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ABSTRACT

The reasons academically gifted high school seniors select institutions of higher education and their interest in precollege, university-level courses were studied. Gifted seniors in the Tucson Unified School District were mailed the Higher Education Orientation Inventory (HEOI), an adaptation of the Graduate Student Satisfaction Questionnaire. Gifted seniors were identified as those scoring at or above the 90th percentile on at least two of the three sub-areas of the California Achievement Test, Form C, Level 18. A total of 165 responses were analyzed with a principal components analysis followed by a varimax rotation. Findings for the 73 males and 92 females from 10 high schools were as follows: there was a substantial interest in attending university-level courses; of the 29 reasons posed there were 4 underlying factors of choice (the academic quality of the institution, special institutional features, social aspects of the institution, socioeconomic forces); and the academic quality factor had three aspects (instruction, interaction, and independence). Specifically, 84 percent of the academically gifted seniors felt that earning college credit before high school graduation was valuable, and 73 percent indicated that they would attend an intensive college-level course if it were offered. However, only 59 percent were interested in attending a summer university program designed to introduce them to college life. It is suggested that findings would be valuable to college and university administrators, recruiters, and high school counselors. Appended information includes factor loadings of the 29 reasons for choice of schools posed by the HEOI. (SW)

FACTORS IN THE CHOICE OF HIGHER EDUCATIONAL INSTITUTIONS BY ACADEMICALLY GIFTED SENIORS

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A B S T R A C T

Recent research has reported a significant reduction of the college entry rates of high ability students. This study was conducted to more fully understand the reasons academically gifted high school seniors select institutions of higher education. A total of 165 academically gifted high school students were administered the Higher Education Orientation Inventory (HEOI). Twenty-nine items of the HEOI were analyzed with a principal components analysis followed by a varimax rotation. The findings of the study were (1) there was a substantial interest among academically gifted high school students in attending university-level courses, (2) there were four underlying factors of choice: the Academic Quality of the Institution, Special Institutional Features, Social Aspects of the Institution, Socioeconomic Forces, and (3) the Academic Quality Factor was found to have three aspects: instruction, interaction, and independence. These findings have clear implications for recruitment officers, administrators, and counselors who wish to assist academically gifted seniors in their choice of a college or university. Moreover, these findings should assist in attracting more high ability students into higher education.

FACTORS IN THE CHOICE OF HIGHER EDUCATIONAL INSTITUTIONS BY ACADEMICALLY GIFTED SENIORS [1]

University and college administrators are faced with declining enrollment, dwindling fiscal resources, and societal demands for public accountability (Kolevson, 1981). Anxiety about finances is widespread in higher education (McCoy, Krakower and Makowski, 1982). Concomitantly, shifting demographic trends indicate a greater number of adults enrolling as full time students in undergraduate degree programs (Anderson and Darkenwald, 1979). A major concern of college and university administrators is how to attract the academically gifted high school student to campuses of higher education. Yet, there is a dearth of empirical evidence about why academically gifted students select colleges and universities.

Student recruitment and retention is currently a major concern in institutions of higher education. A decline of the entry of high ability students in four-year colleges and universities has been noted as one of the major findings of the National Longitudinal Study of the High School Class of 1972 -- a study which tracks the educational progress of over 23,000 young people. Davis and Levinsohn (1979, p. 85) reported:

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> Another finding of considerable interest is a significant reduction of the college entry rates among what was traditionally the most common pool of four-year college entrants -- high ability students. . . . This may represent the end effect of several factors -- the increase in the attractiveness and availability of two-year programs, some loss of attractiveness of college to this group, and the rapidly escalating costs of four-year colleges. Administrators realize they must make greater effort to attract the academically gifted to their institutions.

One program designed to attract gifted and talented high school students is the University of Arizona Precollege Program for Gifted and Talented Students. This five-week program which is conducted twice each summer is designed to provide (1) accelerated university-level instruction to gifted and talented students in courses of their choice, (2) a variety of enrichment activities, (3) a close, personal guidance to the student, and (4) social activities to promote student interaction. Since its inception in the summer of 1981, the UA Precollege Program has attracted students from six states.

The present study was designed to investigate the following questions:

1. Is there a substantial interest in precollege, university-level courses among academically gifted students?
2. What are the most important reasons for the choice of higher educational institutions by academically gifted students?
3. Are there factors which underly the reasons that academically gifted students select institutions of higher education?

METHOD

The data were collected by means of a mail survey of all identified gifted seniors in the Tucson Unified School District -- a large, metropolitan school district in the Southwest. The survey instrument was sent to 315 gifted seniors in the spring of 1982. Gifted seniors were identified as those who scored at or above the 90th percentile on at least two of the three subareas of the California Achievement Test, Form C (CAT), Level 18 (Reading, Language Arts, and Mathematics). This criterion was similar to a criterion which was used for selecting students for a gifted program by Feldhusen and Sokol (1982). Feldhusen and Sokol (1982) allowed admission if at least one achievement test score in a major area was at or above the 90th percentile.

To investigate reasons for choices which high achieving seniors make, it was necessary to develop the Higher Education Orientation Inventory (HEOI). Most of the items were adapted from the Graduate Student Satisfaction Questionnaire (GSSQ) which was developed by Feild and Giles (1980) to measure student satisfaction with graduate education. Seven additional items more applicable to high school seniors were included in the HEOI.

The HEOI consisted of two parts. Part I contained questions about: (1) high school, (2) sex, (3) ethnicity, (4) plans to attend higher education institutions, (5) plans to pursue an area of study, and (6) students' interest in attending college after high school graduation. Part II consisted of 29 items that dealt with reasons for choosing an institution of higher education. The item content spanned a wide range of reasons such as professional competence of professors, quality of course instruction, and library facilities. Respondents were asked to rate the importance of a given reason on a six-point scale

which ranged from 1 (very unimportant) to 6 (very important).

RESULTS

A total of 165 academically gifted seniors (73 males, 92 females) returned the inventory yielding a response rate of 52 percent. All inventories were completed anonymously. Respondents were attending ten different high schools in the Tucson Unified School District.

Precollege Programs

Of the academically gifted seniors, 84 percent (n = 139) responded that earning college credit before high school graduation was of value to them. A total of 73 percent (n = 121) responded that they would attend an intensive college level course if it were offered. Fifty-nine percent (n = 97) responded that they would attend a summer university program designed to introduce them to college life during the summer after their junior year in high school.

Attending college or university before high school graduation seemed to be appealing to many (84%) of the seniors in the survey. Fewer (73%) indicated they would actually attend a course if it were offered. Fewer still (59%) were interested in attending an introduction to college life. All questions received a majority of affirmative responses. A strong interest in attending precollege programs with intensive college level courses was clearly indicated.

High School Senior Priorities

Part II of the HEOI explored academically gifted seniors' reasons for choosing an institution of higher education. The mean scores of each reason are presented in rank order in Table 1. A mean score of less than 3.5

indicates that the item was considered an unimportant reason. A number greater than 3.5 indicates an important reason. Those items which were rated the highest such as the quality of course instruction (Item 7) and training in your career interest (Item 20) are clearly distinguished items with the lowest ratings such as: nothing else to do (Item 25) and couldn't find a job (Item 24). Cronbach's alpha estimate of the reliability of the overall measure of 29 items was .80.

Insert Table 1 about here

The six highest priorities in choosing an academic institution of higher education were: (1) quality of course instruction (Item 7), (2) training in your career interest (Item 20), (3) professional competence of professors (Item 3), (4) overall training (Item 1), (5) intellectual stimulation provided by training (Item 4), and (6) an opportunity for professor/student discussion in courses (Item 8). Lowest priorities, beginning with the least desirable reason, were: (1) nothing else to do (Item 25), (2) couldn't find a job (Item 24), (3) to get away from home (Item 28), (4) parents wanted me to attend (Item 23), (5) my friends will go to the institution (Item 17), and (6) to earn more money (Item 26).

Underlying Dimensions of Students' Reasons

Factor analysis was selected to identify those factors which underlie the reasons academically gifted seniors select institutions of higher education. The intercorrelation matrix of 29 items was subjected to a principle components analysis followed by orthogonal rotation to the varimax criterion.

This factor analytic procedure has been recommended for exploratory factor analyses (Nunnally, 1978). The scree test (Cattell, 1966) identified five factors for rotation. Further, Nunnally (1978) recommended considering only strong factor structures, that is, factors with four or more loadings greater than .50. Factor V clearly did not meet this criterion and was eliminated from further consideration. The authors retained Factor III for interpretation because it so closely approached Nunnally's criterion of a strong factor structure. Only factor loadings of $\pm$ .33 were considered when interpreting factors. This criterion is based on Gorsuch's (1974) suggestion that the criterion for a significant ($p < .05$) factor loading should be determined by doubling the appropriate correlation and using that value as the minimum loading when interpreting factors.

Each of the four factor clusters of loadings was examined and factor names were assigned. Higher loadings were given greater importance in the determination of factor names. The four factors accounted for 42.9 percent of the total variance in the HEOI. These four factors indicated there were several underlying dimensions for the reasons seniors select an institution of higher education. Several strong factors were extracted. These are presented within Table 2. The mean scores of the items contributing to each factor were calculated. This indicates the relative priority given to the factor by seniors. Since the order of extraction is an indication of the importance of the factor, Factor I, the Academic Quality of the Institution, was the most important factor followed by Factor II, Special Institutional Features, and Factor III, Social Aspects of the Institution. Factor IV, Socioeconomic Forces, was the least important factor, and the mean rating of its items corroborated this finding.

Insert Table 2 about here

Factor I, "Academic Quality of the Institution", accounted for 20.6 percent of the total HEOI variance. This factor was defined by items loading on this factor. Table 3 presents the factor structure of 29 reasons for choice of an institution of higher education. These factor loadings include: (Item 4) Intellectual stimulation provided by training (.73); (Item 15) Opportunity for independent thought and action in education program (.69); (Item 5) Intellectual climate (.63); (Item 12) Freedom in choosing coursework (.61); and (Item 11) The voice you have in influencing policies and procedures affecting students (.60). An examination of all of the high loadings suggested that the gifted seniors were concerned with three areas of the academic quality of the institution: (1) instruction - which involves intellectual stimulation, competence of professors, quality of course instruction, and intellectual climate; (2) interaction - which involves work and study interaction with fellow students, professor/student discussion in courses, and having a voice in influencing policies and procedures affecting students; (3) independence of thought - which concerns independent thought and actions in an education program, and freedom in choosing course work. The factor structure is displayed in Table 3.

Insert Table 3 about here

Factor II, "Special Institutional Features", accounted for 9.4 percent of the total variance. The four high loading items on this factor were (Item 21) Institution close to home (.69), (Item 19) Amount of required

work in courses (.61), (Item 17) My friends will go to the institution (.54), and (Item 18) Degree of emphasis on grades (.53). These reasons as well as (Item 9) Expense of the institution (.45) will vary considerably among institutions. Hence, the name "Special Institutional Features" was adopted.

Factor III, "Social Aspects of the Institution", accounted for 6.7 percent of the HEOI variance. Two items with high loading were: (Item 2) Social life with fellow students (.77), and (Item 29) To meet new friends (.63). Five of the eight items with significant factor loadings also shared their variance with other factors. They were Item 8: Opportunity for professor/student discussion in courses and Item 13: Work and study interaction with fellow students share their variance between Factor I and II. Item 17: My friends will go to the institution has its variance shared between Factors II and III.

Factor IV, "Socioeconomic Forces", accounted for 6.3 percent of the variance in the HEOI. Although these reasons formed a factor, the mean of the items comprising this factor indicated the seniors considered this an unimportant factor. The four high loading reasons on this factor were: (Item 25) Nothing else to do (.77), (Item 24) Couldn't find a job (.66), (Item 26) To earn more money (.61), and (Item 28) To get away from home (.52). Since these high loading items posed topics of job, money, and home, this factor was labeled the "Socioeconomic Factor."

SUMMARY AND DISCUSSION

Several major findings have emerged from this study. One finding is that there is a substantial interest among academically gifted high school seniors in attending university-level classes. Seventy-three percent indicated they would attend an intensive college-level course if it were offered.

Another finding is that four factors accounted for the twenty-nine reasons posed to the students on the HEOI. Those factors in order of importance were: the Academic Quality of the Institution, Special Institutional Features, Social Aspects of the Institution, and Socioeconomic Forces. Factor II was labeled Special Institutional Features because it included items which would be special to each university. For example, those special features might be the expense of the institution and proximity of the institution to the student's home. Socioeconomic Forces were not rated as highly important by these gifted seniors. Although academic and social aspects of the institution might be expected to influence student decisions, these findings also suggest there are some aspects which are not easily controllable such as the specific features of the institution and socioeconomic aspects.

The third major finding is that the Academic Quality of the Institution includes three subareas:

1. Instruction - includes quality of instruction, professor competence, and intellectual stimulation.
2. Interaction - comprises interaction will fellow students, interaction with professors and interaction with policies which affect students.
3. Independence - includes an independence of thought in the education program and a freedom in selecting courses.

The results of this study provide important information for college and university administrators, recruiters, and high school counselors about the reasons academically gifted students select institutions of higher education.

Administrators and recruiters can use this information to design presentations to high school seniors in such a way as to make the institution of higher education most attractive. High school counselors can use this information to suggest institutions of higher education which appear to meet the most desired characteristics of the student.

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TABLE 1. Means and Standard Deviations of Items Ranked According to Priority[1]

Ranking	Description	N	M	SD
1	Quality of course instruction	164	5.68	.64
2	Training in your career interest	163	5.53	.80
3	Professional competence of instructors	165	5.51	.85
4	Overall training	162	5.35	.89
5	Intellectual stimulation provided by training	164	5.23	.86
6	Opportunity for professor/student discussion in courses	163	5.08	.98
7	Intellectual climate	163	4.89	1.03
8	Library facilities	165	4.79	1.04
9	Opportunity for independent thought and action in education program	163	4.74	1.00
10	Freedom in choosing course work	165	4.73	.97
11	To prepare myself for graduate or professional school	164	4.51	1.58
12	Work and study interaction with fellow students	165	4.48	1.08
13	Expense of the institution	164	4.37	1.31
14	Social life with fellow students	165	4.28	1.14
15	Amount of required work in course	164	4.22	1.06
16	Overall physical facilities	164	4.17	1.15

TABLE 1--Continued

Ranking	Description	N	M	SD
17	Degree of emphasis on grades	163	4.00	1.14
18	Prestige of institution	164	3.90	1.27
19	The voice you have in influencing policies and procedures affecting students	165	3.87	1.27
20	Academic performance of fellow students	165	3.85	1.15
21	To meet new friends	163	3.80	1.32
22	Institution close to home	165	3.53	1.61
23	Social interaction with your professors	162	3.32	1.30
24	To earn more money	163	3.02	1.81
25	My friends will go to the institution	164	2.82	1.40
26	Parents wanted me to attend	163	2.66	1.63
27	To get away from home	165	2.31	1.46
28	Couldn't find a job	165	1.64	1.13
29	Nothing else to do	165	1.39	.98

[1]The rating scale was: (1) very unimportant (2) somewhat unimportant (3) unimportant (4) important (5) somewhat important (6) very important.

TABLE 2. Factor Names Ranked by Priority

Factor	Name	Mean Score
I	Academic Quality of the Institution	4.64
II	Special Institutional Features	3.83
III	Social Life of the Institution	3.83
IV	Socioeconomic Forces	2.59

TABLE 3. Factor Structure of Reasons for Choice of Higher Educational Institutions for Total Sample (N = 145)

Reasons	Factor Loadings			
	I	II	III	IV
1. Over 1 training	.37	.05	.25	-.22
2. Social life with fellow students	.10	-.01	.77	.03
3. Professional competence of professors	.56	.05	.19	.01
4. Intellectual stimulation provided by training	.73	-.03	.02	.01
5. Intellectual climate	.63	-.06	.02	.02
6. Prestige of institution	.11	.05	.09	-.09
7. Quality of course instruction	.50	-.04	.09	-.04
8. Opportunity for professor/student discussion in courses	.58	.19	.47	-.18
9. Expense of the institution	.26	.45	-.05	.07
10. Library facilities	.59	.12	-.12	.15
11. The voice you have in influencing policies and procedures affecting students	.60	.17	.27	.19
12. Freedom in choosing course work	.61	.27	.07	.19
13. Work and study interaction with fellow students	.51	.17	.46	-.04
14. Overall physical facilities	.33	.02	.47	.11
15. Opportunity for independent thought and action in education program	.69	.01	.10	.09

TABLE 3--Continued

Reasons	Factor Loadings			
	I	II	III	IV
16. Academic performance of fellow students	.46	.13	.15	-.10
17. My friends will go to the institution	-.17	.54	.36	.18
18. Degree of emphasis on grades	.19	.53	.14	.09
19. Amount of required work in courses	.32	.61	-.02	.23
20. Training in your career interest	.29	.48	-.25	.11
21. Institution close to home	-.24	.69	.23	-.04
22. Social interaction with your professors	.30	.32	.37	.01
23. Parents wanted me to attend	-.35	.22	.35	.39
24. Couldn't find a job	.13	.21	.17	.66
25. Nothing else to do	-.06	-.02	.10	.77
26. To earn more money	-.01	.20	-.03	.61
27. To prepare myself for graduate or professional school	.28	-.01	-.02	.37
28. To get away from home	.17	-.47	.16	.52
29. To meet new friends	.09	-.00	.63	.21
Percent of variance	20.6	9.4	6.7	6.3

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