get special consideration in being admitted at Purdue?				
1. At admission?				
Yes	57	64	30	60
No	7	3	10	20
In some instances	34	30	60	20
No opinion	2	3	0	0
2. After being admitted?				
Yes	55	67	22	50
No	17	2	33	30
In some instances	25	21	44	20
No opinion	2	3	0	0
5. When did you decide that you wanted to be an engineer?				
1. 6th grade or earlier	15	18	10	10
2. 7th-8th grade	6	6	0	10
3. 8th-9th grade	9	12	0	10
4. High school freshman	11	3	30	20
5. High school sophomore	13	15	20	0
6. High school junior	17	15	10	30
7. High school senior	11	12	20	0
8. Between high school and college	13	12	10	20
9. After beginning co-op	2	3	0	0
10. "Just always wanted to"	2	3	0	0
6. Which of the following college degrees or diplomas have you earned or do you plan to earn?				
1. None				
Have received	Not Applicable			
Plan to obtain				
2. Junior college diploma				
Have received	2	0	11	0
Plan to obtain	6	0	10	20*
3. Bachelor's degree				
Have received	8	6	22	0
Plan to obtain	74	93	70	100
4. Master's degree				
Have received	0	0	0	0
Plan to obtain	57	61	50	50
5. Doctoral degree (Ph.D., Ed.D., L.L.B., M.D., D.D.S., etc.)				
Have received	0	0	0	0
Plan to obtain	21	26	0	50

Item	Total	Persisters	Transfers	Withdrawals
7. How important was each of the following in your decision to study engineering?				
1. Mother				
Very; fairly	44	42	44	50
Minor; none	56	58	56	50
2. Father				
Very; fairly	49	48	44	56
Minor; none	51	52	56	44
3. Older brothers or sisters				
Very; fairly	26	22	33	30
Minor; none	74	78	67	70
4. Other relatives				
Very; fairly	20	19	22	20
Minor; none	80	81	78	80
5. Friends <u>not</u> in engineering				
Very; fairly	25	24	11	40
Minor; none	75	76	89	60
6. Engineers you know personally				
Very; fairly	27	30	22	20
Minor; none	73	70	78	80
7. Engineers you have heard about				
Very; fairly	37	38	11	60
Minor; none	63	62	89	40
8. Engineering students you know				
Very; fairly	35	35	33	30
Minor; none	65	64	67	70
9. Teachers in high school				
Very; fairly	38	27	44	70*
Minor; none	62	73	56	30
10. High school counselors				
Very; fairly	35	27	22	70*
Minor; none	65	73	78	30
11. College counselors				
Very; fairly	33	27	33	50
Minor; none	67	73	67	50
12. Interest and aptitude tests				
Very; fairly	60	58	44	80
Minor; none	65	72	67	40
13. Vocational - educational information				
Very; fairly	35	28	33	60
Minor; none	65	72	67	40
14. Books or periodicals				
Very; fairly	50	46	33	80
Minor; none	50	54	67	20
15. Radio, T.V., newspapers				
Very; fairly	55	53	44	70
Minor; none	45	47	56	30
16. Independence (work on your own)				
Very; fairly	69	69	56	80
Minor; none	31	31	44	20
17. Security of the profession				
Very; fairly	75	76	56	90
Minor; none	25	24	44	10
18. Opportunity to get ahead rapidly				
Very; fairly	80	82	67	90
Minor; none	20	18	33	10
19. Leadership in the profession				
Very; fairly	67	70	56	70
Minor; none	33	30	44	30
20. Work experiences				
Very; fairly	58	58	44	70
Minor; none	42	42	56	30
21. High school subjects				
Very; fairly	65	64	44	90
Minor; none	35	36	56	10
22. Hobbies				
Very; fairly	62	52	56	100*
Minor; none	38	48	44	0
23. Visit to industrial plant				
Very; fairly	38	27	22	90***
Minor; none	62	73	78	10

<u>Item</u>	<u>Total</u>	<u>Persisters</u>	<u>Transfers</u>	<u>Withdrawals</u>
24. Experience in armed services				
Very; fairly	14	12	0	30
Minor; none	86	88	100	70
25. Engineering as stepping stone				
Very; fairly	48	52	25	50
Minor; none	52	47	75	50
26. Interest in problem solving				
Very; fairly	79	76	78	90
Minor; none	21	24	22	10
27. I thought I would like the type of work.				
Very; fairly	78	75	78	90
Minor; none	22	25	22	10
28. Salary of the profession				
Very; fairly	83	85	67	90
Minor; none	17	15	33	10
29. Prestige of the profession				
Very; fairly	74	78	56	80
Minor; none	26	22	44	20
30. Being of service to others				
Very; fairly	58	61	56	50
Minor; none	42	39	44	50
8. Did you seek tutorial assistance while at Purdue?				
1. Yes	62	64	56	60
2. No	38	36	44	40
A. If yes, from whom?				
Classmates	40	45	40	20
Professors	38	42	40	20
Teaching assistants	49	54	40	40
Counselor-Tutorial class	40	42	20	50
B. If no, why not?				
Did not need tutoring	21	17	20	40
Did not know about available tutoring services	15	12	20	20
Did not think it would be beneficial	21	21	20	20
9. How helpful was the tutorial assistance you received?				
A. In a Counselor-Tutorial class?				
Extremely helpful	30	35	0	33**
Helpful	27	25	25	33
Had no effect	7	0	50	0
Slightly confusing	3	0	0	17
Very confusing	0	0	0	0
Was not enrolled	33	40	25	17
B. From other tutorial assistance?				
Extremely helpful	34	40	14	40
Helpful	50	55	57	20
Had no effect	12	0	29	40
Slightly confusing	0	0	0	0
Very confusing	3	5	0	0

<u>Item</u>	<u>Total</u>	<u>Persisters</u>	<u>Transfers</u>	<u>Withdrawals</u>
10. The programs below are designed to help high school and college students.				
A. Check if participated:				
1. Society of Black Engineers				
Yes	70	88	20	33***
No	30	12	80	67
2. Black Cultural Center				
Yes	61	68	57	44
No	39	32	43	56
3. Counselor-Tutorial class				
Yes	42	44	20	44
No	58	56	80	56
4. Black Studies Program				
Yes	22	19	33	22
No	78	81	67	78
5. Fraternity/sorority				
Yes	28	24	40	33
No	72	76	60	67
6. Professional Engineering Society				
Yes	36	48	33	0*
No	64	52	67	100
7. Cooperative program				
Yes	22	29	17	11
No	78	71	83	89
8. Upward Bound				
Yes	13	13	17	11
No	87	87	83	89
9. Bridge Program				
Yes	8	9	17	0
No	92	91	83	100
B. Regardless of participation, rate your appraisal of each:				
1. Society of Black Engineers				
Excellent; good	94	97	100	75*
Fair; poor	6	3	0	25
2. Black Cultural Center				
Excellent; good	69	75	50	67
Fair; poor	31	25	50	33
3. Counselor-Tutorial class				
Excellent; good	77	77	75	78
Fair; poor	23	23	25	22
4. Black Studies Program				
Excellent; good	67	64	75	67
Fair; poor	33	36	25	33
5. Fraternity/sorority				
Excellent; good	25	18	50	22
Fair; poor	75	82	50	78
6. Professional Engineering Society				
Excellent; good	64	67	75	44
Fair; poor	36	33	25	56
7. Cooperative program				
Excellent; good	84	85	75	89
Fair; poor	16	15	25	11
8. Upward Bound				
Excellent; good	72	76	78	56
Fair; poor	28	24	22	44
9. Bridge Program				
Excellent; good	64	67	78	44
Fair; poor	36	33	22	56

<u>Item</u>	<u>Total</u>	<u>Persisters</u>	<u>Transfers</u>	<u>Withdrawals</u>
11. How important are/were each of the following reasons for your career choice?				
1. Job openings are generally available.				
Very	69	70	89	50
Somewhat	25	24	0	50
None	6	6	11	0
2. I enjoy working with the kind of people involved.				
Very	36	27	44	60
Somewhat	50	54	56	30
None	14	18	0	10
3. This is a well-paying career.				
Very	69	70	67	70
Somewhat	29	30	33	20
None	2	0	0	10
4. Persons in this career are less vulnerable to military service.				
Very	0	0	0	0
Somewhat	21	24	33	0
None	79	76	67	100
5. This choice satisfies my parents' hopes.				
Very	14	9	11	30
Somewhat	33	33	33	30
None	54	56	56	40
6. I feel this enables me to make an important contribution to society.				
Very	50	45	78	40
Somewhat	35	42	0	40
None	15	12	22	20
7. There are opportunities for rapid career advancement.				
Very	64	67	56	60*
Somewhat	33	33	44	20
None	4	0	0	20
8. There are opportunities for freedom of action.				
Very	50	54	33	50
Somewhat	44	39	67	40
None	6	6	0	10
12. How have you financed your college and living expenses? (undergraduate)				
1. Support from your parents	56	64	30	90
2. Support from your spouse	7	9	0	10
3. Federal scholarship, fellowship or grant	37	33	70	40
4. State scholarship, fellowship or grant	19	18	40	10
5. Other scholarship, fellowship or grant	41	55	30	30
6. Federal loan	39	36	60	50
7. Other loan	19	24	20	10
8. College work-study program	37	36	50	50
9. Research assistantship	2	3	0	0
10. Teaching assistantship	2	3	0	0
11. Employment	59	70	60	60
12. Other sources (savings, etc.)	37	42	20	60

<u>Item</u>	<u>Total</u>	<u>Persisters</u>	<u>Transfers</u>	<u>Withdrawals</u>
13. Which of the following have you done since entering college?				
1. Got married	21	18	30	20
2. Changed major field	44	21	100	50***
3. Changed career choice	35	18	70	50**
4. Failed one or more courses	65	61	80	60
5. Graduated with honors	0	0	0	0
6. Was elected to student office	10	18	0	0
7. Joined a social fraternity, sorority or club	33	36	30	30
8. Authored or co-authored a published article	12	14	20	0
9. Was elected to an academic honor society	2	4	0	0
10. Participated in student protests or demonstrations	25	18	50	20
11. Dropped out of college temporarily (exclude transferring)	40	21	50	80**
12. Dropped out of college permanently	2	0	0	10
13. Transferred to another college before graduating	19	18	0	40
15. Have you discussed vocational and career plans or a possible change in major field with any of the following persons?				
1. College advisor				
Often or sometimes	64	59	78	67
Never	36	41	22	33
2. Academic dean				
Often or sometimes	29	17	57	44
Never	71	83	43	56*
3. Residence hall counselor				
Often or sometimes	17	10	50	11
Never	83	90	50	89**
4. Guidance counselor				
Often or sometimes	40	32	50	54
Never	60	68	50	44
5. Friend				
Often or sometimes	88	83	100	89
Never	12	17	0	11
6. Professor or instructor				
Often or sometimes	59	66	50	44
Never	41	34	50	56
7. Placement counselor or director				
Often or sometimes	37	41	38	22
Never	63	59	62	78
8. Family member or spouse				
Often or sometimes	83	80	100	78
Never	17	20	0	22
9. Dean of men or women				
Often or sometimes	28	10	62	56**
Never	72	90	38	44
10. Counselor in non-university agency				
Often or sometimes	18	14	14	33
Never	82	86	86	67
11. Person employed in my intended field				
Often or sometimes	53	53	62	44
Never	47	47	38	56

<u>Item</u>	<u>Total</u>	<u>Persisters</u>	<u>Transfers</u>	<u>Withdrawals</u>
16. How many hours a week did you study?				
A. In high school?				
1-10 hours	41	53	22	20
11-15 hours	24	19	33	30
16-20 hours	14	12	11	20
21-25 hours	14	12	11	20
26-35 hours	0	0	0	0
36-45 hours	4	0	22	0
46-50 hours	4	3	0	10
50 or more hours	0	0	0	0
B. At Purdue?				
1-10 hours	6	3	11	11
11-15 hours	12	10	11	22
16-20 hours	14	16	11	11
21-25 hours	20	23	11	22
26-35 hours	18	13	33	22
36-45 hours	16	23	11	0
46-50 hours	4	3	11	0
50 or more hours	8	10	0	11
17. As an undergraduate, what is or was your average grade				
A. In your <u>major</u> subject?				
A	4	0	0	22***
A-	2	0	0	11
B+	12	18	0	0
B	14	12	25	11
B-	8	9	0	11
C+	26	18	75	11
C	20	30	0	0
C-	8	12	0	0
D+	0	0	0	0
D	4	0	0	22
D-	0	0	0	0
F	2	0	0	11
B. In all your subjects?				
A	2	0	0	11
A-	0	0	0	0
B+	6	6	0	11
B	6	6	12	0
B-	18	21	0	22
C+	30	36	38	0
C	20	24	12	11
C-	10	3	25	22
D+	4	3	12	0
D	4	22	0	0
D-	0	0	0	0
F	0	0	0	0

<u>Item</u>	<u>Total</u>	<u>Persisters</u>	<u>Transfers</u>	<u>Withdrawals</u>
18. To what extent do the following statements describe your experiences and impressions of Purdue?				
1. There is poor communication between administration and students.				
Very	42	47	14	44
Somewhat	46	41	86	33
Not at all	12	12	0	22
2. Students are friendly.				
Very	20	12	44	22
Somewhat	56	59	44	56
Not at all	24	28	11	22
3. College is intellectually stimulating.				
Very	35	30	44	44
Somewhat	49	58	33	33
Not at all	16	12	22	22
4. College is proper and conventional.				
Very	35	24	56	56
Somewhat	51	54	44	44
Not at all	14	21	0	0
5. There is an active social and dating life.				
Very	6	6	0	11*
Somewhat	53	42	100	44
Not at all	41	52	0	44
6. College emphasizes religious and ethical values.				
Very	2	3	0	0
Somewhat	37	39	33	33
Not at all	61	58	67	67
7. Has a friendly, approachable faculty.				
Very	14	12	11	22
Somewhat	67	67	78	56
Not at all	20	21	11	22
8. Rules are strictly enforced.				
Very	55	54	33	78
Somewhat	37	39	56	11
Not at all	8	6	11	11
9. There is keen competition for grades.				
Very	62	62	56	67
Somewhat	36	34	44	33
Not at all	2	3	0	0
10. Students are treated like numbers.				
Very	39	36	22	67
Somewhat	51	54	67	22
Not at all	10	9	11	11
11. There is much school spirit.				
Very	22	15	22	44
Somewhat	57	61	67	33
Not at all	22	24	11	22
12. Has a liberal environment.				
Very	2	3	0	0
Somewhat	40	34	67	33
Not at all	58	62	33	67
13. Has an informal environment.				
Very	8	6	11	11
Somewhat	70	78	67	44
Not at all	22	16	22	44
14. The teaching is excellent.				
Very	28	30	11	33
Somewhat	63	61	78	56
Not at all	10	9	11	11
15. Students are very bright.				
Very	29	30	44	11
Somewhat	71	70	56	89
Not at all	0	0	0	0
16. There are lots of student cliques.				
Very	62	64	75	44
Somewhat	36	33	25	56
Not at all	2	3	0	0

<u>Item</u>	<u>Total</u>	<u>Persisters</u>	<u>Transfers</u>	<u>Withdrawals</u>
17. College is cold and impersonal.				
Very	26	27	33	11
Somewhat	57	61	44	56
Not at all	18	12	22	33
18. College helps students become mature.				
Very	29	36	11	22
Somewhat	53	48	78	44
Not at all	18	15	11	33
19. Students are independent.				
Very	33	38	38	11**
Somewhat	63	62	37	89
Not at all	4	0	25	0
20. Students often change majors.				
Very	36	33	44	38
Somewhat	54	54	56	50
Not at all	10	12	0	12
21. Many students have jobs.				
Very	16	21	11	0
Somewhat	63	61	67	67
Not at all	22	18	22	33
22. Is in a closely knit community.				
Very	10	3	11	33
Somewhat	36	34	44	33
Not at all	54	62	44	33
23. Students are involved in governance.				
Very	4	0	11	11
Somewhat	52	53	67	33
Not at all	44	47	22	56
24. College is committed to social change.				
Very	10	10	0	22
Somewhat	33	26	50	44
Not at all	56	64	50	33
25. Professors are often absent from class.				
Very	2	3	0	0
Somewhat	28	31	22	22
Not at all	70	66	78	75
26. There is a lot of radical activity.				
Very	4	6	0	0
Somewhat	18	9	38	33
Not at all	78	85	62	67
27. Professors are more concerned with research than teaching.				
Very	16	19	22	0
Somewhat	50	50	33	67
Not at all	34	31	44	33
28. There is a lot of drinking.				
Very	31	30	22	44
Somewhat	47	46	56	44
Not at all	22	24	22	11
29. Drugs are easily available.				
Very	29	25	11	62
Somewhat	47	47	67	25
Not at all	24	28	22	12
30. Academic cheating is fairly common.				
Very	26	25	25	33
Somewhat	43	41	62	33
Not at all	31	34	12	33
31. Most students think that traditional politics are ineffective in leading to social change.				
Very	19	26	0	11**
Somewhat	60	58	100	33
Not at all	21	16	0	56
32. Not enough minority students on campus.				
Very	69	70	67	67
Somewhat	24	21	33	22
Not at all	8	9	0	11

<u>Item</u>	<u>Total</u>	<u>Persisters</u>	<u>Transfers</u>	<u>Withdrawals</u>
33. Adequate tutorial support for students.				
Very	16	22	0	11
Somewhat	64	53	100	67
Not at all	20	25	0	22
34. Unfriendly climate for minority students.				
Very	47	53	38	33
Somewhat	41	38	50	44
Not at all	12	9	12	22
35. Favoritism by professors toward male students.				
Very	2	0	0	11
Somewhat	18	16	33	11
Not at all	80	84	67	78
36. Favoritism by professors toward female students.				
Very	0	0	0	0
Somewhat	37	39	44	22
Not at all	63	61	56	78
37. Favoritism by professors toward black students.				
Very	0	0	0	0
Somewhat	10	9	11	11
Not at all	90	91	89	89
38. Good financial assistance.				
Very	14	9	0	44**
Somewhat	43	39	78	22
Not at all	43	52	22	33
39. Counselors are usually available.				
Very	31	30	44	22
Somewhat	57	58	56	56
Not at all	12	12	0	22
40. Counselors are usually helpful.				
Very	28	21	33	44
Somewhat	61	67	56	44
Not at all	12	12	11	11
19. Where did you live most of the time while attending college?				
A. Freshman years				
1. At home	11	16	0	10
2. College dormitory	83	79	90	90
3. Fraternity/sorority house	0	0	0	0
4. Rented room or apartment	6	6	10	0
5. With friends or relatives	0	0	0	0
B. Sophomore years				
1. At home	13	12	0	33
2. College dormitory	62	58	80	67
3. Fraternity/sorority house	2	3	0	0
4. Rented room or apartment	15	18	20	0
5. With friends or relatives	2	6	0	0
20. What major kinds of adjustments did you have to make upon entering Purdue?				
1. I had to improve my study habits.	72	79	80	40
2. I had to improve my memory.	43	48	70	0
3. I had to learn to work with less guidance from instructors.	58	64	50	50
4. I had to take on a more mature attitude and become more responsible.	53	58	50	40
5. I had to adjust to less free time for leisure and personal interest.	60	70	50	40
6. I had to get used to the social climate here.	85	91	60	90

<u>Item</u>	<u>Total</u>	<u>Persisters</u>	<u>Transfers</u>	<u>Withdrawals</u>
21. How difficult did you find these adjustments?				
Very difficult	25	27	10	30
Quite difficult	43	30	80	50
Not so difficult	30	42	10	10
Not at all difficult	2	0	0	10
22. Listed below are a number of brief statements describing many different kinds of activities. Please check the LIKE or DISLIKE box for each item according to the following directions: LIKE - If the item describes an activity or event that you would like, enjoy, or find more pleasant than unpleasant. DISLIKE - If the item describes an activity or event that you would dislike, reject, or find more unpleasant than pleasant.				
1. Working twice as hard at a problem when it looks as if I don't know the answer.				
Like	49	55	30	50
Dislike	51	45	70	50
2. Returning to a task which I have previously failed.				
Like	70	76	40	80
Dislike	30	24	60	20
3. Staying away from activities which I don't do well.				
Like	51	48	40	70
Dislike	49	52	60	30
4. Picking out some hard task for myself and doing it.				
Like	79	79	80	80
Dislike	21	21	20	20
5. Doing a job under pressure				
Like	62	70	60	40
Dislike	38	30	40	60
6. Having to struggle hard for something I want.				
Like	74	76	80	60
Dislike	26	24	20	40
7. Avoiding something at which I have once failed.				
Like	21	18	30	20
Dislike	79	82	70	80
8. Quitting a project that seems too difficult for me.				
Like	17	18	20	10
Dislike	83	82	80	90
9. Doing something over again, just to get it right.				
Like	81	82	70	90
Dislike	19	18	30	10
10. Avoiding something because I'm not sure I'll be successful at it.				
Like	15	15	10	20
Dislike	85	85	90	80
11. Giving up on a problem rather than doing it in a way that may be wrong.				
Like	17	12	20	30
Dislike	83	88	80	70
12. Setting difficult goals for myself.				
Like	83	94	90	40***
Dislike	17	6	10	60

<u>Item</u>	<u>Total</u>	<u>Persisters</u>	<u>Transfers</u>	<u>Withdrawals</u>
13. Working for someone who will accept nothing less than the best that's in me.				
Like	75	88	30	80**
Dislike	25	12	70	20
14. Setting higher standards for myself than anyone else would, and working hard to achieve them.				
Like	91	97	90	70
Dislike	9	3	10	30
15. Competing with others for a prize or goal.				
Like	60	67	60	40
Dislike	40	33	40	60
16. Working on tasks so difficult I can hardly do them.				
Like	40	55	20	10*
Dislike	60	45	80	90
17. Doing something very difficult in order to prove I can do it.				
Like	72	82	70	40
Dislike	28	18	30	60
18. Choosing difficult tasks in preference to easy ones.				
Like	60	73	30	50
Dislike	40	27	70	50
19. Taking examinations				
Like	26	30	10	30
Dislike	74	70	90	70
20. Sacrificing everything else in order to achieve something outstanding.				
Like	45	55	50	10*
Dislike	55	45	50	90

APPENDIX B

THE FOLLOWING QUESTIONS WERE ANSWERED
BY STUDENTS PERSISTING IN ENGINEERING
ONLY:

Percentage of
Total Number
of Cases (33)

23. Your original school choice in engineering:

Astronautical & Aeronautical Engineering	17
Agricultural Engineering	0
Civil Engineering	20
Chemical Engineering	7
Electrical Engineering	37
Interdisciplinary Engineering	0
Industrial Engineering	3
Mechanical Engineering	13
Materials Science Engineering	0
Undecided	3

24. Your present school choice in engineering:

Astronautical & Aeronautical Engineering	13
Agricultural Engineering	0
Civil Engineering	13
Chemical Engineering	7
Electrical Engineering	27
Interdisciplinary Engineering	10
Industrial Engineering	3
Mechanical Engineering	20
Materials Science Engineering	0
Undecided	0

25. If you plan to continue at Purdue, what are your long range plans?

1. Complete requirements for B.S. in Engineering and secure employment	59
2. Complete another semester in engineering and transfer to another university	0
3. Complete another semester in engineering and transfer within Purdue	0
4. Go to graduate school in engineering	21
5. Go to graduate school but not in engineering	10
6. Other	10

26. Check the reasons below why you have persisted in engineering at Purdue.

1. I was always very interested in engineering	68
2. I am doing well in my courses	32
3. I found my courses interested me	68
4. Excellent job opportunities available in engineering	86
5. Engineering was what I expected	32
6. I like my courses and feel suited for work in that field	57
7. I found engineering challenging	86
8. Engineering offers financial rewards	75
9. Opportunity to be creative and original	64
10. Prestige and satisfaction available in engineering	79
11. Friends have been supportive	39
12. Family has been supportive	57
13. Interest and aptitude tests favorable	36
14. I have learned a great deal	61
15. Other	11

APPENDIX C

THE FOLLOWING QUESTIONS WERE ANSWERED BY
STUDENTS WHO TRANSFERRED OUT OF ENGINEERING
INTO OTHER FIELDS ONLY:

Percentage of
Total Number
of Cases (10)

23. Your classification at the time of changing majors:	
First semester	0
Second semester	33
Third semester	67
(No transfers indicated after third semester through ninth semester or more)	
24. Your classification at present, if enrolled:	
Eighth semester or higher	100
25. What was your original school choice in engineering?	
Astronautical & Aeronautical Engineering	33
Electrical Engineering	67
26. If you have transferred to another school within Purdue, check the school and program of your choice.	
School of Industrial Management	33
School of Science	33
School of Technology	33
27. To what extent did you utilize the university counseling service in arriving at your decision to transfer into another school?	
I talked to more than one but less than four counselors.	67
I did not talk to a counselor.	33
28. How important was the counsel you received in helping you to arrive at your decision to choose a new major?	
Extremely important	33
Helpful	33
Had no effect	0
Slightly confusing	0
Very confusing	0
Other	0
29. What are the reasons for changing from engineering to your present school choice?	
1. No longer interested in engineering	0
2. I was doing poorly in my courses	67
3. I found my courses did not interest me	0
4. Though my courses interested me, I found others more interesting	33
5. Engineering was not what I thought it was	33
6. I liked my courses but felt unsuited for work in that field	33
7. I found other courses to be more challenging	0
8. I became interested in a career that offered greater financial potential	0
9. I felt I would gain more prestige and satisfaction in another field	0
10. My friends interested me in another field	33
11. I took interest and aptitude tests	33
12. I was not really learning anything new	0
13. I often didn't know what the professors wanted	0
14. I was often lonely	33
15. I was under much strain and pressure	0
16. I was often in low spirits	33

THE FOLLOWING QUESTIONS WERE ANSWERED BY STUDENTS WHO HAVE WITHDRAWN FROM THE SCHOOLS OF ENGINEERING AND/OR THE UNIVERSITY ONLY:

Percentage of
Total Number
of Cases (19)

23. Your classification at time of withdrawal:	
First semester	0
Second semester	42
Third semester	8
Fourth semester	25
Fifth semester	8
Sixth semester	17
(No withdrawals indicated after seventh semester)	
24. Your original school choice in engineering before withdrawing:	
Astronautical & Aeronautical Engineering	17
Agricultural Engineering	0
Civil Engineering	17
Chemical Engineering	0
Electrical Engineering	50
Interdisciplinary Engineering	0
Industrial Engineering	8
Mechanical Engineering	8
Materials Science Engineering	0
Undecided	0
25. To what extent did you utilize the university counseling service in arriving at your decision to withdraw?	
I talked to more than four counselors	0
I talked to more than one but less than four counselors	50
I talked to one counselor	8
I did not talk to a counselor	33
Other	8
26. How important was the counsel you received in helping you to arrive at your decision to withdraw from Purdue?	
Extremely important	20
Helpful	0
Had no effect	70
Slightly confusing	1
Very confusing	0
27. Since your withdrawal from Purdue, check the one category which best describes your activities after leaving Purdue.	
Entered another college or university	46
Entered a technical institute	0
Entered Armed Forces	0
Worked temporarily	27
Found a permanent job	27
28. How many semesters did you attend Purdue's Lafayette Campus?	
1-2 semesters	36
3-4 semesters	54
5-6 semesters	9
7 or more semesters	0
29. What were your reasons for dropping out of Purdue?	
Financial	17
Change of vocational interests	17
Lack of interest in engineering	8
Academic difficulties	58
Other (Immaturity and social atmosphere listed most often)	58

30. Are you attending (or have you attended) another college or are you receiving (or have you received) any other formal education since leaving the Lafayette Campus? (Exclusive of military service or on-the-job training)
1. From another institution 47
31. What were your reasons for dropping out of Purdue? (Check as many as apply)
1. Financial 12
2. Change of vocational interests 12
3. Lack of interest in engineering 6
4. Academic difficulties 41
5. Other 41
32. If you had it to do over, would you:
1. Enroll at Purdue in engineering 67
2. Enroll at Purdue in another field 17
3. Enroll in engineering at another university 0
4. Enroll in another field at another university 17
5. Not enroll in college at all 0
33. Since leaving Purdue have you received any training in the following organizations:
1. Military 12
2. Government 0
3. Industry 12
4. Other 0
34. What occupational experiences have you had since leaving the Purdue Campus at Lafayette? (Begin with present occupation and include those occupations during Service)
1. From another organization 47
- 35.-37. How well have the training and education you have obtained prepared you:
- A. For an occupation that will make full use of your abilities?
- Very well 27
- Fairly well 27
- Not very well 27
- Rather poorly 9
- Very poorly 9
- B. For a full and satisfying life outside of your work?
- Very well 18
- Fairly well 36
- Not very well 27
- Rather poorly 9
- Very poorly 9
- C. For effective performance of your responsibilities as a citizen?
- Very well 27
- Fairly well 46
- Not very well 9
- Rather poorly 0
- Very poorly 18

38. Have you made any important decisions that you are sorry about now?	
1. I wish I had taken additional educational training during high school to prepare me for college.	22
2. I wish I had graduated from college instead of dropping out.	33
3. I'm sorry I majored in engineering.	22
4. I'm sorry I went to Purdue.	22
5. I'm sorry I didn't select a different college from the one I attended.	0
6. I wish I had chosen a different major field in college.	22
7. I'm sorry about the kind of work I decided to do.	0
8. I wish I hadn't been so young when I got married.	22
9. Other	11
10. No, I'm not sorry about any important decisions I've made.	22
39. What are your long range educational plans?	
1. Return to Purdue in engineering	54
2. Return to Purdue but not in engineering	9
3. Return to another college but not in engineering	9
4. Other	27
40. What were the reasons for withdrawing from Purdue or engineering?	
1. No longer interested in engineering	9
2. I was doing poorly in my courses.	73
3. My courses did not interest me.	27
4. Though my courses interested me, I found others more interesting.	36
5. Engineering was not what I thought.	36
6. I liked my courses but felt unsuited for work in that field.	18
7. I found other courses more challenging.	18
8. I became interested in a career that offered greater financial potential.	0
9. I felt I would gain more prestige and satisfaction in another field.	0
10. My friends interested me in another field.	9
11. I took aptitude and interest tests.	9
12. I was not learning anything new.	0
13. I often didn't know what the professors wanted.	9
14. I was often lonely.	54
15. I was under much pressure and strain.	54
16. I was often in low spirits.	73
17. Other	27

APPENDIX E

1972-1974 PURDUE BLACK ENGINEERING CANCELLATION STUDY¹

Betsy Bohling, Majoice Thomas, Arthur Bond and William K. LeBold

Purdue University

This report was prepared as part of a study of factors associated with the attraction and retention of Black Americans in engineering at Purdue University. A questionnaire (Appendix 1) was sent to 47 black students that were admitted to Purdue for the school years beginning 1972-1974, but never attended. Out of these, 33 (70%) returned the questionnaire (8 of 10 for 1972, 11 of 17 for 1973 and 14 of 20 for 1974). This study attempts to pick out some of the main trends of the Purdue black cancellation students.

Nearly all of the responding students (93%) went on to attend some college even though they did not attend Purdue and nearly 66% (19/30) had studied or were studying engineering at the time of the survey. Table 1 lists the colleges attended, their location and each canceller's major field. Only one student attended another Indiana college and only one attended another Big Ten school. One-third of the cancellations who went on to college attended either the General Motors Institute (6) in Flint, Michigan, or one of the military academies (4), all of which offer substantial financial support. Most of the students attended smaller, private colleges or universities.

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TABLE 1

COLLEGE ATTENDED BY CANCELLEES RESPONDING TO SURVEY

<u>COLLEGE</u>	<u>LOCATION</u>	<u>MAJOR</u>
<u>1972</u>		
Antioch College	Yellow Springs, OH	Undeclared
Dartmouth College	Hanover, NH	Urban Planning
General Motors Institute	Flint, MI	Engineering
General Motors Institute	Flint, MI	Engineering
Stanford	Palo Alto, CA	Electrical Engr.
U.S. Air Force Academy	USAF Academy, CO	Math-Management
U.S. Naval Academy	Annapolis, MD	Analytical Mngt.
University of Kentucky	Lexington, KY	Electrical Engr.
<u>1973</u>		
Brown University	Providence, RI	Engineering
Case Western Reserve Univ.	Cleveland, OH	Electrical Engr.
Cornell University	Ithaca, NY	Engineering
Cornell University	Ithaca, NY	Engineering
General Motors Institute	Flint, MI	Engineering
General Motors Institute	Flint, MI	Engineering
Howard University	Washington, D.C.	Chemical Engr.
Northeastern University	Boston, MA	Engineering
Princeton University	Princeton, NJ	Geology
U.S. Naval Academy	Annapolis, MD	Economics
U.S. Naval Academy	Annapolis, MD	Management Tech.
<u>1974</u>		
Bradley University	Peoria, IL	Electrical Engr.
General Motors Institute	Flint, MI	Engineering
General Motors Institute	Flint, MI	Engineering
Lincoln University	Jefferson City, MO	Philosophy
Manchester	N. Manchester, IN	Accounting
Marietta College	Marietta, OH	Radio and Television
Northwestern University	Evanston, IL	Civil Engineering
Prairie View	Prairie View, TX	Civil Engineering
Tulane University	New Orleans, LA	Psychology
University of Delaware	Neward, DE	Electrical Engr.
University of Tennessee	Knoxville, TN	Engineering

One student explained it like this: "I would have attended Purdue on an NROTC scholarship but decided to attend the Academy when my appointment came through. If I had not come here I'm sure that I would have attended Purdue. It is a fine school. At this time I am considering separation from the Academy and I am still interested in Purdue, if I could obtain financial aid or work study."

From Table 1 it is clear that many of the cancellees went on to study engineering at the institutions attended. One student said that his reason for studying engineering was, "Because it is a challenging major which allows an excellent opportunity to help solve some of the many problems of mankind." Another student summed up the overall responses with his reason for studying engineering: "Top Pay, Good Employment Opportunities, Interest in Mathematics."

Reasons for NOT studying engineering were generally a lack of interest and a poor high school background. For example, one response to this was, "After working with engineers while summer employed I decided that it wasn't the field for me!!" Another cancellee noted that, "I later decided that I would not succeed in engineering because of poor secondary school preparation."

Table 2 gives the percentage of how cancellees compared the college attended with Purdue as more favorable, equal or less favorable on various factors. They are in rank order based on the percentage rating the college attended more favorable than Purdue.

Substantially more of the cancellees rated the college they attended more favorable than Purdue on Financial Aid Available, Low Cost, Size of the College and to a lesser degree on Academic Quality and the Encouragement of High School Teachers, Advisors and Peers. Prestige of College,

TABLE 2

PERCENTAGES OF PURDUE CANCELLEES COMPARING FAVORABILITY OF
COLLEGE ATTENDED, RANKED IN DESCENDING ORDER

<u>FACTORS</u>	<u>COLLEGE ATTENDED MORE FAVORABLE</u>	<u>EQUAL</u>	<u>PURDUE MORE FAVORABLE</u>	<u>No. of Cases</u>
Financial Aid Available	62%	24%	14%	(27)
Size of College	55%	27%	17%	(29)
Low Cost	55%	07%	37%	(29)
Prestige of the College	41%	24%	36%	(29)
Academic Quality	37%	36%	27%	(29)
Encouragement of High School Teachers and Advisors	34%	46%	19%	(26)
Encouragement of Peers	34%	42%	23%	(26)
Geographic Location	33%	40%	26%	(27)
Social Climate	33%	29%	37%	(27)
Encouragement of Relatives	28%	52%	20%	(25)
Living Conditions on Campus	25%	37%	37%	(24)
Overall Admission Procedures	12%	51%	37%	(27)

the Influence of Relatives and Geographic Location were all rated as being about the same proportion on favorability at Purdue and the institutions attended. The Overall Admissions Procedures and Living Conditions at Purdue were ranked by a higher proportion as more favorable than at the college attended by the cancellees.

The verbatim responses to the question, "What was the single most important factor which influenced your decision not to attend Purdue?" are given in Appendix 2. One of the cancellees stated his reason for not attending Purdue like this: "I couldn't get a loan for the rest of the money that was required to attend Purdue. The loan was a necessity for me to be able to attend Purdue, therefore, this reason alone stopped me from attending Purdue at the last moment. In fact, I was left almost with no hope of attending school." Also, a couple of other reasons were, "I wanted to play baseball for an outstanding team," and "I fell in love with a girl from Prairie View."

Table 3 summarized the results of another question used to get at the importance of various factors influencing the decision of cancellees not to attend Purdue. Again, the same reasons clearly came through: Financial aid, prestige of the other school and size of the school. These facts are consistent with the cancellees' decisions of what other schools to attend. Besides the 10 who went to the military academies or GMI, 16 out of the 30 attending college went to private institutions. It appears to follow that this is probably due largely to the amount of financial aid received, in some cases to the perceived academic quality of the college attended (2 went to Cornell, 1 to Princeton, 1 to Stanford, etc.), and to the fact that all attended smaller schools than Purdue.

Two factors in Table 3 pertaining particularly to black students were those referring to the importance of "Not enough black students"

TABLE 3

PERCENTAGES OF HOW PURDUE CANCELLEES RANKED THE IMPORTANCE OF VARIOUS
FACTORS IN THEIR DECISION NOT TO ATTEND PURDUE

<u>FACTORS</u>	<u>VERY IMPORTANT</u>	<u>LITTLE IMPORTANCE</u>	<u>SOME IMPORTANCE</u>	<u>NO IMPORTANCE</u>	<u>No. (29)</u>
Larger Financial Grant Elsewhere	55%	00%	10%	36%	(29)
Insufficient Personal/Family Funds	40%	06%	16%	36%	(30)
Admitted to Higher Choice College	31%	24%	13%	31%	(29)
Heard About Financial Aid Too Late	29%	03%	07%	59%	(27)
Cost of Purdue Too High	28%	14%	14%	42%	(28)
Wanted Smaller School	20%	24%	27%	27%	(29)
Not Enough Black Students	07%	10%	17%	64%	(28)
Purdue's \$50 Advance Deposit Requirement	06%	10%	16%	66%	(30)
Wanted School Farther From Home	03%	13%	36%	48%	(29)
Admitted to Similar College but in Home State	03%	03%	03%	88%	(27)
Wanted School Closer to Home	00%	17%	17%	65%	(29)
Academic Demands	00%	13%	23%	63%	(30)
Purdue Didn't Offer Type of Educational Program I Wanted	00%	10%	10%	78%	(28)
Wanted to Attend an All-Black College	00%	06%	13%	80%	(30)

and "Wanted to attend an all black school." None of the students indicated that it was "very important" to attend an all black school, and 80% said it was of "no importance" at all. Only 7% indicated it was "very important" that there were not enough black students at Purdue, and 60% said the factor was of "no importance" in their decision not to attend Purdue.

Throughout the survey, money came through as being a very important factor to those not attending Purdue. Insight into the sources and percentage of the funds obtained can be found in Table 4. Cancellées relied primarily on scholarships and their parents for financial support. Loans, Work-Study, Grants, Summer Earnings and Personal Savings also account for some of the funds.

TABLE 4

SOURCES OF FINANCIAL SUPPORT OF PURDUE ENGINEERING CANCELLEES
(N=29)

<u>SOURCE</u>	<u>PERCENT INDICATING SOME SUPPORT</u>	<u>MEAN PERCENTAGE OF TOTAL EXPENSES PROVIDED BY SOURCE</u>
Scholarship	59%	30%
Parents	47%	20%
Loan	31%	09%
Work-Study	22%	06%
Grant	25%	04%
Summer Earnings	37%	03%
Personal Savings	19%	03%
GI Bill	03%	03%
Other	09%	08%

In conclusion, it is important to note that overall, black engineering students who cancelled their plans to attend Purdue decided to go to college elsewhere. General Motors Institute and the military academies were attended by about a third of the cancellees. The primary reasons for not attending Purdue according to the black engineering cancellees seemed to be money (more financial aid available elsewhere or just a lack of personal/family funds), size (all attended smaller schools than Purdue), and for a few students, the academic quality and prestige of the school attended. The fact that there were not enough black students at Purdue or that Purdue is not predominantly black did not seem to be a major factor. Also, most cancellees rated the living conditions and overall admission procedures at Purdue more favorable than at the college they attended.

APPENDIX 1

The Percentage of Total Respondents Selecting Each Alternative of Each Question (n=33)

1974-75 PURDUE ENGINEERING CANCELLATION STUDY

Please check (✓) and fill in spaces where applicable. If unclear or objectionable, make notation directly on the questionnaire.

Indicate which of the following applied to you during the fall of:
(Mark as many as apply)

	1972	1973	1974
Attending college, full-time (undergraduate)	14	50	79
Attending college, part-time (undergraduate)	00	04	04
Attending high school	54	32	00
Having a temporary college interruption (illness, etc.)	00	00	11
Attending night school, adult education	00	00	00
Attending a school other than a college or university	00	00	00
Working part-time	11	14	07
Working full-time	00	00	04
In military service, active duty	04	04	04
Being a housewife	00	00	00
Being unemployed, looking for a job	00	00	07
Being unemployed, not looking for a job	00	00	00
Other: Specify _____	00	04	04

If you are now attending or have attended another college or school, please indicate below:

Yes = 89% No = 11%

Name of School _____ City & State _____ Your Major _____

If you are now employed, please indicate below:

Yes = 21% No = 79%

Company or Agency _____ City & State _____ Your Title _____

What are your long-range career objectives?

- | | |
|--|--------------------------------|
| 64 To be an engineer | 00 To be a social worker |
| 04 To be a physical scientist or mathematician | 07 To be a business man |
| 00 To be a technician or skilled worker | 04 To be in clerical services |
| 00 To be a biological scientist | 11 To be in another profession |
| 00 To be in health sciences | or service occupation |
| 04 To become a teacher | 08 Other _____ (Specify) |

If you attended another college, please compare it with Purdue on the following factors:
(If not applicable, leave blank)

PURDUE More Favorable	Equal	College Attended More Favorable	FACTORS
21	36	29	Geographic location
29	29	36	Academic quality
36	21	36	Prestige of the college
14	25	54	Financial aid available
36	7	50	Low cost
29	29	32	Social climate
29	32	18	Living conditions on campus
14	46	21	Encouragement of relatives
21	36	29	Encouragement of peers & students
18	39	29	Encouragement of high school teachers & advisors
18	29	46	Size of college
32	46	11	Overall admission procedures
11	0	11	Other: _____

APPENDIX 1 (cont.)

How important were the following factors in your decision not to attend Purdue?
(Check only one for each factor)

Very Important	Some Importance	Little Importance	No Importance	FACTORS
29	21	14	29	Admitted to higher choice college
0	18	18	57	Wanted school closer to home
4	11	32	46	Wanted to be farther from home
18	21	25	25	Wanted smaller school
4	4	7	75	Admitted to similar college but in my home state
25	4	7	50	Heard about financial aid too late
46	0	7	36	Larger financial grant elsewhere
29	11	11	39	Cost of attending Purdue too high
39	7	14	36	Insufficient personal/family funds
7	11	14	61	Purdue's \$50 advance deposit requirement
0	14	25	54	Academic demands
0	7	14	71	Wanted to attend all Black school
0	7	11	71	Purdue didn't offer type of educational program I wanted
7	7	18	54	Not enough Black students
25	0	0	0	Other: _____
4	4	0	0	Other: _____

What are your long-range educational goals? (Please check one)

- | | |
|-------------------------------|-------------------------|
| 04 No college plans | 21 Bachelor's degree |
| 00 Some college-about 1 year | 57 Master's degree |
| 00 Some college-about 2 years | 11 Doctor's degree |
| 00 Associate degree (2 years) | 00 Other: Specify _____ |

If you attended college, indicate below the sources of your financial support and what percentage of your total expenses each source provided. (Make sure the total comes to 100%)

SEE TABLE 4

() Scholarship	() Grant	() Loan	() Work-study	() GI Bill	() Parents	() Summer Earnings
_____ %	_____ %	_____ %	_____ %	_____ %	_____ %	_____ %
() My own savings	() Other:	_____ %				

To how many colleges other than Purdue did you actually apply for admission? To how many were you accepted? (Mark one in each column)

	Applications	Acceptances
One	11	11
Two	11	7
Three	32	36
Four	21	25
Five or more	21	14

Why did you decide to major in Engineering? _____

Why did you decide not to major in Engineering? _____

What was the single most important factor which influenced your decision not to attend Purdue?

SEE APPENDIX B

APPENDIX 2

Verbatim Responses of Black Engineering Cantelees, By Year Admitted
to Purdue, to the Question:

"What was the single most important factor which influenced your decision
NOT to attend Purdue?"

1972

The challenge offered by the Academy and the career opportunities which
would be available on graduation.

I don't believe that I was mature enough when I entered Purdue. Basically
it was learning that in order to get my degree in architecture, Purdue
could only give me an interdisciplinary program and later I would have to
go to another school to actually get my degree.

Social atmosphere toward Blacks

Because Stanford was in California

In attending Purdue, I thought that it would be difficult in changing my
major therefore I attended a liberal arts school!!

Acceptance to Naval Academy

Money

1973

Money--I get paid \$300.00 a month to go to USNA.

Financial aid, thought competition might be a little more than I could
handle.

Acceptance to Case.

Amount of aid given--actually it cost less to attend Brown than Purdue.
The engineering society of the school flew me up there one week-end to look
the situation over at that time.

Money!!

I would have attended Purdue on an NROTC scholarship but decided to attend
the Academy when my appointment came through. If I had not come here I'm
sure that I would have attended Purdue. It is a fine school. At this
time I am considering separation from the Academy and I am still interested
in Purdue, if I could obtain financial aid or work study.

See letter (Financial Aid Procedure)

The decision was by no means an easy one to make, but because of the size
and prestige of Princeton.

Ivy League Prestige

APPENDIX 2 (cont.)

"What was the single most important factor which influenced your decision NOT to attend Purdue?"

1974

Local responsibilities

I couldn't get a loan for the rest of the money that was required to attend Purdue. The loan was a necessity for me to be able to attend Purdue, therefore, this reason alone stopped me from attending Purdue at the last moment. In fact, I was left almost no hope of attending school.

1st impression of Purdue was not favorable.

I did not receive adequate financial assistance on attending Purdue.

I thought I was going to get a grant to attend, but never heard anything.

I changed my mind about being an engineer and wanted to pursue a career in medicine.

The financial aid offered would not completely cover the costs of attending Purdue (I fell in love with a girl from Prairie View).

Acceptance to Northwestern

The financial aid offered by GMI was greater although Purdue was more favorable in other aspects.

I thought that General Motors Institute offered me a better long-range career, because after graduation you are placed somewhere in the corporation, but after being here it looks different now. Since the decline in the purchase of automobiles there program doesn't look as good as it did from the outset. I am now interested in attending Purdue for the fall year 75-76. I have already submitted a letter to the admission office of Purdue.

I was accepted at a smaller school that offered a simpler style than did Purdue.

I wanted to play baseball for an outstanding team.

I was offered a full 4 year scholarship including room and board, and expenses by the University of Delaware.