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THE EFFECTS OF A PRECOLLEGE PROGRAM ON THE CHOICES OF
HIGHER EDUCATION INSTITUTIONS BY ACADEMICALLY TALENTED
STUDENTS

The University of Arizona

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THE EFFECTS OF A PRECOLLEGE PROGRAM
ON THE CHOICES OF HIGHER EDUCATION
INSTITUTIONS BY ACADEMICALLY TALENTED STUDENTS

By

Margaret Atchison Douglas

A Dissertation Submitted to the Faculty of the
CENTER FOR THE STUDY OF HIGHER EDUCATION
In Partial Fulfillment of the Requirements
For the Degree of
DOCTOR OF PHILOSOPHY
In the Graduate College
THE UNIVERSITY OF ARIZONA

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THE UNIVERSITY OF ARIZONA
GRADUATE COLLEGE

As members of the Final Examination Committee, we certify that we have read
the dissertation prepared by Margaret Atchison Douglas
entitled The Effects of a Precollege Program on the Choices of
Higher Education Institutions by Academically Talented
Students

and recommend that it be accepted as fulfilling the dissertation requirement
for the Degree of Doctor of Philosophy.

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Final approval and acceptance of this dissertation is contingent upon the
candidate's submission of the final copy of the dissertation to the Graduate
College.

I hereby certify that I have read this dissertation prepared under my
direction and recommend that it be accepted as fulfilling the dissertation
requirement.

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SIGNED: Margaret Atchison Douglas

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ABSTRACT

With a dwindling college-age population and a need to attract academically talented students, postsecondary institutions search for factors that influence college choice. The educational plans of two comparable groups of high ability Arizona secondary students were examined and compared using the Higher Education Orientation Inventory and personal interviews. One group of students consisted of high school juniors who participated in the University of Arizona Precollege Program for Gifted and Talented Students in the summers of 1981 and 1982. The Comparison Group students were selected from a group of the top ten percent of Arizona high school juniors from those same years.

Factor analysis was utilized to answer major research questions about factors that affect a student's choice of a higher education institution. To examine the differences between the two groups, discriminant analysis was used. An open-ended question approach provided supplementary data from both groups.

The majority of both groups of students favored the choice of a four-year university. It was found that

students who participated in the University of Arizona Precollege Program rated that experience as more important in their institutional choice than did those students who did not attend this program. In a separate factor analysis, it was shown that the two groups appeared to differ on several choice factors. Only one pair of factors entitled "Academic Quality of the Institution" was found to be similar within the groups. Other important factors for both groups included "Social Components of the Institution", "Expenses and Financial Aid", and "Institutional Image".

The largest discriminant difference between the two groups was with reference to the institution's precollege program. This supported the finding that there was a significant mean difference on which students rated the importance of a precollege program in institutional selection.

The open-ended question approach indicated that important reasons for postsecondary choices were (1) location, reputation and size of the institution, (2) cost, and (3) program quality. Personal interviews emphasized the value of a precollege program in providing an introduction to college life and in building confidence about the forthcoming postsecondary experience.

CHAPTER 1

THE PROBLEM

Recent demands for higher academic standards should be of little concern to those applying for college this year; for them the low birth rate in 1966 will be nearly as significant as their board scores. The truth is that there are too many colleges and universities and too few people at traditional college age. The result is a classic buyer's market and both average and super students are benefitting (Williams, 1983, p. 69).

University and college administrators are faced with declining enrollments, dwindling fiscal resources and societal demands for public accountability (Kolevzon, 1981). To meet the goals of maintaining institutional quality and keeping overall enrollments up, there is increasing competition among institutions to attract the academically talented high school students. There is, however, a dearth of empirical evidence about the factors that influence the academically talented in their selection of colleges and universities.

Williams (1983) reported that this generation of students will place more effort on their search to find the institutions that best suit their needs. The colleges and universities have sought various forms of institutional

promotion; accelerated outreach activities, more high school visitations and college fairs, enlarged admissions staffs and rejuvenated alumni networks.

The biggest change in recruiting strategy is in using financial aid as an incentive. While only a few years ago most colleges distributed financial aid solely on the basis of need, some institutions have begun to aim their financial resources toward the academically talented students whether they need aid or not. In this way, colleges hope to attract good students and to build the overall quality of the student body.

Other financial incentives include academic scholarships provided by public institutions and easy payment options provided by some private institutions. Although many schools have thus far avoided the merit scholarship bidding, the entire question of financial aid appears to be moving away from awards based only on financial need.

In the light of the dwindling college-age population and the growing recognition of the academically talented student as one of our nation's greatest natural resources (Lyon, 1981), institutional recruitment competition comes into focus. What factors will have a strong influence in the high ability student's choice of a postsecondary institution? What are the implications with respect to recruitment efforts and special programs aimed at attracting these students?

According to the Final Report of the Carnegie Council on Policy Studies in Higher Education, Three Thousand Futures (1981), a large increase in higher education enrollments has occurred over the past three centuries. Increased enrollment began after the Civil War, again after the beginning of the land grant college movement, again after the G.I. Bill of Rights, and when the wave of students who were born following World War II entered college.

The next twenty years, however, will feature the prospect of declining enrollments with the concomitant demographic decline in numbers of young persons. The changing college population will consist of more women than men, more persons over age twenty-one, more part-time attendees, and more minority students. This is a new phenomenon in American history and it implies an even stronger institutional attention to the diversity of students and their needs.

They will be recruited more actively, admitted more readily, retained more assiduously, financed more adequately, taught more conscientiously, placed in jobs more consistently, and the curriculum will be more tailored to their tastes. . . it may seem more like high prosperity for the students. . . . This may well become their Golden Age (Final Report of the Carnegie Council on Policy Studies in Higher Education, 1981, p. 53).

The declining pool of students has become a concern for administrators in higher education. Now, perhaps no group will be receiving more attention than students who

historically have been sought after by colleges and universities--the students who demonstrate exceptional academic talent.

The decrease in entry rates of high ability students in four-year colleges has also been noted as one of the major findings of the National Longitudinal Study (NLS) 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:

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.

The Precollege Program

One program designed to attract academically talented students to an institution is the University of Arizona (UA) Precollege Program for Gifted and Talented Students. The UA Precollege Program, begun in the summer of 1981, is conducted during two regularly scheduled sessions of university summer school. The Program is administered through the College of Education. The staff includes the director, part-time graduate assistants, a secretary, and for the summer only, five University of

Arizona undergraduates who act as mentors to the UA Pre-college participants. The director's duties include program planning, student recruitment, secondary school/university public relations and UA Precollege student advising. The majority of participants are students who will enter their high school senior year with a high grade point average.

The goals of the UA Precollege Program for high school students are:

1. To give UA Precollege students accelerated academic learning in university-level courses.
2. To provide a variety of enrichment activities in the arts, sciences, and humanities.
3. To give UA Precollege students the opportunity to learn in a university environment in which they can interact with undergraduate students and faculty members.
4. To provide a supportive and personalized learning environment in which students may receive individualized guidance during their academic studies.

The UA Precollege Program has five main components: (1) an Academic component, (2) an Enrichment component, (3) a Guidance component, (4) a Social component, and (5) a Regularized Status Passage component.

Academic Component

High school students in the UA Precollege Program enroll in university-level courses and earn college credit. They may register for a maximum of six units per session in one or two courses such as anthropology, history, mathematics, biology, microbiology, geosciences, philosophy, political science, computer science, English, Italian, French, Spanish, economics, psychology, and courses in the Fine Arts. Students receive library research training, and are introduced to and have access to all the facilities of a large university: the main library, a science and humanities library, and museums.

Enrichment Component

Students attend formal and informal lectures at the Microcomputer Center, the Biomedical Communications Center, the School of Music, the College of Medicine, the College of Nursing, the Center for Creative Photography, the Kitt Peak National Observatory, and the Flandrau Planetarium. Students also attend drama and music classes and programs in the College of Fine Arts.

Guidance Component

Students meet with various professors, academic counselors, and Precollege staff in a personalized, supportive learning environment. Counselors keep in daily contact with students. Professors are contacted by the Director of the Precollege Program who encourages them to monitor students' progress and report ways that the students can be assisted. Students attend career exploration seminars, study-skills training and time management lectures. The University library staff provides small group library orientation. Students may live on campus or commute daily. Those who live on campus are in close contact with undergraduate program counselors.

Social Component

Several social activities are planned to foster student interaction and a sense of camaraderie. The following are some of the activities which have occurred in the past programs: picnics, sports events, dances, movies. Students participate in planning the activities.

Regularized Status Passage (Strauss, 1959) Component

The fifth aspect of the UA Precollege Program is a combination of the first four components. It is designed, through a mentoring process, to facilitate the student's transition from high school to postsecondary education.

Purpose

The purpose of this study is two-fold. First, its purpose is to compare the postsecondary decisions of the UA Precollege Program students with a Comparison Group and the relationship of their decisions to financial, geographic, and demographic variables. The study will also attempt to ascertain the relative success of the UA Precollege Program in attracting high ability students to the University of Arizona.

Research Questions

The following questions provide the structure for the study:

1. To what extent do the participants in the UA Precollege Program and the Comparison Group enroll in a university, college, or other type of postsecondary program after leaving high school?
2. Does the UA Precollege Program affect the decisions of its participants in their choices of postsecondary institutions?
3. What are the influential factors that UA Precollege students and the Comparison Group cite for selecting a specific higher education institution?

4. Are there differences among the factors that influence postsecondary choices of the students in the UA Precollege and Comparison Groups?
5. How do these two groups compare on the following factors: sex, ethnicity, location of student's home, importance of the receipt of financial aid, and grade point average?

Significance of the Study

Borgen (1970) stated that life's decisions are made by a complex sorting process influenced by other persons, one's innate abilities, and past experiences. If more can be known about what strong factors emerge to shape postsecondary decisions of academically talented students, this would provide useful information to college and university administrators.

The transition from high school to a postsecondary institution can be set into the conceptual framework of a regularized status passage as described by Strauss (1959). The passages include the generally recognized major institutionalized steps for a human being--the change from elementary school to high school, from high school to college. from single to married status, from job to job, from work

to retirement. A person's membership in any social structure involves passage from status to status and it gives continuity to one's personal experiences.

Strauss (1959) reported that if a passage is regularized, one can expect to have certain experiences and meet certain standards of conduct along the way. The more subtle aspects of preparation include the forewarning that certain things will happen and that predecessors will stand ready with interpretations of predicted events. Coaches and predecessors give essential guidance along the way. If there is little support and much conflict, the regulated chain of progression of status is threatened.

One of the underlying notions of successful regularized status passage is that personal stability lies in proper preparation for the sequential steps of the status passage. In this case, the transition from-high-school-to-college-passage, the UA Precollege Program experience can be seen as a positive, supportive function in preparation for the full-time college experience. Because of that, it may also be a significant recruiting vehicle for the sponsoring institution. Exploring the relationship between highly able students who attend the UA Precollege Program and those in the Comparison Group who do not have the Precollege experience may help gain a better understanding of

whether or not this program is a valuable tool in the transition process and whether or not it has any impact on their choice of institutions.

The significance of this study is that it could provide important information to college and university recruitment personnel about the many factors that influence high ability students as they determine which higher education institutions to attend. This information may indicate to colleges and universities that new program and recruitment strategies are needed.

The study will utilize recent data, thereby providing a contemporary examination that reflects the current mood of the academically talented students in their choices of postsecondary institutions.

Assumptions

For the purposes of the study, the following conditions were assumed:

1. Responses to the questionnaire to past Precollege Program participants and to the Comparison Group will represent the opinions of the respondents.
2. The students listed in the Comparison Group were representative of the top ten percent of Arizona high school

juniors in 1981 and 1982 according to the definition posed by the University of Arizona Office of Recruitment.

3. The survey of UA Precollege Program participants and the Comparison Group will elicit an adequate response.
4. The adaptation of the Feild and Giles (1980) instrument (Higher Education Orientation Inventory) with additional items adapted from College Plans of Maryland National Merit and National Achievement Semifinalist Survey (1982) will reflect factors inherent in choices of postsecondary institutions for both groups.
5. The Precollege Program students and the Comparison Group are a representative sample of academically talented students.
6. The transition from high school to college is a critical status passage. Understanding factors that facilitate

or depress that transition will help determine what affects postsecondary choices.

Limitations

The study would be limited by the following:

1. The study would only include data from the students who participated in the 1981 and 1982 groups of UA Precollege Program and a Comparison Group from the top ten percent of Arizona high school juniors from those same years.
2. There will be a percentage of non-response to the questionnaires, thus potentially biasing results.
3. The study is limited to the variables chosen.
4. The study is limited to the questions asked by the Higher Education Orientation Inventory (HEOI).
5. A small subgroup of 25 UA Precollege participants will respond to a structured personal interview. The information provided for this segment of the study is intended to add important qualitative

data. Because of the size of the sub-sample, it may not lend itself to statistical treatment.

Definition of Terms

University of Arizona Precollege Program for Gifted and Talented Students (UA Precollege Program) refers to the summer program for high ability and motivated secondary students who enroll in university-level academic courses and receive college credit. Provisions of the program include an enrichment, a guidance, an academic, and a social as well as a regularized status passage component.

UA Precollege Program participant refers to a secondary student who meets the following criteria: (1) will be entering high school senior year at the end of the summer of participation, (2) exhibits a cumulative grade point average of at least 3.25 on a 4.0 scale (4.0 = A), and (3) provides two positive recommendations from secondary school teachers, counselors, or administrators.

Comparison Group refers to a selected sample of the top ten percent of Arizona high school juniors selected by high school counselors for the University of Arizona Office of Recruitment in 1981-1982. Students were chosen after six high school semesters on the basis of a cumulative grade point average ranging from 3.0 - 4.0 on a 4.0 scale

(4.0 = A). A comparison of grade point averages for both groups is discussed in Chapter 4.

Academically able/talented/gifted students refers to those students who met the criteria for the UA Precollege Program or the Comparison Group.

Higher Education Orientation Inventory (HEOI) refers to the instrument developed for the study. Most items were adapted from the Graduate Student Satisfaction Questionnaire, which was developed by Feild and Giles (1980) to measure student satisfaction with graduate education. Additional items, more applicable to the UA Precollege students and the Comparison Group, were included in the questionnaire.

Postsecondary plans are determined by questionnaire items which indicate the next level of education that students plan to pursue after finishing high school: two- or four-year college or university, vocational, or technical institutions.

CHAPTER 2

REVIEW OF THE LITERATURE

Introduction

There is an extensive body of research on adolescent postsecondary educational aspirations. Research is sparse, however, on postsecondary institutional choices of academically talented students.

The review will begin with a brief discussion of studies that describe postsecondary choices of students. The second section will begin with the clarification of terminology identifying high ability students and will proceed to relevant studies about postsecondary choices of high ability students. Next, the chapter will outline some studies which concentrate on why some able students do not choose to attend college. The fourth section describes the emergence of college and university precollege programs that have the residual effect of recruitment of those students by the sponsoring institution. The final section deals with information that supports the theoretical framework of the status passage process inherent in the life of every student who attends high school and proceeds to a college or university.

Literature is replete with studies of the academic and social characteristics that combine to form the educational aspirations of our nation's youth (Meyer, 1970; Freeberg and Rock, 1975; Kominski, 1981). In the last twenty-five years, two notable large scale surveys were conducted for sequential observation of current generations of young people and what forces affect their development. Project Talent was called a monumental, pioneering and definitive study of a large representative sample of American adolescents. It was a large scale, long-range educational research study of more than 440,000 students from 1,353 secondary schools (Flanagan, 1964). A cooperative effort of the Office of Education, the National Institute of Health and the National Science Foundation, the major goal of this study was to take a census of human talent available and discover how students could employ their talents to benefit themselves and society. The original study conducted at the University of Pittsburgh in 1960 was to be followed by a series of studies planned one, five, ten, and twenty years after participants graduated from high school. Information collected from students was intended to provide key answers to some of the nation's educational problems, manpower needs, and to improve guidance procedures for

college and career choices. No recent follow-study results are available.

A more recent longitudinal study is the National Longitudinal Study of the Class of 1972 (NLS). The study, a project of the National Center For Education Statistics of the U.S. Department of Health, Education and Welfare, tracked the educational progress of a national probability sample of over 23,000 young people (Davis and Levinsohn, 1979). There were three subsequent follow-ups in the fall of 1973, 1974, and 1976. A fourth follow-up was completed in 1980 (Taylor, Stafford, and Place, 1981). The information was provided to the research community interested in studying various aspects of human development in post-high school years.

Taylor, Stafford, and Place (1981) categorized the major findings of the NLS. The categories were (1) student characteristics and high school experience, (2) access to postsecondary education, (3) performance in college, (4) labor force participation, (5) personal, career, and psychological development, and (6) methodological studies.

The content of the instruments was intended to supply policymakers and researchers information about post-secondary educational/occupational demands. Responses were to provide understandings of decision points that affect life patterns, persistence of earlier plans, change

in plans, characteristics of students making those occupational choices, impact of high school experience, and patterns of postsecondary institution attendance (including transfer and drop-out patterns). Insight into the relative importance of factors which affect transitions in student lives can be traced from NLS data (Davis and Levinsohn, 1979).

Much data have been supplied from these large surveys and other studies which reflect the interest of social scientists in the academic and social characteristics that combine to form educational plans of our nation's youth. Many studies centered on access to postsecondary education (Bailey and Collins, 1977; Thomas, Alexander, and Eckland, 1979; Burkheimer, Jaffe, and Peng, 1980). Some studies focus on race and sex variations which affect postsecondary plans (Watley, 1971; Gordon, 1972; Alexander and Eckland, 1974; Portes and Wilson, 1976; Howell and Frese, 1979; Dawkins, 1980). Further influential issues in the area of postsecondary options were explored in studies that follow.

Influences on Postsecondary Choices

Sociologists and economists have conducted much of the research on the process of postsecondary choice. In general categories they identify four forces that affect that choice: (1) a student's desire to attain a certain

social status, (2) a student's socioeconomic status, (3) a student's belief that higher education is a good way to spend one's time, and (4) a student's desire to make a wise investment for the future (Jackson, 1978).

Both sociologists and economists recognized that student decisions interact with availability of institutions, academic ability and family resources (Peng and Dunteman, 1975; Riccobono, Bailey, and Dunteman, 1976). Living in a better neighborhood (Sewell, 1964), attending a better school (Nelson, 1972; Eckland, 1979, and Thornton and Eckland, 1980), being academically able (Sewell and Shah, 1967) and the influence of parental and peer pressure to attend college (Duncan, Haller, and Portes, 1968) were noted as strong forces in choice and attainment of higher education.

Further studies indicated diversity in understanding postsecondary student choice. Christensen, Melder, and Weisbrod (1975) postulated that the strongest influences on college choice were student ability, cost of attendance, and socioeconomic status of parents. The first and latter factors were found to be of greater importance than the cost of attendance.

Social and economic variables such as family status, academic ability, cost of attendance, admissions criteria, ability to pay, and college location were considered in the

Anderson, Bowman, and Tinto (1972) study. It was concluded that accessibility was not nearly so important in the decision to matriculate as were family background and native ability.

In a psychosociological study of 10,000 high school graduates (Trent and Medsker, 1968), results indicated that college attendance was related to ability, socioeconomic status, and educational opportunities available. Other independently associated factors that impacted the decision process were students who perceived their parents as emotionally supportive, felt that education itself was worthwhile, and had the personal disposition and motivation which had been instilled early in life.

Hopkins (1974) posited the key element in educational attainment was family background. Hopkins concluded that college-bound individuals were less likely to enroll in public higher education institutions if private ones were more geographically accessible, parents had not gone to college, public tuition was higher, and parents earned over \$10,000 a year. Individuals, on the other hand, were less likely to enroll in private institutions of higher education if the private institutions were less geographically accessible and parents earned less than \$10,000 a year.

Mixtures of financial aid and low tuition have been viewed increasingly as a means of equalizing choice

among institutions of higher education (Jackson and Weatherby, 1975). Cohn and Morgan (1978) reported that most studies show that the higher the cost, the lower the propensity was to enroll in institutions of higher education. In terms of financial aid, Jackson (1978) found the receipt of aid (not the amount) impacts the decision on which institution to attend. The impact of student aid on enhancing enrollment in higher education was examined by Leslie, Johnson, and Carlson (1977) in a survey of northeastern high school seniors. The authors reached the conclusion that relevant motivating factors in the college attendance decision were economic rather than environmental. Students viewed college as an economic investment. Family income was not significant in the enrollment process in this study. The high school curriculum, grade point average, education and occupation of parents were positively correlated with the decision to attend. The authors showed that a significant proportion of low and middle income students cite financial difficulties as a reason for non-attendance. Aid programs, the authors concluded, have been successful in enhancing postsecondary choices for low income students. Tierney (1980) found that financial aid variables added 7 to 22 percent to the explanation of college choice with the largest additions being for low income students. Jackson (1978) reported that the dynamic

postsecondary decision process involved most of the following factors in moving a student toward a particular option. First, there was the student's hometown, followed by family income and education, quality of high school, peer group influence, occupational goals, and characteristics of the school to which he or she aspired. The decision process interacts with the availability of appropriate institutions with academic ability, and with family resources. The complexity of the postsecondary education choice process for all students was well documented. The research was limited on what, if any, specific factors made a difference in the decision process of academically talented students.

Definitions of Academically Talented Students

A short discussion of terminology is warranted before beginning the section of the review concerning studies that focus on the high ability student. Generally, in past research, the terms used to describe academically talented students have lacked consistency. Astin (1965) categorized the very able students as those who achieve Semi-finalist or Commended status in the National Merit Scholarship Qualifying Test (NMQT) given by the National Merit Scholarship Corporation to a large number of high school juniors throughout the country each year. Stockard, Webster, and Henson (1979) described the talented Black high school

student as one who has a high academic grade point average, expects to graduate with honors, and has plans to pursue an advanced degree. "Bright Blacks" were explained by Watley (1971) as those Black students who achieved NMSQT selection scores in the top quartile of their own distribution of scores or those who obtained a B+ to A average in school.

Burkheimer, Jaffe, and Peng (1981) described the highly able student as one who scored in the upper quartile of the test devised especially for those students who participated in the National Longitudinal Study of the High School Class of 1972. Campion (1981) described able students as those who qualify for a challenging academic program experience because they have demonstrated good academic performance and are recommended by their teachers as having recognizable ability. Douglas, Powers, and Choroszy (1983) defined the academically talented high school senior as one who scored above the 90th percentile on at least two or three sub-areas of the California Achievement Test, Form C, Level 18.

Alvino (1983) posited a unique description of the able and gifted student. The description stems from the philosophical premise of existentialism in which the student should be recognized for what he or she did that

appeared unique, hence performance data takes precedence over other methods in identifying exceptionality.

Finally, Laycock (1979) quoted Havinghurst's sweeping definition of the gifted, talented, or able student as "one who shows consistently remarkable performance in any worthwhile line of endeavor" (p. 10).

The term "gifted" is sometimes related to those persons of exceptionally high intelligence or those who have notable artistic ability. It can be said, however, that the term is also used to denote those students who demonstrate above average academic ability. The reader of the following review should be aware of the different definitions employed for the terms "academically able", "academically talented", "very able", "able", "highly able", "exceptionally able", "talented", or "gifted" student.

The Choices of Postsecondary Institutions
By High Ability Students

The publication, College Plans of Maryland National Merit and National Achievement Semifinalists (1982) outlined the plans of 184 high school seniors. The study concluded that a majority of semifinalists (58 percent) planned to enroll in a private college outside Maryland. An additional 18 percent chose to enroll in an out-of-state, public institution. Sixteen percent

chose a public college or university in that state, while private institutions in the state were chosen by seven percent of the semifinalists. The reasons cited as influencing college choice by the greatest number of semifinalists were the school's reputation, quality of program in intended major, and contacts by the institution. Low tuition costs appeared to be most instrumental in attracting students to Maryland public colleges. Almost 90 percent of the respondents indicated they had been actively recruited by at least one public state institution, but these contacts were not as influential as contacts with other types of institutions. For those students who had decided on a particular major, 39 percent planned to pursue engineering, 12 percent biological sciences, 11 percent computer science, and 10 percent the physical sciences.

In a survey of choices of higher education institutions among 165 academically gifted high school seniors (Douglas, Powers, and Choroszy, 1983), respondents rated the quality of course instruction as their top priority. Other reasons were career interest, professional competence of professors, overall training, intellectual stimulation provided by training and opportunity for professor-student discussion in courses. Lowest priorities beginning with the least desirable reason were: (1) nothing else to do,

(2) couldn't find a job, (3) to get away from home, (4) parents wanted me to attend, (5) my friends will go to the institution, and (6) to earn more money (p. 542). In questions regarding the influence of precollege programs on academically gifted seniors, 84 percent responded that earning college credit before high school graduation was valuable to them. A total of 73 percent indicated that they would attend an intensive college course if it were offered. Fifty-nine percent responded that they would have attended a summer university program designed to introduce them to college life. An overall strong interest in attending precollege programs with intensive college-level courses was clearly indicated.

Astin (1965) conducted a study of the top two or three percent of this nation's academically able high school juniors. Measures of popularity and estimated selectivity were obtained for each college. "Popularity" was defined as the total number of students who named a college as first or second choice. "Estimated Selectivity" was computed by expressing the total number of students naming the college as a proportion of the number of freshman admitted. At that time, the most popular type of institution among the exceptionally able was the university. Liberal arts colleges and teacher's colleges were the least popular types. The very able student was likely to prefer

institutions that emphasized the humanities, social sciences, science, business, technology, and engineering. There was a relatively weak emphasis on education and applied social science. Estimated Selectivity was highly rated to the per student operating budget (expenditure) of the institution.

Blumenfeld (1968), in a study of 938 Black finalists of the 1966 National Achievement Scholarship program, found that preference for a predominantly Negro college was infrequent (14 percent). The predominant Negro colleges most frequently chosen were concentrated in prestigious institutions in the Southeast. Predominantly white colleges chosen by able Negro students were concentrated in prestigious schools in the Northeast. Selection of a predominantly Negro college was highly related to being female, being from the South, and having a lower composite standard score on the National Merit Qualifying Test.

Borgen (1970) studied college plans of 1,744 outstanding Black high school students who reached the Commended stage of competition in the First National Achievement Scholarship program in 1966. Information was classified into five groups representing the type of four-year college each had chosen: predominantly Negro-public, predominantly Negro-private, largely white college-low selectivity, largely white college-moderate selectivity,

largely white college-high selectivity. Findings indicated that public Negro colleges enrolled the most economically and educationally disadvantaged students and entrants to highly selective white colleges tended to come from the most advantaged family and educational backgrounds.

Watley (1971) studied the career and educational plans of college-motivated, high ability Black youth. Plans of the subjects, when they took the NMSQT as eleventh graders, were compared with plans indicated on a questionnaire administered two and one-half years later. Although Watley received a limited response, tentative conclusions were made. The students changed their career plans considerably in the span of time between the two questionnaires. Popularity of some career fields and the choice of some of the educational majors was related to income of their parents. More Blacks with parents making a relatively high income had plans to earn a doctorate than did those Blacks whose parents earned less. Doctorate plans of Black women who scored in the upper quartile were not related to parents' income. Black women from high income families appeared more likely to plan for a doctorate if they had B+ to A high school academic averages. Those Black women from low income families were more likely to plan for a doctorate if they had a high test score.

From the perspective of the historically Black college, the exodus of talented Black students is viewed with concern in a study by Stockard, Webster, and Henson (1979). This study included a pool of able Black students who made postsecondary choices (predominantly white or predominantly Black institutions) over the period of 1970-1978. The authors found that, in increasing numbers, talented Black students were enrolling in predominantly white colleges, favoring them over predominantly Black institutions. Further research was suggested to determine how Black colleges may attract talented Black students, and how they may strengthen their honors programs. Research was also recommended on how these colleges may expand educational opportunities by attracting more monies from outside sources.

The critical nature of the minority student transition from high school to postsecondary education was noted by Saufley, Cowan, and Blake (1983). It must be recognized that minority students, including those with high ability occupy an exceptionally precarious position at predominantly white universities. Coming to academia from the ghetto or barrio to an alien environment that their families and peers have not experienced results in an urgent awareness of academic deficiencies. The minority students experience negative self-images, sometimes feel

guilty for leaving families, and have a deeply internalized feeling that they do not belong there and are destined to failure. Upon arrival, doubts are reinforced by isolation, non-acceptance, inadequate preparation, and bureaucratic tangles all combining to fulfill a personal prophecy of failure (pp. 4-5). The minority student who enters the classroom with many internal pressures is often confronted by the traditional student who seems to be articulate and able to manage well. The apparent contrast heightens feelings of negativity and threatens the individual ability to succeed at the university. The common response is overwhelming fear. Given all the inner trauma and inordinate pressures, it is clear these students need help. These students suffer another kind of problem--alienation from their home ties. While the student's previous social fabric of support and comfort is discarded, it may not be replaced at the university with adequate support systems (p. 13). The authors emphasized the need for a strong institutional commitment to help these students see the university as a primary way of arming themselves for a lifelong social struggle.

Highly Able Students Who Do Not Attend College

Sometime ago, researchers began to show interest in why some able high school graduates do not choose to go to

college (Barber, 1959) and the concern about the resulting talent loss to the nation. In the Barber study, lack of finances was the reason most frequently cited. That reason was followed by lack of academic interest, lack of college requirements and preference for work experience. Practical interests were subordinate to academic interests and college was seen as four years of denial and deferment, of postponement of marriage, lack of emancipation from parental control, hindering the beginning of a vocation, and postponed achievement of financial independence (p. 96). Barber admonished those who are interested in the preservation of our society to assume their responsibility of finding and training gifted students. The students should be provided with motivational counseling. School administrators should maintain early contact with parents and pupils, urging them to overcome their economic barriers to higher education.

A National Longitudinal Study Sponsored Report (Burkheimer, Jaffe, and Peng, 1981) focused on students who were in the top ability quartile of their graduating class and who were not in college four and one-half years later. More than one in five of these students did not attend college. Talent loss was also noted here on an individual and national level. Five constructs were considered: background factors, high school grade point

average, educational expectations, life value, and early marriage. All of these together accounted for only about one-third of the variations in college attendance of high ability students. Low educational expectation was the strongest unique predictor of college non-entry among high ability students. Early marriage was also strongly related to not attending college, and the effect was twice as large for the highly able as for other ability levels. A non-academic high school program was a strong predictor of college non-entry for middle and low ability students but did not have an effect on the highly able. When other variables were controlled, highly able males were less likely to attend college than females.

Freeman and Holloman (1975) reported that in response to the dearth of economic opportunities for college graduates, there has been a decline in the proportion of young men of all abilities who choose to enroll in college. The most notable decline has been in lower middle class families, although it appears in all social strata. Two exceptions to the decline were enrollment increases among Blacks and persons aged 30-34 or over age 35. The study predicted that the job market would improve in the early eighties when the total number of college trained workers relative to the labor force reached an approximate equilibrium. Young people will be deterred

from enrolling by bad job prospects. If talented young people are deterred from college enrollment because of poor job prospects, programs should be made available to change student attitudes toward education, programs that link preparation of students for vocations with more humanistic educational opportunities.

Established and Emerging
Programs to Meet the Needs of High Ability Students

It has been shown that visits to university classes by superior students do not provide accurate concepts of the complexities of life. Visits by superior students also do not equip them to decide on appropriate higher education for themselves (Atkinson, Peterson, and Sanborn, 1971). This study, in any case, supported the college class visitation program even though it may fail to reach the intended goals (i.e., common and positive views of the institution). Further, the authors suggested that for the purpose of guidance, an appropriate college information program need not be aimed at promoting favorable views of the college. Rather, it should provide each student with the knowledge of what to expect should he or she attend that college. Since large institutions are characterized as oversized and impersonal, an information program can help break down this stereotype. An information program should allow individuals to observe institutional

features that are of the most interest to them personally. The adequate informal program provides as much time on campus as possible in situations that approximate reality.

A program to enable selected, talented youth to finish college in a shorter time was initiated by St. Louis University and six area high schools (McGannon, 1968). Shortening actual time in elementary and high school, it also allowed gifted students to take up to 25 college credits while still attending high school. These credits would be held in escrow by the university, thereby shortening the length of attendance there.

In a survey of mid-America junior colleges that provide academic credit course work for superior high school students, Parker (1970) found that five states reported such enrollments. The two states having the largest number of responding public junior colleges were Kansas and Iowa. The data indicated the importance and positive effects of high school-junior college opportunities for early college exposure.

The Twin City Institute for Talented Youth was a summer school academic and social experience for specially talented secondary students of Minneapolis-St. Paul, Minnesota schools. Begun in 1971 on the campus of Macalester College, it was designed to create a special experience cutting across student interests, group

identification, idea exploration, and traditional school curriculum. Emphasis was placed on both cognitive and creative talents in an atmosphere of freedom. Students and teachers took joint responsibility in the learning process. The purpose also was to help students prepare for the forthcoming full-time college experience. Students' evaluations of the project indicated their appreciation of class emphasis on higher level thought processes (analysis and synthesis) rather than lower level thought processes (memory and interpretation). Students valued the personal independence they were allowed. They also valued the divergent activities which were provided. The majority of faculty members evaluated themselves as successful providers of intellectual challenge to these young potential leaders (Stake and Gjerde, 1975).

Laycock (1979) posited that acceleration is a way to meet the needs of the able student. Students who have met high school requirements before their four-year term ends should move on to higher education. An example of a radical acceleration process has been practiced by Stanley and his colleagues at Johns Hopkins University. Mathematically precocious seventh and eighth grade students are sometimes moved into full-time university study.

The majority of bright students, however, do not enter college early. Many take college-level work in high school through the Advanced Placement (AP) Program (Cornog, 1980) which began as an experiment in secondary school-college cooperation. The AP Program is now accessible in many high schools in America. Students who do well on AP examinations enter college with credit already earned.

Laycock (1979) reported that large universities offer great advantages to high ability students. There is a possibility of credit by examination and flexibility in study schedules. There is more opportunity to shift majors and less opposition to acceleration. The author described another recent innovation in a two-stage effort for students of non-college ethnic or economic backgrounds. The first stage is encouragement of potential students while they are still in high school. The second stage is seeing that the students succeed once they attend college. The summer between high school and college is often the time when specialized programs help bright students with poor training show impressive growth and build self-confidence. Various support techniques are worked out: academic clinics, peer group help, sympathetic faculty advising, and careful placement services. Many bright students, without this support, fall into the dropout category.

Concurrent high school-college enrollment programs are not new. Such programs, especially designed for the talented high school student, are growing in community colleges. Campion (1981) reported on a program that takes college-level courses to the high school campus. Student eligibility depends upon post-high school academic performance, faculty recommendation, and parental permission. Faculty members are specially selected and administrative details are kept at a minimum. Benefits of the program include the development of a closer relationship between the high schools and colleges, and broader academic options for the high school students.

Emphasis on Excellence (1980, p. 3), a Miami-Dade College Report, described a comprehensive effort that was initiated in 1979 to encourage high ability students. The program goals included encouraging bright young men and women to remain in the south Florida area, developing a highly motivated group of students who would have a positive effect on the whole student population, creating academic challenges for faculty members, addressing the continuing need for high quality programs during the first two years of college, and providing a broader scope of educational activities for the general community.

As a component of the Emphasis on Excellence Program, Miami-Dade offers a Summer Program for the Gifted

and Talented. Two hundred students participate in a six-week academic enrichment program. Another component of this program is the High School Achievement financial awards presented to outstanding Dade County high school seniors who earn an associate degree at Miami-Dade. These able, highly motivated students are made members of the College Honors Program and are invited to the Distinguished Visiting Professor series as well as other special cultural events. The Miami-Dade Community College system in Florida also has had a dual high school-college enrollment system for some time. A newly initiated program is the Performing and Visual Arts Center (PAVAC). High school students with special talents in the arts spend fifteen hours per week on Miami-Dade campuses working with faculty members to develop their skills.

Dallas (1982) reported on programs that are being developed in community colleges across the nation to facilitate the transition between secondary and post-secondary education and to attract high ability students. Various programs include scholarships for achievers, honors programs, credit for college-level courses taught in high schools, and special summer programs on the college campus. At John Wood Community College, Quincy, Illinois, for instance, the High School Escrow Program enables qualified high school seniors to accumulate college credit

by combining appropriate high school and college course work. The Los Angeles Community Colleges are offering college courses on high school campuses. The City Colleges of Chicago administer a College Acceleration Program (CAP) for more than 1,700 recommended high school seniors at 48 area high schools. These students take regular college courses from instructors who go to high schools to teach before and after regular school hours.

A notable example of a high school program developed with an individual institution of higher education is the Syracuse University Project Advance (Galambos, 1982). In an effort to serve talented students, this project was initiated by high school faculty. Participants included 4,000 high school seniors in 77 high schools in New York, New Jersey, Massachusetts, and Michigan enrolled in freshman college courses in their high schools. High school teachers were trained by Syracuse University to teach the courses. There is constant interaction between the high school teachers.

Farnsworth (1981-1982) described a community college effort called "Horizons" which was designed to provide opportunities for students in intellectual growth beyond the challenges of their regular curriculum. The addition of field trips, symposiums, and a student-faculty mentor component filled a void noted previously by talented

students. Success of the program could be measured by the fact that the traditional between semester enrollment drop that averaged close to twenty percent, averaged only four percent after the institution of the "Horizons" opportunity.

The objective of a study conducted by Ferriot (1979) was to provide planning information for recruitment of high school honor students. From a higher education administrator's viewpoint, she stated:

Most of us are suffering from a paucity of honor students in our institutions and hear regularly from our faculties reminiscences over the golden age of academe when students were serious and 'ever so much brighter than now.' (p. 1)

The study further described a recruitment program which the university had considered a very successful recruiting instrument. It was a summer program for gifted students who attended regular classes and received college credit. Social activities were included to build group camaraderie and to instill a positive image of the institution.

These incoming students were polled as to planned area of study. The students' first choice was in the field of science. The least chosen field was business. When students attended full time, the reverse preference occurred. The highest number of honor students were business majors. It was recommended that the areas of art, social

sciences and humanities must mount aggressive recruiting efforts to get a share of these top students.

Summer courses, institutes, and seminars open to bright high school students in various disciplines are increasing at colleges and universities all over the United States (Galambos, 1982; Feldhusen, 1983). Feldhusen (1983) described the need that talented students have for exposure to many varieties of instructors, mentors, and role models. Colleges and universities can play a major part in development of these students because of their unique collection of potential resources in faculty, library, and laboratories. Such needs are met, for instance, through the Purdue College Credit Program (PCCP) where high school students take freshman or sophomore level courses that are accelerated, challenging, and have high instructional quality.

The High School-to-College Transition Process

A person's life can be seen as a series of transitions. Buhler (1968) saw life as a changing course of events, attitudes, and accomplishments, an orderly progression of phases. Each phase or transition contains a number of concrete happenings (graduations, jobs, marriage, births of children). Sheehy (1974) calls these life's "marker events".

Between the ages of 15 and 23, the marker events of high school graduation, possible entrance into college and choice of career goals are of paramount importance in the preparation process for the transitions that occur in later years. Educators, sociologists, and psychologists have postulated that these years are, in many respects, the most crucial time in a person's life. The task of this phase of life is developing a coherent sense of self (Erikson, 1968). It is the phase of entering the adult world (Levinson, 1978). It involves searching for a place (Bridges, 1980).

During the passage from high school to college, four areas of perception change. The interior self is modified in relationship to others. The proportion of understanding safety to danger changes markedly. One's perception of time and its relation to ensuing years of life undergoes rapid alteration. Feelings of aliveness and stagnation come in new and different ways. All these hazy sensations compose the background of living and shape the decisions on which one takes action during these crucial years. Each step requires letting go of the techniques that worked before and adding some new ways of coping with life. With each passage some magic and some illusion of safety are given up. The comfortable familiar sense of self must be cast off to allow for expansion of distinctiveness (Sheehy, 1974).

Adolescence was seen as a period of dynamic and vital growth (Gould, 1972), followed by early adulthood (age 18-22) when students are halfway out of the family. These young adults are especially supportive of each other in peer groups and recreate, in some instances, the family they are leaving. The peer group is their ally to help them out of the family, but also becomes a new threat that endangers the authenticity of their own beliefs (p. 37) by imposing group beliefs as essential for membership. Great institutional support in school processes helps get successfully past this stage, an arena where one can safely test group and individual beliefs and move on toward the next stage in life without disastrous results.

Levinson (1978) cited the need for a developmental approach to pre-adult years so that we can discern an underlying order of a person's movement through those years. There are four major stages of life including a transition period between each that links the eras and provides continuity to the developmental process.

The stage of early adulthood as described by Levinson (1978) begins at age 17 and ends approximately at age 22. It begins with the transition period that provides the bridge from adolescence to adulthood. It is a crucial turning point in the life cycle. The person in transition is making the choices through which initial

membership is established in the adult world (p. 21). The primary tasks of this and every transitional period are to question and reappraise the existing structure, to explore various possibilities for change in self and world, and to move toward commitment to the crucial choices that form the basis for a new life structure in the ensuing period.

The Early Adult Transition period itself presents two major tasks. One task is to terminate the adolescent life structure. Numerous separations, losses, and transformations are required. The second task is to take a preliminary step into the adult world, to explore its possibilities, to participate in it, to make and test some tentative choices before fully entering it. The first task involves a process of termination, the second a process of initiation. Both are essential in a transitional period. The person is creating a basis for an adult life without being fully within it (p. 75). It is a cross-era shift into adulthood.

The transition period during which a youth moves from high school to college is a particularly crucial one. Strauss (1959) emphasized the importance of "regularizing" such a passage. When movement through a passage is regularized, it means that one learns what standards of conduct or performance are expected in the forthcoming life experience. Preparation includes interaction with

persons who have had the experience. Those persons are mentors and teachers who can interpret predicted events. If conflicting rationales in steps along the passageway lead to definitional confusion, the regulated chain of status progression is threatened. When passages are more or less well regulated, predecessors or coaches stand ready to guide the successor. Personal stability rests upon proper transition for the sequential steps of various life transitions.

Levinson (1978) reiterated the need to improve the quantity and quality of mentoring in early adulthood. Without adequate mentoring, entry into the adult world is severely hampered. Some degree of emotional support, guidance, and sponsorship is needed to smooth the way and to make the journey worthwhile. The process of "regularizing" status passage from secondary school to postsecondary education could be enhanced by an experience such as the University of Arizona Precollege Program because it is designed to offer some of the ingredients to help smooth the transition. Studying the UA Precollege participants and a Comparison Group should yield important data on educational choices of high ability students. It should also provide data on the significance of the UA Precollege Program in regularizing the status passage transition from high school to the college or university.

Summary

The literature reviewed in this chapter is divided into five categories. They are: (1) examples of those studies which describe postsecondary educational choices of various populations of high school students, (2) examples of studies concentrating on those factors which influence students who are academically able, (3) examples of academically able students who do not choose to attend a college or university, (4) existing secondary and higher education programs and the emergence of new programs to meet the needs of the able students, and (5) the psychosocial conceptual framework that deals with the important stage of life in which a student faces post-high school decisions.

There is considerable interest in factors that influence the process of postsecondary educational choices for this nation's young persons. Most studies focus on student background characteristics and the relationship of postsecondary decisions to financial, geographic, and demographic variables.

In recent years, interest has surfaced regarding specific groups of students classified as academically talented. Many of these studies focused only on talented minority students. Renewed interest in the overall population of high ability students is strengthened, perhaps,

because of the concomitant decline of the college age group. The few available studies on high ability student postsecondary plans indicated that certain factors do have an impact on choice of institutions. A proliferation of programs designed to interest high ability students is appearing in various institutions of higher education.

Overall, little research has been conducted as to what factors influence academically talented students in their postsecondary choices. Also, little research has been done on whether or not specialized programs designed for high ability secondary students are valuable in terms of aiding the talented student in the high-school-to-college transition, and if they have a residual effect of enhancing recruitment efforts.

Acknowledging that postsecondary educational choice involves a very complex sorting process during an important life transition is the first step. The second step is recognition and understanding of factors and programs that strongly influence talented students so that higher education administrators may plan such programs that draw high ability students to their institutions. It is apparent that a reexamination of factors that influence high ability students is needed.

CHAPTER 3

DESIGN OF THE STUDY

This study followed a survey research design. It consisted of a mailed questionnaire and a personal interview of a selected sample. Chapter 3 will consider (a) the design of the study, (b) the sample, (c) instrumentation, and (d) procedures.

Design

Four cohorts of students were used in this study. Cohort 1 included high school juniors who participated in the UA Precollege Program for Gifted and Talented Students in the summer of 1981, and Cohort 2 was comprised of talented high school juniors who did not participate in the UA Precollege Program for Gifted and Talented Students in the summer of 1981. Cohort 3 was high school juniors who participated in the UA Precollege Program for Gifted and Talented Students in the summer of 1982, and Cohort 4 was talented high school juniors (spring, 1982) who did not participate in the UA Precollege Program for Gifted and Talented Students in the summer of 1982. All students in the study were classified as academically talented students.

The design of this study was a quasi-experimental design because students were not randomly assigned to groups before the "treatment" (participation in the UA Precollege Program for Gifted and Talented Students). Refer to Figure 1.

Cohort	Partici- pation	Summer		Fall	
		1981	1982	1983	1984
1	Yes	High School Junior	High School Senior	College Freshman	College Sophomore
2	No	High School Junior	High School Senior	College Freshman	College Sophomore
3	Yes		High School Junior	High School Senior	College Freshman
4	No		High School Junior	High School Senior	College Freshman

Figure 1

LONGITUDINAL DESIGN OF THE STUDY

Campbell and Stanley (1963) refer to the desirability of true experimental designs where subjects are randomly assigned. The question of internal validity arose in this study as an attempt was made to answer whether or not the UA Precollege Program had an effect on student choice of a higher education institution. Threats to the internal validity of a study occur because of a failure to control a variety of factors.

Campbell and Stanley (1963) have reviewed major threats to internal validity. Some are history, maturation, mortality, and differential group selection.

The major threat to the internal validity of this study was differential group selection. There was no assurance that the Precollege Group and the Comparison Group were similar before the occurrence of the Precollege treatment. Therefore, effects of the treatment cannot be attributed clearly to the UA Precollege Program.

Three steps were taken to control for differential group selection. Ethnicity, sex, and grade point average were three variables which were relevant to the backgrounds of the Precollege and Comparison Groups. They were controlled by a matching procedure in this study.

External validity has been described as the degree to which the results of a study can be generalized to a larger population (Campbell and Stanley, 1963). The

generalizability of findings can be to populations to geographic areas, to time, and to other factors. Random selection of a sample from a population allows for a clear generalization from the sample to the population. In this study, the Precollege Program Group included all students who enrolled in the program 1981 and 1982. The Comparison Group was a systematic sample drawn from a population of students who were identified as academically talented. Generalizations beyond these two groups will be possible only to the degree that these groups are similar to the groups to which one wishes to generalize.

Precollege programs differ from one university to another. Philosophical rationales and the selection process for students in such programs often differ dramatically in various institutions. Therefore, generalizations of the results of this study are limited.

Sample

Subjects

The subjects consisted of two groups. The first group was 182 students who attended the UA Precollege Program (1981 and 1982 cohort). The second group was a systematic sample of 300 of the 1,200 students who were chosen from among the top ten percent of the Arizona high school juniors (1981 and 1982 cohort). Every fourth name

on the total list was selected to receive a questionnaire. The only exceptions were those listed students who had been UA Precollege participants.

Instrumentation

The data were collected by means of a survey mailed to former participants in the UA Precollege Program 1981 and 1982 and to 300 of the top ten percent of Arizona high school juniors 1981 and 1982. To investigate the reasons for college choices, the Higher Education Orientation Inventory (HEOI) was developed. Some items were adapted from the Graduate Student Satisfaction Questionnaire which was developed by Feild and Giles (1980) to measure student satisfaction with graduate education. Additional items were adapted from the survey of College Plans of Maryland National Merit and National Achievement Semifinalist Survey (1982).

The HEOI consisted of two parts. Part I contained biographical questions. Part II contained questions dealing with reasons for choosing an institution of higher education. Respondents were asked to rate the importance of a given reason on a six-point scale ranging from very unimportant (1) to very important (6).

Procedure

In the spring of 1984, the HEOI (shown in Appendix A) was sent by mail to students in the Precollege and Comparison Group cohorts. A letter of introduction and explanation of the investigation was included (shown in Appendix B). To ensure a higher rate of return, the HEOI was only two pages in length as suggested by Leslie (1970). Respondents of both groups were matched on ethnicity, sex, and high school grade point average (GPA). The follow-up letters were sent to non-respondents in two-week intervals.

In addition, interview letters were sent to UA Pre-college students from 1981 and 1982 cohorts. The first 13 respondents who chose to attend the University of Arizona and the first 12 respondents who chose other postsecondary institutions were the subjects of an in-depth personal interview (instrument shown in Appendix C).

Statistical Analysis

To answer the major research question about factors that affect a student's choice of a higher education institution, factor analysis was utilized. Items included in the questionnaire were first studied to indicate their intercorrelation. The important factors were then extracted in forms that indicated factor loadings.

In order to interpret the findings, these factors were subjected to a varimax rotation.

To examine the differences between the treatment and control group, discriminant analysis was used. With group membership as the criterion and the items in the HEOI as the predictor variables, the following issues were investigated: (1) whether a significant discriminant function could be found and (2) the items which were most important in differentiating between the two groups.

CHAPTER 4

RESULTS

Five research questions will be examined in the following chapter. In addition, results of responses to supplemental questions and an indepth interview with selected UA Precollege Program students will be reported. The purpose of the statistical and interview approach was to obtain several perspectives on reasons individuals choose higher education institutions.

The limitations of statistical methods are well known as are the limitations of interviews. The systematic presentations of these results in both forms attempted to present a clear picture of reasons UA Precollege and Comparison Group students choose a particular postsecondary institution.

In the late spring of 1984, the Higher Education Orientation Inventory (HEOI) and letters of introduction (see Appendices A and B) were sent to 182 UA Precollege and 300 Comparison Group students. The number of UA Precollege students was the total number of participants in the 1981 and 1982 UA Precollege summer sessions. The Comparison Group total was a systematically selected sample of students from those who were invited to participate in the University

of Arizona Outstanding Junior Day in the spring of 1981 and 1982. Although the Comparison Group students could be considered eligible, none of these students attended the UA Precollege Program.

There was a total of 120 responses (66 percent) from UA Precollege students and 119 responses (40 percent) from the Comparison Group. From the UA Precollege Group, 12 responses (7 percent) and from the Comparison Group 15 responses (5 percent) were returned as not deliverable. Two follow-up letters were sent to each group in two-week sequences after the initial mailing.

The overall response rate to the mailed questionnaire suggests that respondents who have a vested interest, familiarity, or loyalty (e.g., Precollege Group) show a higher response rate than those who do not (Leslie, 1970). Although the overall percentage of response rate to the mailed questionnaire might be considered low by some researchers who suggest 80 percent as the criterion (Kerlinger, 1973), the nonresponse bias appears to be less of a problem when the groups being surveyed are relatively homogeneous (Myers, Rubeck, and Meredith, 1983).

In addition, an indepth personal interview (see Appendix C) was conducted with 25 students. Students interviewed included 13 who chose to attend the University of Arizona and 12 who chose other postsecondary institutions.

The information from these interviews was not subject to statistical examination. It was collected to provide further qualitative information about students' postsecondary choices.

Of the 239 students who responded to the questionnaire, 120 were UA Precollege Program participants (49 males and 71 females) and 119 were in the Comparison Group (47 males and 72 females). The ethnic makeup of the sample was 3.3 percent Asian, .4 percent Black, 87.9 percent Caucasian, 6.7 percent Hispanic, and 1.7 percent Native American.

To examine the similarity of the UA Precollege students and the Comparison Group (no UA Precollege Program experience) with respect to ethnicity and sex, chi-square tests of independence were conducted. No association between group membership (Precollege/Comparison) and ethnicity was found, chi-square = 1.50, D.F. = 4, $p < .827$. Furthermore, no association was found between group membership and sex, chi-square = .01, D.F. = 1, $p < .937$. The third association which was examined was between group membership and grade point average. A t test ($t [229] = .07$, $p < .942$) indicated the mean of the UA Precollege Group ($M = 3.67$, $SD = .265$) was not significantly different from the mean of the Comparison Group ($M = 3.67$, $SD = .247$). This evidence tends to confirm that the groups were similar with respect to sex, ethnicity, and grade point average. Refer to Table 1 for descriptive statistics.

Table 1. Ethnicity and Sex of the Precollege and Comparison Groups.

Variable	<u>Precollege</u>		<u>Comparison</u>		<u>Total</u>	
	N	%	N	%	N	%
Sex						
Male	49	51	47	49	96	40
Female	71	49	72	51	143	60
Total	120	100	119	100	239	100
Ethnicity						
Asian	5	2	3	3	8	3
Black	0	0	1	.8	1	.4
Caucasian	105	88	105	88	210	88
Hispanic	8	7	8	7	16	7
Native American	2	2	2	2	4	2
Total	120	99	119	100.8	239	100.4

Note. Some percentages do not total 100.0 because of rounding error.

Enrollment in Postsecondary Institutions

Research Question 1

To what extent do the participants in the UA Pre-college Program and the Comparison Group enroll in a university, college or other type of postsecondary program after leaving high school?

The first research question was examined using the chi-square test of independence between group membership (UA Precollege/Comparison) and enrollment in postsecondary institutions. Postsecondary institution possibilities included the four-year university, four-year college, two-year college, trade school, military service, or non-attendance. The chi-square test indicated that group membership was independent of attendance at various postsecondary institutions, $\chi^2 = 5.06$, D.F. = 6 $< .536$. It could be concluded that UA Precollege students do not select postsecondary institutions in a much different way from the Comparison Group. For example, 91 (75.8 percent) UA Precollege students selected a four-year university and 90 (75.6 percent) of the Comparison Group made the same choice. Further information on postsecondary institution choices of the UA Precollege and the Comparison Groups can be found in Table 2.

Table 2. Comparison of Group Membership (UA Precollege/
Comparison) and Postsecondary Institution
Attendance.

Postsecondary Choices	UA Precollege		Comparison	
	N	%	N	%
Four-year University	91	75.8	90	75.6
Four-year College	20	16.7	14	11.8
Two-year College	6	5.0	12	10.1
Trade School	1	.8	1	.8
Military	1	.8	0	.0
Not Attending	1	.8	2	1.6
Total	120	99.9	119	99.9

Chi-square = 5.06, D.F. = 6, $p < .536$.

Note. Some percentages do not total 100.0 because of
rounding error.

UA Precollege Program Effects in Choices

Research Question 2

Does the UA Precollege Program affect the decisions of its participants in their choices of post-secondary institutions?

A t test was employed to compare the mean response of the UA Precollege and Comparison Groups on Item 37 of the questionnaire which states: "Institution had a pre-college program for high ability students." The students responded on a scale from 1 (very unimportant) to 6 (very important) on how they perceived that item in their post-secondary selection process. (Refer to Appendix A for a copy of the Higher Education Orientation Inventory.)

The mean response on Item 37 for UA Precollege students was 3.64 (SD = 1.77) and the mean response for the Comparison Group was 3.06 (SD = 1.44). This difference was statistically significant ($t [216] = 2.66$ $p < .008$). This indicated that UA Precollege students rated the importance of a precollege program in an institution as being more important in their institutional selection than did students of the Comparison Group.

A further examination of the possible influence of the UA Precollege Program on postsecondary decisions was

made. An additional t test was computed to compare ratings on Item 37 for only those UA Precollege and Comparison Group students who attended the University of Arizona.

The 61 students who enrolled at the University of Arizona and had attended the UA Precollege Program rated the importance of the Program significantly higher ($M = 4.46$) than did the 52 students in the Comparison Group ($M = 3.10$) who also chose to attend the University of Arizona ($t [111] = 5.16, p < .0001$). Mean responses of the UA Precollege and Comparison Groups to each item of the HEOI are examined under Research Question 4.

Influential Factors in Higher Education Selection

Research Question 3

What are the influential factors that UA Precollege students and the Comparison Group cite for selecting a specific higher education institution?

The HEOI explored academically talented UA Precollege and Comparison Group students' reasons for choosing an institution of higher education. A principal factors analysis was selected to identify those factors that underlie the reasons why academically able students select institutions of higher education. The intercorrelation

matrix of 37 items in the HEOI was subjected to a principal factors solution separately for the UA Precollege and Comparison Groups.

Four factors were extracted using the scree method (Cattell, 1966). Those four factors were then submitted to varimax rotation and the factor loadings were interpreted. Refer to Tables 3 and 4 for the Precollege and Comparison factor loadings.

Table 3. Precollege Group. Factor Structure of Reasons
For Choice of Higher Education Institutions
(N = 89).

Reasons	Factor Loadings			
	I	II	III	IV
1. Overall training	.10	.50	.01	.16
2. Social life with fellow students	.75	.04	-.08	.05
3. Professional competence of professors	.16	.73	-.09	.05
4. Intellectual stimulation provided by training	.23	.63	-.14	.22
5. Intellectual climate	.41	.43	-.05	.13
6. Reputation of institution	.03	.41	-.02	.24
7. Quality of course instruction	.27	.58	-.05	.09
8. Opportunity for professor/student discussion in courses	.31	.57	-.05	.30
9. Expense of the institution	-.15	-.14	.56	-.01
10. Library facilities	.52	.26	.35	.05
11. The voice you have in influencing policies and procedures affecting students	.50	.39	.10	.18
12. Freedom in choosing course work	.12	.14	-.10	.27
13. Work and study interaction with fellow students	.70	.20	.02	.16
14. Overall facilities	.42	-.04	.14	.40
15. Opportunity for independent thought and action in education program	.53	.33	-.14	.31

Table 3. continued

Reasons	<u>Factor Loadings</u>			
	I	II	III	IV
16. Academic performance of fellow students	.39	.25	-.18	.28
17. Your friends will go to the institution	.27	-.40	.34	.21
18. Degree of emphasis on grades	.07	.08	.19	.56
19. Amount of required work in courses	.02	.13	.15	.49
20. Contacts by school made good impression	.12	.19	.04	.60
21. Size of institution	.31	.20	-.09	.41
22. Social interaction with your professors	.38	.28	-.01	.50
23. Parents attended school there	.03	-.07	.32	.29
24. Parents felt it was the best choice	.07	.02	.07	.31
25. To earn more money	.07	-.11	.33	.25
26. Wanted to commute daily	-.33	-.22	.49	.16
27. To prepare yourself for graduate or professional school	.18	.17	-.01	.17
28. Wanted to go to school in that geographical area	.20	.00	.12	.22
29. To meet new friends	.61	.06	.06	.37
30. Wanted to live away from home	.39	.15	-.19	.02
31. Had superior programs in intended major	.09	.45	.03	-.01

Table 3. continued

Reasons	<u>Factor Loadings</u>			
	I	II	III	IV
32. Tuition costs were less	-.24	-.14	.70	.02
33. Knew more about it than other schools	-.03	-.38	.39	.20
34. Better financial assist- ance offered	.05	.17	.57	-.04
35. Special programs for academically talented students	.38	.25	.53	-.22
36. Teacher/counselor recommended it	.33	.11	.32	.21
37. Institution had precollege program for high ability students	.08	-.06	.50	.31
Percent of variance	20.6	10.9	5.7	5.3
Eigenvalue	7.61	4.04	2.11	1.97

Table 4. Comparison Group. Factor Structure of Reasons
For Choice of Higher Education Institutions
(N = 96).

Reasons	Factor Loadings			
	I	II	III	IV
1. Overall training	.55	.03	.02	-.11
2. Social life with fellow students	-.07	-.10	.64	.09
3. Professional competence of professors	.51	-.29	.12	-.14
4. Intellectual stimulation provided by training	.62	-.13	.08	-.09
5. Intellectual climate	.65	-.20	.20	-.13
6. Reputation of institution	.40	.07	.33	-.29
7. Quality of course instruction	.65	-.03	.03	-.05
8. Opportunity for professor/student discussion in courses	.62	.09	.03	-.00
9. Expense of institution	-.27	.42	-.02	.14
10. Library facilities	.36	.20	.24	.26
11. The voice you have in influencing policies and procedures affecting students	.34	.24	.38	.20
12. Freedom in course work	.34	.05	.34	.47
13. Work and study interaction with fellow students	.19	.16	.48	.07
14. Overall facilities	.09	.27	.43	.11
15. Opportunity for independent thought and action in educational program	.44	.20	.34	.19

Table 4. continued

Reasons	<u>Factor Loadings</u>			
	I	II	III	IV
16. Academic performance of fellow students	.24	.39	.34	.16
17. Your friends will go to the institution	-.27	.13	.09	.38
18. Degree of emphasis on grades	.25	.18	.12	.52
19. Amount of required work in courses	.33	.16	.10	.42
20. Contacts by school made good impression	.23	.47	.33	-.08
21. Size of institution	.22	.26	.26	-.19
22. Social interaction with your professors	.46	.17	.21	-.00
23. Parents attended school there	-.08	.38	.09	.32
24. Parents felt it was the best choice	-.10	.18	.08	.51
25. To earn more money	-.24	.09	.05	.54
26. Wanted to commute daily	-.11	.15	-.31	.54
27. To prepare yourself for graduate or professional school	.46	.26	-.07	.02
28. Wanted to go to school in that geographical area	-.03	.00	.05	.33
29. To meet new friends	.18	.02	.65	.32
30. Wanted to live away from home	-.07	.01	.70	-.16
31. Had superior programs in intended major	.36	.21	.01	-.28

Table 4. continued

Reasons	<u>Factor Loadings</u>			
	I	II	III	IV
32. Tuition costs were less	-.32	.25	-.11	.46
33. Knew more about it than other schools	-.19	.40	.11	.26
34. Better financial assist- ance offered	-.16	.51	.13	.09
35. Special programs for academically talented students	.41	.64	-.01	.13
36. Teacher/counselor recommended it	.11	.71	.01	.09
37. Institution had precollege program for high ability students	.22	.61	.03	.29
Percent of variance	17.4	13.1	6.7	5.7
Eigenvalue	6.45	4.84	2.47	2.11

For the UA Precollege Group, each of the four factor loadings was examined and factor names were assigned. Higher loadings were given greater importance in the determination of factor names. The four factors indicated that there were several underlying dimensions for reasons high ability students select an institution of higher education. Since the order of extraction is an indication of the importance of the factor, Factor I, Social Components of the Institution appeared to be the most important factor for this group, followed by Factor II, Academic Quality of the Institution, and Factor III, Expenses and Financial Aid. Factor IV, Institutional Image, was the least important factor.

Factor I, "Social Components of the Institution" accounted for 20.6 percent of the total HEOI variance. High loading items on this factor included (Item 2) Social life with fellow students (.75), (Item 13) Work and interaction with fellow students (.70), (Item 29) To meet new friends (.61) and (Item 11) The voice you have in influencing policies and procedures affecting students (.50).

Factor II, "Academic Quality of the Institution" accounted for 10.9 percent of the total variance. High loadings on this factor were (Item 3) Professional competence of professors (.73), (Item 4) Intellectual stimulation provided by training (.63), (Item 7) Quality of

course instruction (9.58), (Item 8) Opportunity for professor/student discussion in courses (.57) and (Item 31) Had superior programs in intended major (.45).

Factor III, "Expenses and Financial Aid accounted for 5.7 percent of the HEOI variance. Six items had high loadings. They were (Item 9) Expenses of the institution (.56), (Item 26) Wanted to commute daily (.49), (Item 32) Tuition costs were less (.70), (Item 34) Better financial assistance offered (.57) and (Item 37) Institution had precollege program for high ability students (.50).

Factor IV, "Institution Image" accounted for 5.3 percent of HEOI variance. The high loadings on this factor were (Item 20) Contacts by school made good impression (.60), (Item 18) Degree of emphasis on grades (.56), (Item 22) Social interaction with your professors (.50), (Item 19) Amount of required work in courses (.49) and (Item 21) Size of institution (.41).

Four factors were extracted from the Comparison Group's responses to the HEOI. For this group, Factor I, Academic Quality of the Institution was most important, followed by Factor II Finances and Special Assistance Available. Factor III, Student Social Life was the third most important factor. Because of the diversity of response, Factor IV could not be placed in a general category.

Factor I, "Academic Quality of the Institution" accounted for 17.4 percent of the total HEOI variance. The items with high loadings included (Item 7) Quality of course instruction (.65), (Item 4) Intellectual stimulation provided by training (.62), (Item 5) Intellectual climate (.65), (Item 8) Opportunity for professor/student discussion in courses (.62) and (Item 1) Overall training (.55). (Item 22) Social interaction with your professors and (Item 27) To prepare yourself for graduate or professional school both had relatively high factor loadings of .46.

Factor II, "Finances and Special Assistance Available" accounted for 13.1 percent of the total variance. The four high loading items were (Item 34) Better financial assistance offered, (Item 35) Special programs for academically talented students (.64), (Item 36) Teacher/counselor recommended it (.71) and (Item 37) Institution has pre-college program for high ability students.

Factor III, "Student Social Life" accounted for 6.7 percent of the total HEOI variance. Three items had high loadings. They were (Item 2) Social life with fellow students (.64), (Item 29) To meet new friends (.65) and (Item 30) Wanted to live away from home (.70). The next highest loading was (Item 13) Work and study interaction with fellow students (.48) for Factor III.

Factor IV, which could not be categorized, accounted for 5.7 percent of the total variance. Items which emerged with high loadings were (Item 18) Degree of emphasis on grades (.52), (Item 25) To earn more money (.54), (Item 26) Wanted to commute daily (.54) and (Item 12) Freedom in choosing course work (.47).

To further examine this research question, the factors of the UA Precollege and Comparison Groups were compared two at a time with coefficients of congruence (Harman, 1976). A coefficient of congruence is a measure of the degree to which two factors and their patterns of factor loadings are similar or congruent. A coefficient of .90 or higher is generally considered as an indication of factorial similarity (Harman, 1976; Mulaik, 1972). A recently written computer program (Powers, in press) was used to calculate coefficients of congruence in this study. Only one pair of factors was found to be similar by this criterion. Factor II of the UA Precollege Group was similar to Factor I of the Comparison Group. The two similar factors are categorized as "Academic Quality of the Institution". The other factors demonstrated a number of differences. Refer to Table 5.

Table 5. Comparison of Factors of Precollege and Comparison Groups with Coefficients of Congruency.

<u>UA Precollege Group</u>	<u>Comparison Group</u>			
	I	II	III	IV
I	.06	.08	.19	.32
II	.90	.10	.41	.21
III	-.14	.71	-.05	.63
IV	.50	.51	.58	.51

Note. A value of .90 or higher indicated factorial similarity.

Differences Among Factors
That Influence Postsecondary Choice

Research Question 4

Are there differences among the factors that influence postsecondary choices of the UA Precollege and Comparison Groups?

The HEOI consisted of 37 items that dealt with reasons for choosing an institution of higher education: Respondents were asked to rate the importance of a given reason on a six-point scale which ranged from very unimportant (1) to very important (6). Refer to Table 6 for the group means and standard deviation of HEOI items.

Table 6. Means and Standard Deviations of HEOI Items For
 Precollege Group (N = 89) and Comparison Group
 (N = 96).

HEOI Description	Precollege (N = 89)		Comparison (N = 96)	
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
1. Overall training	5.35	.72	5.29	.83
2. Social life with fellow students	4.34	1.26	4.33	1.07
3. Professional competence of professors	5.38	.80	5.40	.87
4. Intellectual stimulation provided by training	5.19	.90	5.20	.89
5. Intellectual climate	4.85	.96	4.60	1.00
6. Reputation of institution	4.66	.91	4.79	1.03
7. Quality of course instruction	5.48	.69	5.51	.79
8. Opportunity for professor/ student discussion in courses	4.87	1.09	4.94	1.01
9. Expense of the institution	4.58	1.26	4.67	1.30
10. Library facilities	4.48	1.12	4.26	1.21
11. The voice you have in influ- encing policies and procedures affecting students	3.61	1.31	3.58	1.25
12. Freedom in choosing course work	4.74	.92	4.79	1.07
13. Work and study interaction with fellow students	4.37	1.07	4.53	.93

Table 6. continued

HEOI Description	<u>Precollege (N = 89)</u>		<u>Comparison (N = 96)</u>	
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
14. Overall physical facilities	4.22	.93	4.24	1.03
15. Opportunity for independent thought and action in education program	4.85	.96	4.63	.92
16. Academic performance of fellow students	3.88	1.14	3.74	1.24
17. Your friends will go to the institution	2.64	1.31	2.66	1.30
18. Degree of emphasis on grades	3.88	1.24	4.02	1.18
19. Amount of required work in courses	4.03	1.19	4.18	1.06
20. Contacts by school made good impression	3.98	1.27	4.19	1.39
21. Size of institution	3.69	1.44	4.14	1.35
22. Social interaction with professors	3.73	1.43	3.91	1.44
23. Parents attended school there	1.46	.88	1.73	1.02
24. Parents felt it was the best choice	2.53	1.44	2.75	1.48
25. To earn more money	2.99	1.45	3.65	1.62
26. Wanted to commute daily	2.29	1.61	2.55	1.66
27. To prepare yourself for graduate or professional school	4.45	1.56	4.34	1.46

Table 6. continued

HEOI Description	<u>Precollege (N = 89)</u>		<u>Comparison (N = 96)</u>	
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
28. Wanted to go to school in that geographical area	3.89	1.65	4.22	1.40
29. To meet new friends	4.02	1.39	3.90	1.30
30. Wanted to live away from home	3.55	1.62	3.63	1.66
31. Had superior programs in intended major	5.00	1.08	4.90	1.17
32. Tuition costs were less	4.26	1.56	4.29	1.58
33. Knew more about it than other schools	4.10	1.37	4.20	1.38
34. Better financial assistance offered	3.51	1.70	4.10	1.69
35. Special programs for academically talented students	3.80	1.46	3.77	1.40
36. Teacher/counselor recommended it	2.64	1.35	2.99	1.56
37. Institution had precollege program for high ability students	3.74	1.69	3.05	1.46

A mean score of less than 3.5 indicates that the item was considered an unimportant reason. Those items which are rated highest such as Overall training (Item 1) and Professional competence of professors (Item 3) are distinguished from items with the lowest ratings such as Parents attended school there (Item 23) and Wanted to commute daily (Item 26) for both groups of students.

For the UA Precollege Group the six highest priority items in choosing a postsecondary institution were Quality of course instruction (Item 7), Professional competence of professors (Item 3), Overall training (Item 1), Intellectual stimulation provided by training (Item 4), Had superior programs in intended major (Item 31) and Opportunity for professor/student discussion in courses (Item 8). Lowest priorities beginning with the least desirable reason were Parents attended school there (Item 23), Wanted to commute daily (Item 26), Parents felt it was the best choice (Item 24), Your friends will go to the institution (Item 17), Teacher/counselor recommended it (Item 36) and To earn more money (Item 25).

For the Comparison Group, the six highest priorities in higher education choices were Quality of course instruction (Item 7), Professional competence of professors (Item 3), Overall training (Item 1), Intellectual stimulation provided by training (Item 4), Opportunity for

professor/student discussion in courses (Item 8) and Had superior programs in intended major (Item 31). Lowest priorities beginning with the least desirable reason were Parents attended school there (Item 23), Wanted to commute daily (Item 26), Your friends will go to the institution (Item 17), Degree of emphasis on grades (Item 18), Teacher/counselor recommended it (Item 36) and Institution had pre-college program for high ability students (Item 37).

A discriminant analysis was performed to determine which of the 37 items (predictor variables) best discriminated between UA Precollege and Comparison Group students. A stepwise procedure using the smallest Wilks' lambda as the criterion for variable selection was used. A complete description of this procedure can be found in Nie, Hull, Jenkins, Steinbrenner, and Bent (1975).

The final discriminant function included the discriminant weights of the following 13 items: Item 37 (-.82), Item 36 (.25), Item 34 (.31), Item 28 (.22), Item 25 (.28), Item 24 (-.22), Item 23 (.41), Item 18 (.34), Item 15 (-.33), Item 13 (.38), Item 10 (-.33), Item 7 (.35), Item 5 (-.23). These 13 weights accounted for the maximum discrimination between the UA Precollege and Comparison Groups, $F(13,171) = 3.97, p < .001$.

Item 37 accounted for about twice the discrimination than any other item (-.82). It is, therefore, the

most important discriminating item of all of the 13 discriminating variables in the discriminant function. The UA Precollege Group rated Item 37 (Institution had precollege program for high ability students) as being more important ($M = 3.75$) in their selection of a higher education institution than the Comparison Group ($M = 3.05$).

The second largest standardized discriminant weight was associated with Item 23 (.41). Item 23 (Parents attended school there) indicated that the Comparison Group ($M = 1.73$) rated that item more important than the UA Precollege Group ($M = 1.46$). The next largest weight (.31) was associated with Item 13 (Work and study interaction with fellow students). The mean of the Comparison Group ($M = 4.53$) compared to the mean of the Precollege Group ($M = 4.37$) indicated a slightly higher importance given to Item 13 by the Comparison Group. The fourth largest weight (.35) was associated with Item 7 (Quality of course instruction). The UA Precollege Group mean ($M = 5.48$) rated that slightly lower than the Comparison Group ($M = 5.51$).

The remainder of the items which discriminated between the two groups and the discriminant weights are described as follows: The discriminant weight for Item 18 (Degree of emphasis on grades) was .34. The Comparison Group ($M = 4.02$) rated that item more important than the

UA Precollege Group ($M = 3.88$). Equal standardized discriminant weights ($-.33$) were given to Item 15 by both groups (Opportunity for independent thought and action in education program) and Item 10 (Library facilities). UA Precollege students rated Item 15 ($M = 4.85$) and Item 10 ($M = 4.48$) as more important than Item 15 ($M = 4.63$) and Item 10 (4.26) were rated by the Comparison Group. The standardized weight ($.31$) associated with Item 34 (Better financial assistance offered) was more important to the Comparison Group ($M = 4.10$) than to the UA Precollege Group (3.51). Item 25 (To earn more money) had a standardized weight of $.28$. The Comparison Group ($M = 3.65$) rated this item as more important than the Precollege Group ($M = 2.99$). The discriminant weight ($.25$) for Item 36 (Teacher/counselor recommended it), although not very large, did indicate a significant discrimination between the two groups. The mean of the UA Precollege Group ($M = 2.64$) was lower than the mean of the Comparison Group ($M = 2.99$). This indicated that the Comparison Group rated the counselor/teacher recommendation as more important than did the UA Precollege Group. The discriminant weight ($-.23$) for Item 5 (Intellectual climate) indicated little difference between the two groups. The UA Precollege mean ($M = 4.85$) on this item was slightly

more important to this group than to the Comparison Group ($M = 4.60$). The discriminant weight (.22) for Item 28 (Wanted to go to school in that geographical area) also indicated discrimination. The Comparison Group ($M = 4.22$) rated that item more important than the UA Precollege Program students ($M = 3.89$). Item 24 (Parents felt it was the best choice) had a standardized discriminant weight of $-.22$. The UA Precollege Group rated that item ($M = 2.53$) slightly lower than did the Comparison Group ($M = 2.75$).

Group Comparisons on Demographic Variables

Research Question 5

How do these groups compare on the following factors: sex, ethnicity, location of student home, location of college or university, receipt of financial aid, and grade point average?

The comparability of the UA Precollege Program and Comparison Groups with respect to sex, ethnicity, location of student's home and importance of the receipt of financial aid were investigated previously with chi-square analyses. The comparability of the two groups with respect to grade point average was investigated previously with a t test. At the beginning of Chapter 4, the UA Precollege and Comparison Groups were compared with respect

to sex using the chi-square test of independence. It was found that group membership was not associated with sex (chi-square = .01, D.F., = 1, $p < .937$).

The relationship between group membership and ethnicity was also investigated and found to be non-significant with chi-square analysis (chi-square = 1.50, D.F. = 4, $p < .827$). The UA Precollege and Comparison Groups were compared with respect to grade point average. The difference also was found to be non-significant ($t [229] = .07$, $p < .942$). Refer to the beginning of Chapter 4 and Table 1.

The association between group membership and home location was investigated with a chi-square test of independence. The value of the chi-square was highly significant (chi-square = 45.50, D.F. = 1, $p < .0001$). The UA Precollege students tended to be from Tucson whereas Comparison Group students tended not to be from Tucson. Refer to Table 7 for the descriptive statistics for this analysis.

Table 7. Comparison of Group Membership with Home Location.

Home Location	<u>Precollege</u>		<u>Comparison</u>	
	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>
Tucson	88	73.3	35	29.4
Not Tucson	32	26.7	84	70.6
Total	120	100.0	119	100.0

Chi-square = 45.50, D.F. = 1, p <.0001.

A comparison of the UA Precollege and Comparison Group students was made with respect to their decision to attend the University of Arizona. A chi-square test was conducted to determine if there was a relationship between these two categorical variables. It was found that there was no evidence of a significant association because the chi-square test (chi-square = .10, D.F. = 1, $p < .747$) was not significant. Table 8 presents the results of this analysis.

Table 8. Comparison of Group Membership and Attendance at the University of Arizona.

University of Arizona	Precollege		Comparison	
	N	%	N	%
Did Attend	62	51.7	58	48.7
Did Not Attend	58	48.3	61	51.3
Total	120	100.0	119	100.0

Chi-square = .10, D.F. = 1, p < .747.

A possible bias in the findings was suggested by the overrepresentation of students from Tucson in the UA Precollege Group and an overrepresentation of non-Tucson students in the Comparison Group. Additional statistical tests were conducted to examine possible biases. Data were separately analyzed for non-Tucson and Tucson UA Precollege Group and Comparison Group students.

A chi-square test of independence was conducted comparing group membership (Precollege and Comparison Group) with students' choices of postsecondary institutions of the Tucson students (chi-square = .54, D.F. = 6, $p < .91$). A second chi-square test was conducted for non-Tucson students comparing group membership and choice of postsecondary institutions (chi-square = 8.19, D.F. = 6, $p < .225$). Neither the chi-square for the non-Tucson nor the Tucson Group was significant at the conventional .05 level. Therefore, it could be concluded that there was no significant association between group membership and institutional choice of the non-Tucson students nor of the Tucson students. Since the findings of the Tucson and non-Tucson students were similar when the data were disaggregated, evidence suggests no bias was introduced into the analysis of institutional choice by combining Tucson and non-Tucson residents in the analysis. Refer to Table 9.

Table 9. Comparison of Group Membership and Postsecondary Choice Dissagregating with Respect to Residence.

Postsecondary Choice	<u>Precollege</u>		<u>Comparison</u>	
	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>
	<u>Tucson Residents^a</u>			
Four-year University	67	76.1	26	74.3
Four-year College	14	15.9	6	17.1
Two-year College	6	6.8	3	8.6
Trade School	0	.0	0	.0
Military	0	.0	0	.0
Undecided	1	1.1	0	.0
Not Attending	0	.0	0	.0
	<u>Non-Tucson Residents^b</u>			
Four-year University	24	77.4	64	76.2
Four-year College	5	16.1	8	9.5
Two-year College	0	.0	9	10.7
Trade School	1	3.2	1	1.2
Military	1	3.2	0	.0
Undecided	0	.0	1	1.2
Not Attending	0	.0	1	1.2

^aChi-square = .54, D.F. = 6, <.911.

^bChi-square = 8.19, D.F. = 6, <.225.

A source of possible bias was the overrepresentation of Tucson students in the UA Precollege Group and overrepresentation of non-Tucson students in the Comparison Group with respect to attendance at the University of Arizona. Separate chi-square analyses were conducted with each group. Specifically, a chi-square test of independence of group membership (UA Precollege or Comparison Group) with respect to attendance (or not) at the University of Arizona was conducted separately for Tucson and non-Tucson students. The chi-square test of independence between group membership and attendance at the University of Arizona for the Tucson Group was not significant (chi-square = 1.33, D.F. = 1, $p < .248$). University of Arizona attendance for non-Tucson residents was not significant (chi-square = .55, D.F. = 1, $p < .459$). By disaggregating the data in this way and examining separately the Tucson and non-Tucson Groups, it was possible to determine if there was a systematic difference between the UA Precollege and Comparison Groups in University of Arizona attendance. Refer to Table 10.

Table 10. Comparison of Group Membership and UA Attendance
Disaggregating with Respect to Residence.

UA Choice	<u>Precollege</u>		<u>Comparison</u>	
	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>
	<u>Tucson Residents^a</u>			
Yes	46	52	23	66
No	42	48	12	34
	<u>Non-Tucson Residents^b</u>			
Yes	16	52	35	42
No	15	48	49	58

^aChi-square = 1.33, D.F. = 1, p < .28.

^bChi-square = .55, D.F. = 1, p < .459.

If chi-square analyses differed substantially for Tucson and non-Tucson students, the data should not have been combined. The evidence in these two samples indicated that there is no association between group membership in University of Arizona attendance whether it is examined in only Tucson or only in non-Tucson respondents. Therefore, combining the data to examine group membership at the University of Arizona appeared to be justifiable and did not appear to enter a bias into the analysis.

The UA Precollege and Comparison Groups were compared with respect to their rating on the HEOI of Item 34 which rates the importance of "Better financial assistance offered". There was a significant difference between UA Precollege students ($t[234] = 3.01, p < .003$) and the Comparison Group. An examination of group means shows that the mean of the Comparison Group ($M = 4.01$) was significantly higher than the mean of the UA Precollege Group ($M = 3.44$). It appeared that the Comparison Group rated this item higher, indicating that they appeared to place more importance on the receipt of financial aid.

Supplementary HEOI Data
Part I

Although students in both the UA Precollege and Comparison Groups gave numerical ratings for their reasons for a particular postsecondary option (HEOI), Appendix A, Part II), respondents provided additional information in Part I of the HEOI (Appendix A). To this open-ended question approach to reasons for various choices of higher education institutions, the combined groups gave numerous reasons. See Tables 11 and 12.

Table 11. UA Precollege and Comparison Group Responses:
Important Reasons For Choice of Higher Educa-
tion Institution For Students Attending the
University of Arizona.

<u>Reason</u>	<u>Number of Responses</u>
1. Close to home	70
2. Cost	52
3. Quality of programs	50
4. Good reputation	48
5. Good engineering program	9
6. Good library	9
7. Friends also attend	9
8. Scholarship aid	8
9. In-state school	7
10. Quality of education/professors	7
11. Good environment	6
12. Be prepared for career	5
13. Precollege Program was positive	4
14. Financial aid	3
15. Personal growth	2
16. Social integration	2
17. Father on faculty	2
18. Parents' choice	2
19. Availability of information	2

Table 11. continued

<u>Reason</u>	<u>Number of Responses</u>
20. Unsure of major	2
21. Familiar with facilities	1
22. Friendliness of representatives	1
23. Didn't apply to other schools	1
24. Already had earned credit here	1
25. Job security in the future	1
26. Degree necessary	1
27. Mother attended this school	1
28. Programs for Native Americans	1
29. Good baseball program	1

Table 12. UA Precollege and Comparison Group Responses:
 Important Reasons For Choice of Higher Educa-
 tion Institution For Students Attending Insti-
 tutions Other Than the University of Arizona.

<u>Reason</u>	<u>Number of Responses</u>
1. Reputation of school	45
2. Strong in major study	40
3. Location	40
4. Small school	24
5. Cost	17
6. Further education and career	15
7. Contact with Ph.D. professors	14
8. Scholarship available	13
9. Religious affiliation	9
10. Financial aid available	8
11. Personal, relaxed atmosphere	6
12. Small classes	5
13. Get away from home	5
14. Sports programs	4
15. Better job offers	4
16. Family went to institution	3
17. Social atmosphere	2
18. Instate (NAU) and (ASU)	2
19. More competitive	1

Table 12. continued

<u>Reason</u>	<u>Number of Responses</u>
20. Meet new people	1
21. Goals similar to mine	1
22. Achieve higher economic/social status	1

The four most important reasons that academically talented students chose the University of Arizona were (1) close to home, (2) quality of programs, (3) good reputation of institution, and (4) cost. The four most important reasons students chose various other institutions were (1) reputation of school, (2) strong in major study, (3) location, and (4) small size of school.

Item 38, Part II of the HEOI (other reasons--please explain) provided another opportunity for additional comments about postsecondary choices. See Table 13.

Table 13. Individual Responses (Item 38 HEOI) By Academically Talented Students For Choice of Higher Education Institution.

<u>Reason</u>	<u>Institution Student Attends</u>
Precollege Program very helpful. I plan to attend University of Arizona as a graduate student.	University of Wyoming
Chance to play competitive baseball.	University of Arizona
Decided to attend the University of Arizona after attending the Pre-college program. My experience was so positive, I didn't consider going elsewhere, although offered better financial support at other colleges.	University of Arizona
Offered academics, religious activities to improve myself. Dorm set up so that one can meet people.	Creighton University
Your program (Precollege) was so beneficial. It helped acquaint me with the campus. It gave me a taste of what college was like.	University of Arizona
The most important message I can give you is to go out of your way to make an impression on incoming freshman through correspondence and meetings. Let the student know you're eager to have them attend. I was scared to go to college, but ASU assured me they would be there to help.	Arizona State University
I like the U. of A. because they do so much for students, cultural events and entertainment. I went to ASU for one year and they do almost "zilch" for the students.	University of Arizona

Table 13. continued

<u>Reason</u>	<u>Institution Student Attends</u>
Emphasis on creativity and liberal modes of learning.	University of Arizona
Two brothers went there.	Stanford Univ.
Religious affiliation.	Brigham Young
I believe Precollege Program was an excellent idea and should be offered to more students. It really opened my eyes to what to expect from college.	Northern Arizona University
Opportunity to grow, gain freedom, think for myself.	University of Arizona
I would have gone to a different school with better academic program, but financial concerns ruled it out.	Northern Arizona University
Strong emphasis on research/my career area.	Johns Hopkins University
Recruited for football.	Columbia Univ.
Thank you for the priceless opportunity (Precollege Program).	University of Arizona
I plan to attend graduate school. Therefore I cared less about the programs and reputation of college I attended for undergraduate studies.	University of Arizona
Older brothers and other relatives attended BYU. Parents wanted me to be close to relatives.	Brigham Young
Chose University of Arizona as an intermediate step before attending out-of-state institution.	University of Arizona
A reputation of friendliness.	Brown Univ.

Table 13. continued

<u>Reason</u>	<u>Institution Student Attends</u>
Most important aspects in choosing a facility would be overall education. Learning not only academically but socially, morally, and emotionally as well.	University of Arizona
Offered a scholarship.	Univ. of Arizona
Close to home compared to other universities, school has good reputation, and I was offered a scholarship.	University of Arizona
It's a great learning institution that offers everything.	University of Arizona
Feeling that you are instrumental to the college.	Christ College
Physical atmosphere important because whether you do well or not (or enjoy) in college has a lot to do with the atmosphere around you and whether you respond to it.	University of Arizona
Cost and location.	Univ. of Arizona
Being an art major, I will get my degree here (UA) and then go to a specialized institution.	University of Arizona
Parents attended UA. I may go to medical school at UA.	Brigham Young
Like Tucson area in general.	Univ. of Arizona
Was familiar with school (Precollege Program) and contains field of study I want.	University of Arizona
Receiving a scholarship	Yavapai College

Personal Interview

To gain further insight on postsecondary choices of the UA Precollege Group, additional personal interviews were conducted. The interview examined the possible effect of the UA Precollege experience on those choices. Twenty-five UA Precollege Program students (13 who attended the University of Arizona and 12 who attended other postsecondary institutions were interviewed). (Refer to Appendix C.) A compilation of responses is recorded in Tables 14 and 15.

Table 14. UA Precollege Program Participant Responses to Personal Interview. Students Who Attend the University of Arizona.

<u>Positive Aspects of UA Precollege Program</u>	<u>Effect of the UA Precollege Program on UA Attendance</u>
Dissolved my fears of college.	Had a major effect and helped me decide on UA since I wasn't thrilled with the idea before.
Made my freshman entry into college a much more enjoyable experience.	Because it shows the fun/serious side of college, it helps prepare you before you "plunge in".
Made me not feel so alone when I first entered college.	Showed me the wide-range of possibilities, activities.
Getting an early first-hand look at college classes and lifestyle.	Had a very positive effect. I had a goal of attending UA but not until after the Program was it realistic. After the Program I knew I could succeed in college.
Taught me college is hard but not impossible.	I knew if I could make it through the summer, I could make it through the year.
Chance to experience college with the aid of a support group and counselors.	Since I was familiar with the campus, I had confidence to attend the university.
Extra activities were helpful in providing information about various careers.	Helped me decide on this university rather than another one in this state.
Opportunities to talk to professors, learn about college classes and live in a dorm.	Got rid of my anxieties about "alien" nature of the university.
Student freedom guided tours, social life, made realistic impression of college.	

Table 14. continuedPositive Aspects of UA
Precollege Program

A chance to get a general
feeling of college.

Experiencing college life
firsthand, being involved
in a different intellectual
academic environment.

Effect of the UA Precollege
Program on UA Attendance

Very positive influence on
my decision to attend the
University of Arizona.

Eased my worries about
the transition to college.

Table 15. UA Precollege Program Participant Responses to Personal Interview. Students Who Attended Institutions Other Than the University of Arizona.

<u>Positive Aspects of UA Precollege Program</u>	<u>Effect of UA Precollege Program on Postsecondary Choice</u>
Extra programs provided for students.	For undergraduate work I wanted to attend a college with smaller classes.
Provided me with a complete sense of responsibility-- education I received was unparalleled.	Took away the "black box" about my ability to succeed in college.
Exposed me to college-level work so I wasn't shocked at the amount of work in my freshman year.	Helped me to decide on a small liberal arts institution as opposed to a large university.
Socialization in a college atmosphere.	Introduced to the fun and practicality of attending college.
Opportunity for challenging course work and opportunity to learn about careers and academic fields.	Exposed me to professionals in my field of interest so that I know what is available when I go to graduate school at the University of Arizona.
Meetings with professional counselors and faculty in various fields, dorm life, becoming familiar with college.	I knew courses would not be too difficult for me.
Interaction with college students.	Program encourages those who are unsure to continue their education.
Contact with excellent professors and a chance to see what college was like.	

The factors mentioned most frequently by students who attend the University of Arizona concerning the positive aspects of the UA Precollege Program were: (1) an introduction to college life in a supportive atmosphere, (2) lessened anxiety about academic and social life, (3) afforded introduction to possible academic courses of study and various career options, and (4) built personal confidence. For a majority of the students who participated in the UA Precollege Program and chose to attend the University of Arizona, the UA Precollege Program had a major, positive effect on that decision. Others who attended other postsecondary institutions stated that the UA Precollege Program (1) relieved anxiety about what college life had in store, (2) gave exposure to many career possibilities, (3) helped understand how to manage academic/social time, and (4) introduced them to various academic fields through contacts with professors. For these students, the effect of the UA Precollege Program on their postsecondary choices both supported their decision to attend college, took away fears about going to college, and for some, helped them decide that a small college was preferable to a large university.

Summary

In summarizing this chapter, several important issues should be discussed. The two groups were found to be similar with respect to sex, grade point average, and ethnicity. Thus, the analysis concerned itself with two relatively comparable groups. Of the total number of responses to the HEOI, 66 percent of the UA Precollege Group and 40 percent of the Comparison Group were considered adequate for the study.

Examination of the first research question indicated that there was no particular relationship between the UA Precollege Program Group and the Comparison Group in their attendance of postsecondary institutions.

Research Question 2 indicated that UA Precollege students rated the importance of a Precollege Program in an institution as being more important in their institutional selection than did the Comparison Group. Furthermore, the UA Precollege students who enrolled at the University of Arizona rated the importance of the Precollege Program significantly higher than did the students in the Comparison Group.

A factor analysis was used to investigate Research Question 3. It was found that there were four major

factors which influenced the two groups in their selection of a postsecondary institution. The four factors in order of importance for UA Precollege students were: Factor I "Social Components of the Institution", Factor II "Academic Quality", Factor III "Expenses and Financial Aids", and Factor IV "Institutional Image". The four factors in the Comparison Group listed in order of importance were: Factor I "Academic Quality", Factor II "Finances and Special Assistance Available", Factor III "Student Social Life", and Factor IV was not categorized because of the diversity of responses. It was found that only one factor from each group was similar: Factor I "Academic Quality" of the Comparison Group corresponded to Factor II "Academic Quality" of the UA Precollege Group.

To investigate the degree to which the items of the HEOI discriminate group membership, a discriminant analysis was performed to examine Research Question 4. It found 13 items that together were able to discriminate significantly the two groups. The three most important items were: Item 37 (Institution has precollege program for high ability students) which the UA Precollege Group rated as being more important than the Comparison Group in their postsecondary institution selection process, Item 23 (Parents attended school there) which the

Comparison Group rated more important than did the UA Precollege Group, and Item 13 (Work and study interaction with fellow students). The Comparison Group rated this item slightly higher than did the UA Precollege Group.

Research Question 5 compared the UA Precollege Group and the Comparison Group on sex, ethnicity, grade point average, receipt of financial aid, and home location. A nonsignificant association was found between group membership and sex and group membership and ethnicity. The mean grade point averages of the UA Precollege students and the Comparison Group students were found not to differ significantly.

There was a significant difference between UA Precollege students and the Comparison Group with respect to their ratings of the importance of financial assistance. The Comparison Group rated the importance of that variable significantly higher than the UA Precollege Group.

When it was found that there was an overrepresentation of Tucson students in the UA Precollege Group and an overrepresentation of non-Tucson students in the Comparison Group, additional statistical tests with disaggregated data were conducted. The purpose was to examine possible sources of bias in postsecondary choice as well as attendance at the University of Arizona. Evidence from the

analyses indicated that bias did not appear to enter significantly into sample responses.

Supplementary information was gained from the open-ended question approach to reasons for postsecondary choices. For both the Comparison and Precollege Groups, the four most important reasons for choosing the University of Arizona were (1) close to home, (2) quality of programs, (3) good reputation, and (4) cost. Reasons for choosing other postsecondary institutions by these academically talented students were (1) school's reputation, (2) strong major field, (3) location, and (4) small size. Additional and varied comments were collected from Part II, Item 38 (other reasons; please explain) of the HEOI for student choice of a higher education institution. They included such reasons as the positive effect of the UA Precollege Program, the range of activities provided by the institution, institutional religious affiliation, recruitment for sports programs, scholarship assistance, and physical atmosphere of the institution.

Twenty-five UA Precollege Program participants (13 who attended the University of Arizona and 12 who attended other institutions) were interviewed. The personal interview attempted to examine further reasons for certain postsecondary choices, to discern the positive aspects of

the UA Precollege Program and to explore whether or not the program had an effect on a student's choice of an institution of higher education. The interview indicated that for all students the UA Precollege Program had two major positive aspects. They were an introduction to academic fields and career possibilities, and a reduction of anxiety about social and academic expectation of the full-time college experience. For a large majority of those students who chose to attend the University of Arizona, the UA Precollege Program was a positive influence in that decision. For those students who chose other institutions, the program supported their decision to attend college and took away fears about going away from home.

CHAPTER 5

SUMMARY AND IMPLICATIONS

The goal of this study was to examine the differences between the UA Precollege Group of high ability students and a Comparison Group of high ability students who had not participated in the UA Precollege Program. Differences were examined on several variables which relate to choice and attendance in postsecondary education. Specifically, the primary objectives of this study were: (1) to compare the UA Precollege and Comparison Groups on certain relevant demographic variables which were pertinent to this study, (2) to compare the UA Precollege and Comparison Groups with respect to reasons they selected higher education institutions, and (3) to report the findings of responses to supplemental questions and personal interviews about postsecondary choice.

It was expected that differences would appear between the two groups because the experiences of the UA Precollege Program participants would tend to affect their reasons for attending higher education institutions. In this final chapter the conceptual framework, research design, and findings are discussed and summarized. The implications

of this study and suggestions for further research are also presented.

Summary of Framework

In recent years, analysts of the social stratification process have articulated the conceptual framework of life's orderly progression of phases called status passages. The cycle begins with family position, unfolds through a process of early socialization, schooling, early adult experiences, occupational status, and the creation of a new family.

The framework of this study has been adapted from the seminal work of Strauss (1959) and later expansion by Gould (1972), Sheehy (1974) and others. The major conceptual contribution of Strauss was the idea of "regularizing life's passages". When regularization occurs during the movement through a status passage, it indicates that persons learn from predecessors and mentors what to expect from the next stage (passage) of life.

The important status passage for students who were subjects in this study is the critical transition from high school to college. Students, in this dynamic growth period, are making choices through which initial membership is established in the adult world. Their tasks during this transition period are to appraise the existing structure,

to explore the possibilities for change in self and the world and to move toward important choices that form the basis for a new life structure. It is a period of termination and initiation.

The present study attempted to identify some factors in the postsecondary decision process of academically talented students during the important high school-to-college transition period. Specifically, the study attempted to discuss whether or not the UA Precollege Program was significant to regularizing this passage.

Summary of Research Design

This study primarily employed survey research methods as its principal approach to gathering information on the UA Precollege and Comparison Group students. Secondly, to supplement the survey research approach, additional information was collected from biographical and open-ended questions concerning postsecondary choices as well as indepth interviews with 25 UA Precollege participants. The research design could be categorized as an ex post facto or retrospective design since data were collected from students after they had participated or not participated in the UA Precollege Program of 1981 and 1982. The approach often referred to as a quasi-experimental.

design (Campbell and Stanley, 1963) has limitations. One limitation in this study, for example, is the absence of a random sample.

The data for this study were collected by means of a survey mailed to the 1981 and 1982 participants in the UA Precollege Program and to the Comparison Group (300 of the top ten percent of Arizona high school juniors in 1981 and 1982). The survey instrument, the Higher Education Orientation Inventory (HEOI), developed for this study included items adapted from the Graduate Student Satisfaction Questionnaire (Feild and Giles, 1980) and from the College Plans of Maryland National Merit and National Achievement Semifinalist Survey (1982). The two-part HEOI included biographical questions and items relating to reasons for choosing a postsecondary institution.

The study focused on five major research questions. First, the extent to which participants in the UA Precollege and Comparison Groups enrolled in a type of postsecondary program was examined by using the chi-square test of independence. Second, the difference between the UA Precollege Program participants and nonparticipants in their choice of higher education was examined. A t test was used to compare the mean response of the two groups in Item 37 (Institution had precollege program for high

ability students) of the questionnaire. Further examination of this question included conducting an additional t test to compare ratings on Item 37 for only those UA Pre-college Group and Comparison Group students who chose to attend the University of Arizona. Third, underlying reasons (i.e., factors) that UA Precollege Group and Comparison students cited for selecting a specific higher education institution were examined with a principal factors analysis. The intercorrelation matrix of the 37 items of the HEOI was subjected to a principal factors solution separately for the UA Precollege and Comparison Groups. Four factors were extracted using the scree method. Those four factors were subjected to a varimax rotation and the factor loadings were interpreted. For further examination of this research question, the factors of the UA Precollege and Comparison Groups were compared pairwise with coefficients of congruence.

Fourth, the differences among the factors that influence the UA Precollege Group and Comparison Group students in their choices of institutions were compared. A discriminant analysis was performed to determine which of the 37 items best discriminated between UA Precollege Group and Comparison Group students. A stepwise procedure using the smallest Wilks' lambda as the criterion for variable selection was selected.

Fifth, the comparability of the UA Precollege and Comparison Groups with respect to sex, ethnicity, home location, and receipt of financial aid were investigated with chi-square analyses. The comparability of the two groups with respect to grade point average were examined by using a t test.

Twenty-five former participants in the UA Precollege Program were interviewed to obtain information on the reasons students selected institutions of higher education and the Precollege Program's possible influence on those reasons. This and additional information from both groups on postsecondary choices were tabulated and reported.

Summary and Discussion of Findings

The findings of this study will be summarized under three general areas: (1) a comparison of UA Precollege Group and Comparison Group students on selected demographic characteristics, (2) a comparison of the UA Precollege and Comparison Groups on reasons for selecting institutions of higher education, and (3) a description of the responses of the UA Precollege and Comparison Groups extracted from the open-ended question portion of the questionnaire and the personal interviews of 25 of the UA Precollege students. The purpose of both statistical and

descriptive analyses was to investigate the factors in the postsecondary selection process from several perspectives.

Demographic Characteristics

The UA Precollege and Comparison Groups were equated on sex, ethnicity, and grade point average. Statistical tests comparing the two groups with respect to these three demographic characteristics showed that the groups were not significantly different. There was, in fact, a strong suggestion that the groups were similar. The two groups were also compared with respect to types of higher education institution chosen (four-year university, four-year college, two-year college, trade school). The majority of students in both groups chose to attend a four-year university and the next highest choice for both groups was the four-year college. Therefore, it was concluded, based on statistical evidence and an inspection of the data that these two groups were not significantly different.

It was important to the logic of the study that the two groups be similar with respect to sex, ethnicity, and grade point average. If the groups differed on these variables, the differences could affect their responses to the HEOI and their choice of a postsecondary institution. For example, students with lower grade point averages would not be expected to choose the same institutions as those with

higher grade point averages. By controlling for the three variables of ethnicity, sex, and grade point average, it was expected that the internal logic of the study would be strengthened.

Students were compared with respect to home location. The UA Precollege students tended to be from Tucson, whereas the Comparison Group tended not to be from Tucson. The overrepresentation of Tucson students in the UA Precollege Program and the overrepresentation of non-Tucson residents in the Comparison Group may be considered a possible moderating variable in this study. Since the Comparison Group students lived away from Tucson, they may tend not to choose the University of Arizona while local students would choose the University of Arizona because they live in Tucson. Further analyses suggested that if there were a bias due to differential representation of Tucson and non-Tucson students in the UA Precollege sample and the Comparison Group sample, it was minimal and non-significant. The results of the questionnaire indicated that the majority of both groups of students still favored the choice of a four-year university regardless of home location.

UA Precollege Group and Comparison Group students were compared with respect to several dependent variables on which they might be expected to differ. Item 37 of the

HEOI was examined separately and the total HEOI was examined with factor analysis and discriminant analysis. Not surprisingly, it was found that, indeed, students who had experienced the UA Precollege Program rated an experience of this kind much higher than those who had not participated in the UA Precollege Program. Since the Comparison Group students had no opportunity to participate in the UA Precollege Program, their response to this question may be based on supposition or some similar precollege experience at another institution before entering college. Nonetheless, the difference between the group responses on this item suggested a strong influence of the UA Precollege Program by its participants. For students in both groups who chose to attend the University of Arizona, those students who attended the UA Precollege Program rated the importance of the Program significantly higher than those who did not participate in the Program before entering the University.

When the responses to all items of the HEOI were factor analyzed separately for each group, it was shown that there were some clear differences on all the factors which were extracted with the exception of Factor II of the UA Precollege Group and Factor I of the Comparison Group, "Academic Quality of the Institution". All of the factors were given names according to the size of the

factor loadings. In the UA Precollege Group they were (Factor I) Social Components of the Institution, (Factor II) Academic Quality of the Institution, (Factor III) Expenses and Financial Aid, and (Factor IV) Institution Image. In the Comparison Group they were (Factor I) Academic Quality of the Institution, (Factor II) Finances and Special Assistance Available, (Factor III) Student Social Life; and Factor IV was not categorized because of the diversity of responses. For the UA Precollege Group, the primary emphasis on the social aspects of the institution (work/interaction with fellow students and meeting new friends) may have been rated this way because of their recollection of the esprit de corps and close contacts made with other students during the UA Precollege experience. The Comparison Group's highest rating for institutional academic quality and the UA Precollege Group's rating on this category included items that might be expected from academically talented students. These items included quality of course instruction, professional competence of professors, intellectual stimulation, and overall training. In the area of cost of the institution, the UA Precollege Program Group gave a high rating to the item, "Tuition costs were less" while the Comparison Group gave a high rating to "Better financial assistance offered".

Aspects of higher education social life ranked third in importance to the Comparison Group while the UA Precollege Group ranked third in importance the institution's image (contacts by school made a good impression and size of the institution).

The factor analyses were followed by a discriminant analysis using items of the HEOI as predictors and group membership as the criterion variable. The largest discriminant weight was with reference to Item 37 (Institution had precollege program for high ability students). This supported the finding that there was a significant mean difference on which students rated the importance of the UA Precollege Program in selection of institutions of higher education. The subset of items which differentiated the two groups included "Parents attended school there" rather more important by the Comparison Group, "Work and study interaction with fellow students", and "Quality of course instruction" also rated more important by the Comparison Group.

The factor analysis followed by the calculation of coefficients of congruence (used to determine the degree to which factors and their patterns of factor loadings are similar) showed the difference between the two groups with respect to factor structure. Overall it appeared that the two groups differed on several factors. Only one pair of

factors named "Academic quality of the institution" was found to be similar within the groups. The discriminant analysis made it possible to obtain a subset of items which maximally differentiated the two groups and to determine the relative importance of each discriminating item.

The open-ended question approach (Part I, HEOI) to reasons for college choice of academically talented students provided additional information. For both groups who chose to attend the University of Arizona, the most important reasons were (1) the university was close to home, (2) the cost of attending the university, (3) the quality of programs, and (4) the good reputation of the university. For both groups who attended other postsecondary institutions the most important reasons were (1) the institution has a good reputation, (2) the institution has a strong program in area of major study, (3) the institution is well located, and (4) the institution is small. Additional reasons for postsecondary choices in unstructured questionnaire responses included institutional religious affiliation, sports programs, the importance of a precollege program, and friendly atmosphere.

An interview with 25 former participants in the UA Precollege Program was an important addition to the study

because it approached finding information from a subjective perspective thereby allowing an exploration of students' feelings. This approach has certain inherent values and certain problems. The value is in the possibility that important information might be obtained that is unsuspected ("serendipitous" findings). The interviews could generate hypotheses for further research because they may uncover information or questions not considered by the researcher. The problem is that the information cannot be treated in a statistical manner.

A summary of the findings of the personal interviews emphasized that the UA Precollege Program provided an introduction to the academic and social aspects of college life thereby alleviating anxiety about attending a college or university full time. For many of the students who chose to attend the University of Arizona, the UA Precollege Program had a positive influence on that decision. For those who chose to attend other institutions, it supported their decision to attend college and helped to build confidence about the forthcoming higher education experience.

Implications

The implications of this study will be discussed from three perspectives. The first is the implications for

the academically talented students, the second is the implications for higher education institutions, and the third is the implications for the general society.

Many studies focus on the young, academically talented or gifted student. Responding to individual student needs during educational pursuits is of critical concern to teachers and administrators (Lyon, 1972). What of the needs of the secondary and postsecondary student who shows great academic promise? Are there sufficient opportunities in high schools and colleges or universities to provide rich, challenging academic experiences for these above average students? Are they receiving institutional support and guidance to develop their intellectual power and human potential? It is imperative for young persons in the critical high school-to-college transition stage to make decisions about their lives with information and awareness. A precollege program experience may provide the arena for the needed support to make a responsible decision.

It appears that, for two groups of academically talented students, each has its own set of underlying reasons for making certain postsecondary choices. Those who attended the UA Precollege Program either developed underlying reasons for postsecondary choices during the Precollege Program or motivation to come to the Program

gave them different reasons from those of the Comparison Group for postsecondary choice. This suggests that there is a large untapped source of talented students who are not exposed to the opportunity of a precollege program who make selections of higher education institutions differently from those students who participated in the Program. The fact that many talented students are not attending precollege programs suggests that those in higher education may be missing opportunities to introduce high ability students to their institutions. Administrators, recruitment officers, and counselors could mount new approaches to the promising secondary students who do not attend precollege programs.

In the present study, the greatest number of UA Precollege students are from Tucson, while the Comparison Group students are from other places in Arizona. To make the opportunity of the UA Precollege experience available to a broader number of students, new ways of communication about the Program can be devised (i.e., additional mailings to lists of qualified students, speech and media presentations that emphasize the factors about the University that are important to these students: quality of instruction, quality of professor-student interaction, and opportunity for independence in educational programs.

One implication of this study is that it supports the validity of the Strauss (1959) passage regularization process, that the high school-to-college passage is indeed a critical transition. Since that is the case, it would be useful for all types of institutions to consider in their program designs better ways in which high schools and higher education institutions may facilitate this process. Especially designed precollege programs created for a specific institution appear to be an avenue to smooth the transition.

The importance of developing the natural talent of the nation's citizenry is well established. Since there is no argument over this proposition, the practical problem becomes one of devising the best means to nurture that talent to develop the kind of industrial and intellectual leadership which our society increasingly requires. The educational opportunities that gifted students accept or reject is of vital national concern. The emphasis on the precollege program as a factor in the postsecondary choice process may not be the primary focus. Perhaps the focus should be on such a program's function in easing the transition process from high school to college. Then, higher education institutions could provide this kind of educational opportunity to academically talented students not because it affects postsecondary choice but it provides a needed societal service.

Recommendations for Future Research

Since the majority of the students in this research were Caucasians, it is recommended that educational choices of large samples of minority groups be surveyed. This research project was limited to students from the State of Arizona. It is recommended that a similar survey could be conducted in other geographical areas. Perhaps a national sampling would yield important results for understanding postsecondary choices for academically talented students. A replication of this study could strengthen the present findings indicating whether similar findings would again emerge. In the interest of long-term research, a longitudinal study of the same students would supply important information about fields of study and retention levels in higher education institutions and career choices for the high ability students.

It is also suggested that research could be conducted into reasons a large group of talented students do not attend the precollege programs thereby providing information on needs and attitudes of talented students. What institutions can do to present themselves as acceptable to the academically able is also an issue for further research. Also, research could provide important information on the

cooperative efforts of secondary schools and postsecondary institutions in matters of college choice and the high school-to-college transition process.

In the democratic spirit of meeting educational needs of students of all ability levels, how can the institution best maximize the intellectually able student's educational process? How can this be accomplished in order that the student can satisfy his or her academic/vocational needs and at the same time can be prepared to make a contribution to the society in which that individual lives? Further research could corroborate whether or not a proper setting for regularizing the passage from high school to college is, as it appears to be, a precollege program. Research would also be appropriate to compare postsecondary student retention levels for Precollege and Comparison Group students.

It is important to know that a precollege program can have considerable influence on the choice of a specific postsecondary institution. It may be equally important to know that during the experience of a precollege program, the climate is such that the postsecondary choice can be made with a degree of confidence, optimism and some knowledge about what is to come.

APPENDIX A

HIGHER EDUCATION ORIENTATION INVENTORY
PRECOLLEGE STUDENT QUESTIONNAIRE

Part I

NAME _____

I attended the University of Arizona Precollege Program (first, second) session of (1981, 1982, 1983). (Please underline or circle the appropriate session and year attended).

I graduated or will graduate from _____ High School.

I am attending or plan to attend _____ for my postsecondary education.

My present educational status (college freshman, college sophomore, not attending school): _____

What are the three most important reasons (in order of importance) for your choice of the higher education institution that you attend or plan to attend?

If you did not select the University of Arizona for your postsecondary education, would you state three reasons (in order of importance) for that reason?

If you did select the University of Arizona for your postsecondary education, would you state three reasons (in order of importance) for that decision?

PART II
HIGHER EDUCATION ORIENTATION INVENTORY

DIRECTIONS: This inventory indicates reasons for your choice of an institution of higher education. Please respond to the following statements in Part II by circling the appropriate number following each item. Use the following scale.

1 = Very Unimportant	4 = Somewhat Important
2 = Unimportant	5 = Important
3 = Somewhat Unimportant	6 = Very Important

	VU	U	SU	SI	I	VI
1. Overall training	1	2	3	4	5	6
2. Social life with fellow students	1	2	3	4	5	6
3. Professional competence of professors	1	2	3	4	5	6
4. Intellectual stimulation provided by training	1	2	3	4	5	6
5. Intellectual climate	1	2	3	4	5	6
6. Reputation of institution	1	2	3	4	5	6
7. Quality of course instruction	1	2	3	4	5	6
8. Opportunity for professor/student discussion in courses	1	2	3	4	5	6
9. Expense of the institution	1	2	3	4	5	6
10. Library facilities	1	2	3	4	5	6
11. The voice you have in influencing policies and procedures affecting students	1	2	3	4	5	6
12. Freedom in choosing course work	1	2	3	4	5	6
13. Work and study interaction with fellow students	1	2	3	4	5	6
14. Overall physical facilities	1	2	3	4	5	6
15. Opportunity for independent thought and action in education program	1	2	3	4	5	6
16. Academic performance of fellow students	1	2	3	4	5	6

PART II
HIGHER EDUCATION ORIENTATION INVENTORY

	VU	U	SU	SI	I	VI
17. Your friends will go to the institution	1	2	3	4	5	6
18. Degree of emphasis on grades	1	2	3	4	5	6
19. Amount of required work in courses	1	2	3	4	5	6
20. Contacts by school made good impression	1	2	3	4	5	6
21. Size of institution	1	2	3	4	5	6
22. Social interaction with your professors	1	2	3	4	5	6
23. Parents attended school there	1	2	3	4	5	6
24. Parents felt it was the best choice	1	2	3	4	5	6
25. To earn more money	1	2	3	4	5	6
26. Wanted to commute daily	1	2	3	4	5	6
27. To prepare yourself for graduate or professional school	1	2	3	4	5	6
28. Wanted to go to school in that geographic area	1	2	3	4	5	6
29. To meet new friends	1	2	3	4	5	6
30. Wanted to live away from home	1	2	3	4	5	6
31. Had superior programs in intended major	1	2	3	4	5	6
32. Tuition costs were less	1	2	3	4	5	6
33. Knew more about it than other schools	1	2	3	4	5	6
34. Better financial assistance offered	1	2	3	4	5	6
35. Special programs for academically talented students	1	2	3	4	5	6
36. Teacher/counselor recommended it	1	2	3	4	5	6
37. Institution had precollege program for high ability students	1	2	3	4	5	6
38. Other reasons - please explain:						

THANK YOU!

Part I

OUTSTANDING JUNIOR DAY
STUDENT QUESTIONNAIRE

NAME _____

I graduated from _____ High School in _____ (year).

Grade Point Average at end of High School Junior year _____

Please note exact grade point average calculated to two decimal places
on the following scale:4:00 = A, 3.00 = B, 2.00 = C, 1:00 = D, 0.00 = E or F
(e.g., you may list your GPA as 3.21, 4.00, 3.67, etc.)I am attending or plan to attend (college) _____
for my postsecondary education.My present education status (college freshman, college sophomore, not
attending school): _____What are the three most important reasons (in order of importance) for
your choice of a higher education institution:If you did not select the University of Arizona for your postsecondary
education, would you state three reasons (in order of importance) for
that decision?If you did select the University of Arizona for your postsecondary
education, would you state three reasons (in order of importance) for
that decision?

PART II
HIGHER EDUCATION ORIENTATION INVENTORY

DIRECTIONS: This inventory indicates reasons for your choice of an institution of higher education. Please respond to the following statements in Part II by circling the appropriate number following each item. Use the following scale.

1 = Very Unimportant	4 = Somewhat Important
2 = Unimportant	5 = Important
3 = Somewhat Unimportant	6 = Very Important

	VU	U	SU	SI	I	VI
1. Overall training	1	2	3	4	5	6
2. Social life with fellow students	1	2	3	4	5	6
3. Professional competence of professors	1	2	3	4	5	6
4. Intellectual stimulation provided by training	1	2	3	4	5	6
5. Intellectual climate	1	2	3	4	5	6
6. Reputation of institution	1	2	3	4	5	6
7. Quality of course instruction	1	2	3	4	5	6
8. Opportunity for professor/student discussion in courses	1	2	3	4	5	6
9. Expense of the institution	1	2	3	4	5	6
10. Library facilities	1	2	3	4	5	6
11. The voice you have in influencing policies and procedures affecting students	1	2	3	4	5	6
12. Freedom in choosing course work	1	2	3	4	5	6
13. Work and study interaction with fellow students	1	2	3	4	5	6
14. Overall physical facilities	1	2	3	4	5	6
15. Opportunity for independent thought and action in education program	1	2	3	4	5	6
16. Academic performance of fellow students	1	2	3	4	5	6

PART II
HIGHER EDUCATION ORIENTATION INVENTORY

	VU	U	SU	SI	I	VI
17. Your friends will go to the institution	1	2	3	4	5	6
18. Degree of emphasis on grades	1	2	3	4	5	6
19. Amount of required work in courses	1	2	3	4	5	6
20. Contacts by school made good impression	1	2	3	4	5	6
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22. Social interaction with your professors	1	2	3	4	5	6
23. Parents attended school there	1	2	3	4	5	6
24. Parents felt it was the best choice	1	2	3	4	5	6
25. To earn more money	1	2	3	4	5	6
26. Wanted to commute daily	1	2	3	4	5	6
27. To prepare yourself for graduate or professional school	1	2	3	4	5	6
28. Wanted to go to school in that geographic area	1	2	3	4	5	6
29. To meet new friends	1	2	3	4	5	6
30. Wanted to live away from home	1	2	3	4	5	6
31. Had superior programs in intended major	1	2	3	4	5	6
32. Tuition costs were less	1	2	3	4	5	6
33. Knew more about it than other schools	1	2	3	4	5	6
34. Better financial assistance offered	1	2	3	4	5	6
35. Special programs for academically talented students	1	2	3	4	5	6
36. Teacher/counselor recommended it	1	2	3	4	5	6
37. Institution had precollege program for high ability students	1	2	3	4	5	6
38. Other reasons - please explain:						

THANK YOU!



APPENDIX B
LETTERS OF INTRODUCTION AND EXPLANATION
THE UNIVERSITY OF ARIZONA
TUCSON, ARIZONA 85721

COLLEGE OF EDUCATION
OFFICE OF THE DEAN
(602) 621-1350 or
621-7894

Dear Former Precollege Student:

I need your help! In order to complete some very important research about higher education preferences and plans of selected, high ability students I would like you to fill out the enclosed two-part questionnaire. It will help me finish my doctoral dissertation, and I will be grateful to you for that.

I am continually interested in what our Precollege students are doing. I hope your summer experience here was beneficial to you as you moved to further pursuits. You are indeed a part of a unique group and you have a great deal to offer to the world. I always wish you continued success.

A return envelop is enclosed. All responses are maintained in strict confidence. I would appreciate it if you could return the questionnaire within a day or two, for as you know, "tempus fugit."

A thousand thanks!

Warm regards,

Peggy Douglas
Director
Precollege Program for
Gifted and Talented Students

PD/mt
Enc.



THE UNIVERSITY OF ARIZONA

138

TUCSON, ARIZONA 85721

COLLEGE OF EDUCATION

OFFICE OF THE DEAN

Dear Student:

Your name was given to me as a student who was invited to the "Outstanding Junior Day" at the University of Arizona campus in recent years. In order to complete some very important research about higher education preferences and plans of selected, high ability students, I would appreciate it if you would complete the enclosed two-part questionnaire.

Students like yourselves are great contributors to today's world. We, at the University, are always searching for ways to make education even more valuable to you. Would you please complete the forms and return them within a day or two in the enclosed envelope? All responses are maintained in strict confidence.

I am grateful for your assistance in this study. Thank you very much.

Sincerely,

Peggy Douglas
Director
Precollege Program for
Gifted and Talented Students

PD/mt
Enc.

(602) 621-1350 or
621-7894

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