The effectiveness of summer orientation programs on retention and subsequent academic performance of minority students: a follow-up study

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The effectiveness of summer orientation programs on retention and subsequent academic performance of minority students: A follow-up study

Sanford, Marion R., Ph.D.

Iowa State University, 1990
The effectiveness of summer orientation programs on retention and subsequent academic performance of minority students: A follow-up study

by

Marion R. Sanford

A Dissertation Submitted to the Graduate Faculty in Partial Fulfillment of the Requirements for the Degree of DOCTOR OF PHILOSOPHY

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1990
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INTRODUCTION

The purpose of this study was twofold: (1) to follow up the investigation on the summer orientation program (Sanford, 1988) and measure its long-term effectiveness on retention, attrition, and academic performance of entering college minority freshmen; and (2) to do a comparison study of the initial experimental group with the entering freshmen of the recent year to examine the effectiveness of summer orientation programs on student retention and subsequent academic performance of minority students at a Midwestern, land-grant science and technology university. Long term was defined as continuous enrollment through five semesters; short term is defined as one semester. Defining orientation, Webster's New Twentieth Century dictionary states orientation is the familiarization with and adaptation to a situation or environment; specifically, in psychology, interpretation of the environment as to time, space, objects, and persons (n,3). Orientation often means to become accustomed to our surroundings; and to adjust oneself to other people and new places.

What is meant by "adjusting" to an environment or situation? Adjustment means to fix, adapt, or set right as well as to become acquainted or accustomed to a new and/or different environment. For the purpose of this study, the
environment that is being adjusted or adapted to is the college or university setting.

In a university, environment encompasses everyone who has something to do with the university (i.e., faculty, administrators, and students). It also entails the buildings and climate of the atmosphere, as well as food and water (Banning, 1984). These are a few of the elements to which the freshman entering college must adjust to, become oriented to.

As stated earlier, orientation is familiarizing and adapting oneself to a situation or environment. Orientation is becoming fit—fit to live (Hawkes & Johns, 1929). For as a student matriculating through college, he must prepare himself to live life at college as well as preparing himself for life after the university (Hawkes & Johns, 1929).

Therefore, orientation serves several purposes. First, orientation is a tool used to aid the college freshman in adjusting or adapting to their new environment. It helps acquaint the student to that institution's mission, aims, goals, purposes, structure, etc. It also acquaints him/her to the various out of class experiences (clubs, athletics, etc.) of the university environment. Second, orientation fosters training in thinking. It examines the methods and processes of thinking. Orientation is used to discover and evaluate one's capacities and develop one's potentials to
the fullest. Third, orientation aims for the improvement of study techniques. It searches for and develops advantageous methods of study and learning. Fourth, orientation probes for self-knowledge and self-development. Entering students begin considering vocational and avocational planning and reviewing the mission, purpose, scope, and value of the selected educational opportunities. Lastly, orientation strives to give the college freshman a better understanding of the nature and value of human relations involved in group life. Hence, it attempts to increase the social capabilities of the college freshman.

Orientation can play a major role in the retention or attrition of freshmen students. Upcraft (1984) and Upcraft and Gardner (1989) state that retention is the major reason for implementing orientation programs. They define retention as the ability to retain or the state of being retained in an institution until completion of a program. Attrition is defined as withdrawal from an institution without formally completing a program. Attrition has increasingly demanded the attention of college and university administrators. For some administrators, students who withdrew from school do so as a result of institutional failure (Ewell, 1984). Hence, the preoccupation to retain students throughout their college career. This has led many institutions to develop student
retention programs, in which orientation plays a role. Miller (1988) stated that the institutional level of commitment to address the need and recognize the value of orientation/retention programs will determine the program's design and how the university will accept the program's goals and the institutional climate in regard to the existence of that program. However, before implementing a retention program, the college or university must examine (1) the degree to which it has a retention program, (2) the particular student populations among which the problem is occurring, and (3) some of the reasons why the problem is occurring (Ewell, 1984). Also, the institution should estimate what kinds of students are dropping out of what kinds of programs under what kinds of circumstances (Ewell, 1984). Administrators should be cognizant that the structural designs of these retention programs are unique to each institution based on their respective needs and capabilities (Miller, 1988).

Brown (1985) mentioned four conditions that must exist for orientation/retention programs to be successful: (1) institutional commitment; (2) program leadership; (3) program conceptualization; and (4) faculty involvement. The presence of these components will significantly effect the program's outcomes. Clewell and Flicklen (1986) also identified several components of a minority student
retention program that are necessary to insure effective and positive outcomes. They included: (1) presence of stated policy; (2) high level of institutional commitment; (3) substantial degree of institutionalization; (4) comprehensive and integrated academic and support services; (5) dedicated staff and strong faculty support; (6) non-stigmatization of participating students; and (7) systematic means for collecting data to monitor and evaluate student progress (Clewell & Flicklen, 1986). Noticeably, several of the components are similar and basically demand the same conditions be met by the institution to insure a successful orientation program for minority students.

Students withdraw from colleges and universities for many reasons. These may include financial problems, lack of academic ability, academic difficulty, lack of counseling, lack of interaction with peers and/or faculty, and lack of motivation. Tinto (1987) has found that students withdraw from school in basically two ways: academic dismissal and voluntary withdrawal. Students who leave for academic reasons comprise approximately 10% to 15% of all students who withdraw from college; the rest leave on a voluntary withdrawal basis (Tinto, 1987). Research has indicated that students often make the decision to leave an institution long before they act on it (Lenning, Beal, & Sauer, 1980). For example, students discover that the school environment
may not be what they expected, their selected major does not meet their standards, or they do not make the kind of friends that they want to make or any friends at all. However, they extended their stay in school hoping that things will improve or change altogether. Many students who drop out prior to completion of their degree programs do not do so for academic reasons (Dukes & Gaither, Winter 1984; Pantages & Creedon, 1978). Hamby (Spring 1988) found that the black students at predominantly white institutions tend to have more problems and therefore drop out of school more often than blacks at historically black institutions.

Researchers have attributed the involvement in activities by a large number of blacks at historically black institutions, in student organization activities and athletic activities, to be superior to that of blacks at predominantly white institutions (Carr & Chittum, 1979; Fleming, 1984; Hamby, Spring 1988).

Robert Grose (1980) stated that some students should leave college. On a more positive note, Bynum and Thompson (1983) concluded that the longer a student remains in school, the longer they tend to persist and the greater their chances for successful completion of their degree programs. However, students attend college for increasingly diverse reasons, very few of which may include earning a baccalaureate degree. Therefore, the institution must look
at the reasons why these students entered college and determine if they can contribute to these reasons. The mission of effective retention programs is to prevent the ones who should not drop out from doing so for preventable reasons (Ewell, 1984). This is where an effective orientation program plays a part.

As stated earlier, the purposes of orientation are to help adjust the new student to university life, to aid in the improvement of study and learning methods and assist in occupational or vocational selection. That is, to prepare him/her to live in and after the university. The freshman year should focus on the interest of each student. The institution cannot ignore or overlook the fact that it has some impact on the student in the shaping of their personality. By the very fact that it presumes to inform the minds of the young, the institution becomes involved in the development of the whole person, of which the intellectual facilities are but a part (Ewell, 1984). By facilitating a retention program and utilizing an orientation program that fulfills the purposes and goals of the program, the institution will have acknowledged it's responsibility in assisting not only the smooth transition from high school to the university, but also the development of the student as an individual.
Statement of the Problem

Many colleges and universities have and are developing and utilizing orientation programs that will aid in the retention of college students. Also, the orientation programs are employed to foster the academic performance of those students who come from educational disadvantaged and low-income backgrounds. The purpose of this study was two-fold: (1) to follow up the investigation of a summer orientation program and measure its long-term effectiveness on retention, attrition, and academic performance of entering college minority freshmen; and (2) to do a comparison study of the initial experimental group with the entering minority freshmen of the recent year. The results from this study will provide information about the long- and short-term degree of success of summer orientation programs in fostering retention and improving academic performance.

The target population identified in this study was two separate groups of graduated high school minority students entering college for the first time. For the purpose of this study, the term "minority" encompasses those students who are members of the ethnic group Black AMericans, Hispanics, and Asian Americans. The students were identified by ethnic group and educational status, that being grade point average, high school rank, ACT and/or SAT
test scores. The statistical analyses used in this study were t-tests, ANOVA, and chi-square.

Objectives of this Study

1. To determine if the orientation program is effective (long- and short-term) in the ultimate retention of minority students;

2. To examine the long- and short-term effect of participating in an orientation program on academic performance of minority students;

3. To examine if participating in an orientation program specifically developed for educational disadvantaged minorities aid in the enhancement of self-image and confidence of minority students;

4. To determine if orientation programs actually facilitate the smooth transition into college life for entering freshmen minority students;

5. To determine if the initial outcomes and determinants of orientation programs remain constant or improve over time.

Orientation programs have several purposes, all or some of which may be fulfilled. A major factor in orientation programs is the length of program. Additional factors may be the population to be served and the degree to which the population may be academically, emotionally, financially, and psychologically (i.e., mature) prepared to attend
college. Taken into account is the fact that these factors vary from individual to individual and are unique unto each one.

For the purpose of this study, two experiments were conducted. Experiment one consisted of a re-examination of the experimental and control groups of the researcher's initial study (Sanford, 1988) to determine if their academic performance and retention increased or remained stable over time. In order to determine the effectiveness of the summer orientation program in this follow-up study, the researcher selected the following hypotheses to be tested.

Hypotheses to be Tested

The following hypotheses were tested in the first experiment relating to the effectiveness, over time, of a summer orientation program in student retention and competitive academic performance of freshmen minority students as they matriculated through college.

Hypothesis one

There is a significant difference over time in academic performance as a result of participating in a summer orientation program as characterized by grade point average.

Hypothesis two

There is a significant difference over time in student retention as a result of participating in a summer
orientation program when the three groups are compared as determined by
a. continuing in the institution
b. successful completion of subsequent semesters.

Hypothesis three
There is a significant difference over time in academic performance as a result of participating in a summer orientation program in regard to gender.

Hypothesis four
There is a significant difference over time in student retention as a result of participating in a summer orientation program in regard to gender.

The purpose of the hypotheses for experiment one are as follows:
Hypothesis one was tested to determine if participation in a summer orientation program enhanced the academic performance over time of the minority students. The main characteristics examined were semester and cumulative grade point averages.

Hypothesis two was tested to determine if participation in a summer orientation program aided in the retention of minority students over time by investigating if the students continued in their program and completion of each subsequent semester.
Hypothesis three was tested to determine if there was a significant difference in gender of participants of the summer orientation program and how it related to academic performance over time.

Hypothesis four was tested to determine if there was a significant difference in gender of participants of the summer orientation program as it related to student retention over time.

Experiment two

This experiment was conducted using a sample of ethnic minority students to determine if by participating in a summer orientation program, they would retain in college and complete a degree and also if their academic performance would be as competitive as those students, minority and majority, who did not participate in the summer orientation program. The results of this group would then be compared with the results of the researcher's initial study (Sanford, 1988) to measure differences in program outcomes and students' performances. The researcher selected the following hypotheses to be tested.

Hypotheses to be Tested

The following hypotheses for experiment two were tested relating to the effectiveness of a summer orientation
program in student retention and competitive academic performance of freshmen minority students.

**Hypothesis one**

There is a significant difference in academic performance as a result of participating in a summer orientation program as characterized by

a. grade point average

b. test scores.

**Hypothesis two**

There is a significant difference in student retention as a result of participating in a summer orientation program when the three groups are compared as determined by

a. continuing in the institution

b. successful completion of first semester.

**Hypothesis three**

There is a significant difference in academic performance as a result of participating in a summer orientation program with respect to gender.

**Hypothesis four**

There is a significant difference in student retention as a result of participating in a summer orientation program with respect to gender.
Hypothesis five

There is a significant difference in academic performance as a result of participating in a summer orientation program with respect to previous academic performance as characterized by
a. high school grade point average
b. high school rank.

Hypothesis six

There is a significant difference in academic performance as a result of participating in a summer orientation programs for the experimental groups of experiments one and two as characterized by grade point average.

Hypothesis seven

There is a significant difference in student retention as a result of participating in a summer orientation programs for the experimental groups of experiments one and two as determined by
a. continuing in the institution
b. successful completion of first semester.

Hypothesis eight

There is a significant difference in academic performance as a result of participating in a summer
orientation program for the experimental groups of experiments one and two with respect to gender.

**Hypothesis nine**

There is a significant difference in student retention as a result of participating in a summer orientation program for the experimental groups of experiments one and two with respect to gender.

The purpose of the hypotheses are as follows:

Hypothesis one was tested to determine if participation in a summer orientation program enhanced the academic performance of the minority students. Such characteristics included: grade point average, study and learning skills, and test scores.

Hypothesis two was tested to determine if participation in a summer orientation program aided in student retention by investigating if the students continued in their program and completion of their first semester.

Hypothesis three was tested to determine if there was a significant difference in gender of participants of the summer orientation program and how it related to academic performance.

Hypothesis four was tested to determine if there was a significant difference in gender of participants of the summer orientation program as it relates to student retention.
Hypothesis five was tested to determine if there was a significance related to academic performance of participants in the summer orientation program that pertained to previous academic performance.

Hypothesis six was tested to determine if participation in a summer orientation program enhanced the overall academic performance of the experimental groups from each experiment. The main characteristic being examined was grade point average.

Hypothesis seven was tested to determine if participation in a summer orientation program aided in student retention when comparing results from experiments one and two in regard to continuation of academic degree program and completion of their first semester.

Hypothesis eight was tested to determine if there was a significant difference in gender of participants of the summer orientation program in experiments one and two as it related to academic performance.

Hypothesis nine was tested to determine if there was a significant difference in gender of participants of the summer orientation program in experiments one and two as it related to student retention.

The foregoing hypotheses from both experiments were tested to investigate the long- and short-term effectiveness of orientation programs on academic performance and student
retention. This information will contribute knowledge to administrators in developing orientation programs designed to ease the transition to the university and aid in student retention.

Summer Enrichment Program

The study examines a six-week summer orientation program at Iowa State University, the Summer Enrichment Program (SEP). The Office of Minority Student Affairs sponsored SEP during the summer session. In 1987, SEP began June 12, 1987, and ended July 31, 1987. In 1989, SEP began June 17, 1989, and ended August 4, 1989.

SEP is an intensive orientation for students who have been admitted to Iowa State University. SEP provides entering college students an opportunity to further develop skills which will enhance their academic abilities and personal development. They receive curriculum and vocational counseling, as well as workshops, lectures, and seminars. As first-time, full-time students, SEP participants are required to take no less than two (2) courses. This enables faculty and staff interaction with the participants and makes the program ongoing and committed to and with university goals and aims. Participants could take courses which included math, English, and psychology. These courses were scheduled based on demonstrated strengths and weaknesses and choice of major. Classes were arranged
on an individual basis with consultation from the appropriate college. The participants also had the opportunity to engage in various social and cultural activities that were planned for them.

Newly admitted minority students are sent SEP informational brochures from the Minority Student Affairs Office. They acknowledge their interest by completing and returning the postpaid application portion of this brochure. Tuition, fees, room and board were paid and all books were provided on a loan basis. The only costs to the students were transportation to and from the University, their own telephone bills, a summer health fee, money for their personal expenses. Thus, the program was virtually cost-free to the students.

Limitation of Study

This study was limited to ethnic minority students who participated in a summer orientation program at a Midwestern, predominantly white, land-grant science and technology university during Summer 1987 and Summer 1989. Comparisons were made within group between males and females, but not between minority and majority students in either experiment. Another limitation is the small number of subjects of the researcher's initial study and how those numbers decreased over time for the follow-up study. This precludes against drawing clear conclusions.
A review of literature was conducted to identify information regarding the effectiveness of orientation programs on student retention and academic performance. A computer bibliographic data base system was used: Education Resource Information Center (ERIC). This data base system was used to identify specific information related to minority students and orientation programs.

The following descriptors were used throughout the review: (1) minorities, (2) orientation programs, (3) higher education, (4) academic persistence (retention), and (5) student attrition. After the articles, research papers, and books containing any of these descriptors had been identified, the materials were reviewed to find information pertinent to the research topic.

In order to examine the effectiveness of orientation programs on student retention and academic performance, it was necessary first to understand the purpose and function of orientation programs. With this understanding, it was then possible to examine other institutions who had utilized orientation programs and their outcomes (i.e., effectiveness). These three areas combined provided the background information for this study which examined the effectiveness of orientation programs on student retention and academic performance.
Purpose and Function of Orientation Programs

The serious student comes to the university for a very definite purpose. He/She desires to have their intellectual curiosity stimulated. He/She wants to learn as much about themselves and the people around them as possible. He/She believes that a college education is one of the first steps in their progression through life, not an end in itself. If the university can stimulate the student's thoughts, educate their tastes, and broaden their outlook, then it has gone a long way toward justifying it's existence (Bennett, 1933). The freshman experience is thus crucial to the university and the student. During this time, the student's critical attitude toward his studies and the university in general is formed and the university must demonstrate the relevancy of liberal learning to a ready-to-believe but not-yet-convinced student audience (Committee on the Student in Higher Education, 1968).

Terman (1933) recognized the need for orientation courses due to the rapid increase in university attendance. Many youths entering an university, perhaps away from home for the first time, feel the impulse to assert their independence (Bennett, 1933). Entrance into the university means different things to each individual, as each one brings a different past to their new experiences in college (Bennett, 1941; Doermann, 1926).
College/University is a new word for the freshman. Adjustments must be made. The university may aid him/her but the problem of adjustment is one that must be solved by themselves (Doermann, 1926). The university must realize that only in so far as it assists the freshman in making these discoveries can it be laying the foundation for permanent values to be derived from a college education (Committee on the Student in Higher Education, 1968; Doermann, 1926). No orientation will be effective which does not grow out of an appreciation of personal qualities; an evaluation of past experiences; the degree to which these are related to and modify the present; and the bearing of both past and present on the future (Doermann, 1926). Therefore, orientation should be concerned with (1) introducing the student to the outstanding problems of contemporary civilization and (2) the more personal and immediate problems of the entering student, such as orientation to college life, methods of study, principles of mental hygiene, life goals and values, analysis of the student's interest and abilities, the choice of a vocation, etc. (Doermann, 1926; Terman, 1933).

In order to examine why orientation programs are implemented we must first understand the student and their development through life and college. Theorists have given us many developmental models upon which to draw from
Probably, Nevitt Sanford (1966) has argued more than other theorists than an institution should be a developmental community. Sanford (1966) has stated "that in order for the college to lead the student toward great development, it must present him with strong challenges, appraise accurately his ability to cope with challenges, and offer him support when they become overwhelming."

Chickering (1969) also emphasized the importance of challenge and response. He argues that development follows a challenge's response pattern: development follows "when students pursue tasks through which changes occur" (p. 144). Hence, the developmental community would require knowledge that describes (1) who the college student is in developmental terms, (2) how development occurs, (3) how the college environment can influence student development, and (4) toward what ends development in college should be directed (Knefelkamp, Widick, & Parker, 1978).

Erik Erikson describes individual development from a psychosocial viewpoint. Erikson (1968) maintains that progress through life comes about by interaction with family, peers, and society. Erikson's (1964) model of individual development diagrams this progression through the ordered pattern in eight stages of identity. These eight
stages cover from the first year of life to the years of old age. While a discussion of each stage would exceed the purpose of this review, it is important and relevant to this study to examine the fifth stage of identity since it deals with adolescence (young adulthood) years. Erikson (1964) notes that at this transitional life phase, the individual is developing a mind capable of abstract, reflective thought and is also realizing internal changes and external demands that won't let him return to childhood existence. The individual must ask and answer the question "who am I?" while trying to make sense of himself if he is to manage the complexities of adulthood effectively (Erikson, 1964). The individual must also establish a vocational goal for this will lead him to the establishment of a sense of identity (Erikson, 1964).

Chickering (1969) and Keniston (1971) have taken Erikson's identity stage further to include the college years. Keniston (1971) argues that during the college years, there is a tension between what the individual wants and what society demands. This is evident when students get in certain majors, go to certain graduate/professional schools to get "successful" jobs in order to meet societal demands when it may not be what they really want (Knefelkamp et al., 1978). Chickering (1969) sees the college years as a time when students are meeting their own needs and
capabilities by interacting with demands of a particular university environment. Chickering (1969) postulates seven vectors of development that outline an individual's growth including differentiation, integration, maturation, and stimulation. They are: (1) developing competence, (2) managing emotions, (3) developing autonomy, (4) establishing identity, (5) freeing interpersonal relationships, (6) developing purpose, and (7) developing integrity. Chickering emphasized that students are developmentally diverse; that is to say, that each student may accomplish different phases at different times. Knefelkamp et al. (1978) suggests that since freshman year is usually the time when attention is centered on issues of competence, managing emotions, and autonomy, orientation programs may be more effective if they address academic/social competence issues rather than issues of intimacy or vocational decision/making.

Chickering (1969) also lists six components of the university environment which may influence student development. They are: (1) clarity and consistency of objectives, (2) size of institution, (3) curriculum, teaching, and evaluation, (4) residence hall arrangements, (5) faculty and administration, and (6) friends, groups, and student culture. Each of these components influences vector development. The resultant experiences and the task demands
of learning and living in the university environment both encourage development along the vectors.

Pantages and Creedon (1978) conducted a study that showed that for every 10 students who enter college, only four will graduate four years later from that college. The fifth student will require additional years in order to graduate. Of the other five students who dropped out, eventually two will reenroll in other schools and finally receive a college degree. They also found that the freshman attrition rate is approximately 40-50 percent by the end of the second year (Pantages & Creedon, 1978). Other research results showed that 30 percent of students who participated in summer programs were on academic probation by the end of their first academic year and 18 percent tended to be suspended from the university as compared to 11 percent and 16 percent, respectively, of the control groups (Hamby, Spring 1988). If one examines black attrition, the situation becomes more distressing. Miller (1988), Allen (1985) and Dunston (1984) found that black students tend to persist at a rate of 15 percent lower than that of white students. Black students on both black and white campuses drop out at high rates, particularly in nontraditional fields for blacks such as in medical and dental schools. In engineering, blacks comprise only 4.9% of freshmen, but only 1.9% of these completed programs and received degrees.
Retention is more difficult in mathematics and the sciences because of the importance of strong secondary school foundations in these areas.

Bynum and Thompson (Fall 1983) concluded that proportionately more blacks tend to drop out than do whites. More specifically, more black students at predominantly white institutions tend to drop out more than the black students at historically black institutions due to the higher number of problems they have to overcome (Fleming, 1984; Hamby, Spring 1988; Upcraft & Gardner, 1989). Researchers have attributed the factors of activities involving a large number of blacks, such as student organization activities and athletic activities, that are predominant at historically black institutions but low at predominantly white institutions as influencing black retention (Carr & Chittum, 1979). Other factors that may contribute to this phenomenon include the fact that minorities have been systematically oppressed in this society and are bringing this oppression with them to the institution, they may be the first in their family to attend college, thereby creating pressure and expectations of them, and they are adjusting to an environment where for the first time in their lives they are the only minority in a classroom or on a floor in a residence hall (Wright, 1984). However, other research has shown that the longer a student
stays in school and working toward a degree program, the greater their chances of surviving and successfully making it to graduation (Bynum & Thompson, Fall 1983; Newlon & Gaither, 1980).

Pounds (1989) asserts that black students at predominantly white institutions can succeed if they apply themselves and are aware of strengths, weaknesses, and resources. These include: knowing their personal value system, beliefs, abilities, skills, opportunities and roadblocks, becoming aware of institutional and community resources available to assist them, being involved in nonacademic areas of college life, and developing relationships within support groups and faculty.

Pervin, Reik, and Dalrymple (1966) found that significant personality and attitudinal differences existed between college persisters and college dropouts. Vaughn (1968) suggested that dropouts tended to be more impulsive than persisters, lacked in depth emotional commitment to education and were unable to profit must from their past experience. Pandey (1973) conducted a dropout study in which he compared scores obtained from the 16 Personality Factor Questionnaire of 350 students in three academic categories: good, dropout, and probationary. His results showed that both students in good standing and dropouts were intelligent, conscientious and of high superego strength.
However, the dropouts were assertive, stubborn, and independent. The latter characteristics also described students on probationary status, with the difference that dropouts were more intelligent and of stronger superego strength. Tracey and Sedlacek (1982) and Pfeiffer and Sedlacek (1974) found that having a positive self-concept was a key factor in influencing retention of minority students. Drury's (1980) research showed that blacks tend to have higher self-esteem than whites when socioeconomic status and achievement were considered.

Williams (1971), in a study of the effect of group counseling on academic performance and persistence of black college freshmen, found that those exposed to the group counseling treatment showed significant improvement in academic performance but not in persistence in college. While a student's academic achievement is positively related to whether he or she continues in school, Astin (1973) has found that there is a higher than predicted attrition rate among scholastically high-achieving students. Hence, poor grades are not sufficient in and of themselves to cause attrition, but must be coupled with nonintellective factors (e.g., motivation, commitment to a particular college, and competence). This is consistent with other research that showed that students who do not persist did not do so for academic reasons (Dukes & Gaither, Winter 1984; Pantages &
Rossman and Kick (1970) discovered that black students with a moderate commitment to their college along with high academic competence characterized persisters as compared to dropouts who have low competence and low commitment. This may provide a partial explanation as to why predominantly black colleges have a lower attrition rate.

Even though parents were instructing their children to attend a black college or university, Bayer and Boruch (1969) indicated that only 13% of these youth had educated parents. Jaffe's (1968) study of ethnic education reported that only three-fourths of blacks attending college were in the top half of their high school class. When comparisons were done between blacks and whites attending college, blacks scored in the bottom half of their class on tests scores nationally (Thompson, 1978).

Other research showed that high school performance does predict academic performance in universities and medical schools (Arnold, Calkins, & Willoughby, Fall 1983). Such factors as high school science and math grade point averages, college aptitude test scores, reference ratings by high school counselors, and the individual's gender all contribute to college academic performance and persistence (Arnold, Calkins, & Willoughby, Fall 1983; Dawkins & Braddock, 1982; Newton & Gaither, 1980).
Because of the low socio-economic background of students attending black colleges and universities, the faculties of these institutions dedicated themselves to a highly personalized approach to teaching. Black colleges accepted students and concentrated on their needs, and worked toward preparing them to function in society. Students and faculties of these institutions, as indicated by Mays (1978) would be more likely to press for changes within institutions.

Orientation courses and special programs for entering students were a feature of colleges and universities in their early years (Bennett, 1933; Doermann, 1926). After the decline of the right to fail era of the 1960s and the 1970s, orientation has made a notable comeback (Cohen, Winter 1984-85). Orientation programs now exist during all phases of the summer sessions as well as the fall term (Dukes & Gaither, Winter 1984; Hamby, Spring 1988; Landward & Hepworth, Winter 1984; Murphy & McNair, 1981). All the programs have the intent of providing the students with a program-affiliated identity early on, assisting students with their career and academic goals, and above all, encouraging them to maintain continuing enrollment in courses in which they have a chance for success (Cohen, Winter 1984-85). Increasingly more research is showing that students who participate in various orientation/retention
programs tend to persist and improve their academic performances (Terrell & Wright, 1988; Upcraft, 1984). Orientation, early intervention, tutorial activities, and integrated support services are some of the various strategies to help students stay in school and complete courses successfully (Cohen, Winter 1984-85). In addition, the traditional pattern of testing students at entry and placing them in special courses is also utilized.

Whether for the educationally motivated reason of assisting learning or the institutionally motivated reason of maintaining high enrollments in the face of a declining population, the various strategies above seem destined to spread and accelerate during coming years (Cohen, Winter 1984-85). Some of the interventions will prove to actually assist the students in retention and improving academic performance.

Roueche (1984) conducted a nationwide study to examine how U.S. colleges and universities organize, staff, and operate their various programs to meet the needs of the low-achieving student and to document the extensive literacy problem facing all institutions of higher education. Among selected findings, the author found that of the 1,452 institutions who responded, (1) public institutions and larger colleges were more likely to respond to low-achieving students, (2) basic skills courses were the most typical
response to low-achieving students, (3) more than 50% of the institutions offered orientation programs for low-achieving students, (4) the most common retention strategies included orientation programs, special services for low-achieving students, and institutional self-study, and (5) respondents reported plans to improve programs, though they projected staff reductions in some areas. Taylor (1978) warned that while institutions seek to establish these orientation/special programs for blacks and other minorities, they may be inadvertently isolating the students from white faculty and students, thus creating the opposite effect than was intended.

Groseth and Brigham (1984) conducted a study to determine whether students who came to the extended programs in the summer were doing any better than those who attended the "old style" large group sessions just before the beginning of classes in the fall. The two categories of students were followed to determine success in college as measured by grade point average and persistence toward degree. Their findings showed that (1) the institution lost only 5% of the summer students after the first quarter compared to 15% of the September students; (2) that 73% of the summer students returned for the second year compared to 55% of the September students; and (3) that students who attended the extended summer orientation programs exceeded
their projected grade point average by .38, while those who attended in September fell short of their projected grade point average by .06. These findings seem to clearly indicate that the summer orientation had a powerful impact on grade point average and persistence toward degree.

Similarly, Donnangelo and Santa Rita (1982) described a ten-week orientation course at Bronx Community College (New York), showing how students who participated in the program tended to stay in school and make higher grades than those who did not enroll or who dropped out of the orientation sequence early on. Other studies of institutions who have developed summer orientation programs tend to support the aforementioned findings (Hall, 1981; Myers & Drevlow, 1982; Suhr, 1980).

Synder (1987) conducted a study at Iowa State University where she examined the persistence rate of students who attended orientation at three different sessions ranging from June to late August. She found no differences in persistence among the three groups (Synder, 1987). However, she did conclude that students who attended early orientation sessions were better adjusted to the college environment than those who attended the later orientation sessions.
METHODOLOGY

The purpose of this study was two-fold: (1) to conduct a follow up investigation on the summer orientation program (Sanford, 1988) and to measure its long-term effectiveness on retention, attrition, and academic performance of entering college minority freshmen; and (2) to do a comparison study of the initial experimental group with the entering freshmen of the recent year to examine the effectiveness of summer orientation programs on student retention and subsequent academic performance of minority students at a Midwestern, land-grant science and technology university.

Selection of Participants

Experiment one

The subjects for this experiment were the same minority students whose data were collected for the initial study in 1988. These students were the participants of the 1987 Summer Enrichment Program (SEP) program. They were minority freshmen who had already been admitted to Iowa State University based on the stated admission criteria set forth by the university. The admission status of the participants were regular admit and lower half category. Regular admit means that the students have scored at least a 24 on the ACT or are ranked in the upper half of their high school
graduating class. Iowa State has deemed that for educationally disadvantaged students (to include minority students), the ACT score requirement must be 18 or above. Participation in SEP was on a voluntary basis only. Thirty-nine minority freshmen participated in SEP during the summer of 1987.

Experiment two

The participants for the SEP 1989 were students who have been admitted to Iowa State University based on the stated admission criteria set forth by the university. These persons were sent a SEP informational brochure from the Office of Minority Student Affairs. Students acknowledged their interest by completing and returning the postpaid application portion of this brochure. Participation was on a voluntary basis only. Ninety-seven students participated in the orientation program during the summer of 1989. The admission status of the participants were regular admit and lower half category.

Description of Participants

Experiment one

The participants of SEP (Group A) ranged in age from 16 to 19 years old. Group A consisted of 18 black females, 16 black males, 1 Hispanic female and 4 Hispanic males. The mean high school grade point average was a 2.41 with a range
from 1.41 to 3.69. The mean high school rank was 41.6 with a range from 2 to 86.

Two control groups were employed in this study: (1) minority students who did not participate in SEP (Group B) and (2) majority students who did not have any orientation to Iowa State University (Group C). Group B consisted of 16 black females, 19 black males, and 4 Hispanic males. The mean high school grade point average was 2.64 with a range from 2.03 to 3.17. The mean high school rank was 38.2 with a range from 1 to 78. Group C consisted of 22 Caucasian males and 17 Caucasian females. The mean high school grade point average was 3.25 with a range from 2.40 to 3.93. The mean high school rank was 23.4 with a range from 3 to 50.

Experiment two

The participants of SEP (Group 2A) ranged in age from 16 to 19 years old. Group 2A consisted of 42 black females, 36 black males, 6 Hispanic females, 6 Hispanic females, and 2 males in other ethnic minority groups. The mean high school grade point average was 2.66 with a range from 1.71 to 3.74. The mean high school rank was 35.9 with a range from 4 to 85.

Two control groups were employed in this study: (1) minority students who did not participate in SEP (Group 2B) and (2) majority students who did not have any orientation to Iowa State University (Group 2C). Group 2B consisted of
39 black females, 33 black females, 9 Hispanic females, and 11 Hispanic males. The mean high school grade point average was 2.93 with a range from 1.79 to 3.76. The mean high school rank was 28.3 with a range from 1 to 92. Group2 C consisted of 48 Caucasian females and 44 Caucasian males. The mean high school grade point average was 2.94 with a range from 1.53 to 3.94. The mean high school rank was 33.3 with a range from 1 to 99.

Statistical Analysis

Experiment one

Three statistical methods were used to analyze the longitudinal data regarding 1987 SEP participants. These methods were (1) matched pair t-test, (2) analysis of variance (ANOVA), and (3) chi-square. The t-test was used to analyze information regarding gender of the participant. The ANOVA was used to analyze data regarding grade point averages over time. The chi-square was used to analyze data regarding retention.

Experiment two

Three statistical methods were used to analyze the data regarding 1989 SEP participants. These methods were (1) t-test, (2) analysis of variance (ANOVA), and (3) chi-square. The t-test was used to analyze information regarding sex of the participant. The ANOVA was used to
analyze data regarding grade point averages, high school rank, ACT/SAT scores, and admission status. The chi-square was used to analyze data regarding retention. The participants of the Summer Enrichment Program were given a battery of tests upon entering the program as determined by Minority Student Affairs Office. This was done to give the program staff an idea of which specific areas each student needed developmental assistance to improve their skills and abilities. The tests included: Nelson-Denny Reading Test, Strong-Campbell Interest Inventory, Assertiveness Inventory, Brown-Holtzman Study Habits Inventory, Needs Assessment, Communicative Behavior Inventory, and List of Self-Verbalizations.

All hypotheses were tested at the .05 level of significance. The dependent variables tested were academic performance and retention rate and the independent variables were other characteristics such as gender, educational backgrounds, admission status, etc. The hypotheses for each experiment are as follows.

**Experiment One**

**Hypothesis one**

There is a significant difference over time in academic performance as a result of participating in a summer orientation program as characterized by grade point average.
Statistical procedures used to test these findings were matched pair t-test and ANOVA.

**Hypothesis two**

There is a significant difference over time in student retention as a result of participating in a summer orientation program when the three groups are compared as determined by
a. continuing in the institution
b. successful completion of subsequent semesters.
Statistical procedure used to test these findings was the chi-square.

**Hypothesis three**

There is a significant difference over time in academic performance as a result of participating in a summer orientation program in regard to gender. The t-test and ANOVA were used to test this hypothesis.

**Hypothesis four**

There is a significant difference over time in student retention as a result of participating in a summer orientation program in regard to gender. The t-test and chi-square were used to test this hypothesis.
Experiment Two

**Hypothesis one**

There is a significant difference in academic performance as a result of participating in a summer orientation program as characterized by

a. grade point average
b. test scores.

Statistical procedures used to test these findings were t-test and ANOVA.

**Hypothesis two**

There is a significant difference in student retention as a result of participating in a summer orientation program when the three groups are compared as determined by

a. continuing in the institution
b. successful completion of first semester.

Statistical procedures used to test these findings was the chi-square.

**Hypothesis three**

There is a significant difference in academic performance as a result of participating in a summer orientation program with respect to gender. The t-test and ANOVA were used to test this hypothesis.
Hypothesis four

There is a significant difference in student retention as a result of participating in a summer orientation program with respect to gender. The t-test and chi-square were used to test this hypothesis.

Hypothesis five

There is a significant difference in academic performance as a result of participating in a summer orientation program with respect to previous academic performance as characterized by
a. high school grade point average
b. high school rank.
Statistical procedures used to test this hypothesis were t-test and ANOVA.

Hypothesis six

There is a significant difference in academic performance as a result of participating in a summer orientation programs for the experimental groups of experiments one and two as characterized by grade point average. The t-test and ANOVA were used to test this hypothesis.

Hypothesis seven

There is a significant difference in student retention as a result of participating in a summer orientation
programs for the experimental groups of experiments one and two as determined by
a. continuing in the institution
b. successful completion of first semester.
Statistical procedures used to test this hypothesis were chi-square and ANOVA.

**Hypothesis eight**

There is a significant difference in academic performance as a result of participating in a summer orientation program for the experimental groups of experiments one and two with respect to gender. The t-test and chi-square were used to test this hypothesis.

**Hypothesis nine**

There is a significant difference in student retention as a result of participating in a summer orientation program for the experimental groups of experiments one and two with respect to gender. The chi-square was used to test this hypothesis.
RESEARCH FINDINGS AND ANALYSIS

Introduction

The purpose of this study was two-fold: (1) to follow up the investigation on the summer orientation program (Sanford, 1988) and measure its long-term effectiveness on retention, attrition, and academic performance of entering college minority freshmen; and (2) to do a comparison study of the initial experimental group with the entering freshmen of the recent year to examine the effectiveness of summer orientation programs on student retention and subsequent academic performance of minority students at a Midwestern, land-grant science and technology university. Experiment One consists of the participants of the Summer 1987 Summer Enrichment Program (SEP). Forty-one students started the program and two left before completion of the program without indicating reasons. Follow up was not conducted on these students. These two students' files were not included in the study. Experiment two consists of the participants of the Summer 1989 SEP program. Ninety-seven students started the program and five students left before completion of the program. One student left because of disciplinary reasons; the other four did not indicate reasons for leaving. Follow up was not conducted on these students. These five students' files were not included in the study.
Based on the groups described in the methodology, the following hypotheses were conducted.

**Hypotheses—Statistical Findings**

**Experiment one**

**Hypothesis one** There is a significant difference over time in academic performance as a result of participating in a summer orientation program as characterized by grade point averages.

There was a significant difference over time in academic performance with that difference decreasing as each semester passed (Fig. 1). Following an overall ANOVA and t-tests (LSD), Tukey's HSD tests were performed. At the completion of Fall 1987, there was a significant difference at the .05 level of significance in academic performance between Group A and Groups B and C ($F(2,113) = 5.65$, $p = .004$) (Table 1). There was no significant difference at the .05 level of significance in academic performance between Group B and Group C. At the completion of Spring 1988, there was a significant difference at the .05 level of significance in academic performance between Group A and Group C, with Group B not differing significantly from either Group A or Group C ($F(2,103) = 3.34$, $p = .039$) (Table 1). At the completion of Fall 1988, there was no significant difference between Groups A, B, and C in academic performance at the .05 level.
Figure 1. Academic performance of Groups A, B, & C over time
Table 1. Mean grade point averages of groups A, B, and C over time

<table>
<thead>
<tr>
<th>Group</th>
<th>Fall 1987</th>
<th>Spring 1988</th>
<th>Fall 1988</th>
<th>Spring 1989</th>
<th>Fall 1989</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>1.61</td>
<td>1.89</td>
<td>2.17</td>
<td>2.35</td>
<td>2.46</td>
</tr>
<tr>
<td>B</td>
<td>2.12</td>
<td>2.05</td>
<td>2.19</td>
<td>2.34</td>
<td>2.43</td>
</tr>
<tr>
<td>C</td>
<td>2.28</td>
<td>2.39</td>
<td>2.52</td>
<td>2.63</td>
<td>2.64</td>
</tr>
</tbody>
</table>

of significance \( F(2,77) = 2.37, p = .100 \) (Table 1). At the completion of Spring 1989, there was no significant difference between Groups A, B, and C in academic performance at the .05 level of significance \( F(2,64) = 2.12, p = .128 \) (Table 1). At the completion of Fall 1989, there was no significant difference between Groups A, B, and C in academic performance at the .05 level of significance \( F(2,59) = 0.86, p = .429 \) (Table 1).

**Hypothesis two** There is a significant difference over time in student retention as a result of participating on a summer orientation program when the three groups are compared as determined by (a) continuing in the institution and (b) successful completion of subsequent semesters.

**Continuing in the institution** There appeared to be no significant differences in student retention over time except during one time period with respect to
participating in a summer orientation program when the three groups were compared (Table 2). At different time periods, each group had expected counts less than 5 which precludes drawing clear conclusions. At the completion of Fall 1987, there was no significant difference in student retention with respect to participating in a summer orientation program when the three groups were compared (chi-square (2) = 1.04, p = .593) (Table 2). Group A had a retention rate of 97%, Group B had a retention rate of 100%, and Group C had a retention rate of 97%. At the completion of Spring 1988, there was a significant difference in student retention with respect to participating in a summer orientation program when the three groups were compared (chi-square (2) = 9.62, p = .008) (Table 2). Groups A and B had lower retention rates than Group C in student retention. Group A had a retention rate of 66%, Group B had a retention rate of 54%, and Group C had a retention rate of 89%. At the completion of Fall 1988, there was no significant difference in student retention with respect to participating in a summer orientation program when the three groups were compared (chi-square (2) = .377, p = .828) (Table 2). Group A had a retention rate of 80%, Group B had a retention rate of 86%, and Group C had a retention rate of 85%. At the completion of Spring 1989, there was no significant difference in student retention with respect to
Table 2. Analysis of student retention of groups A, B, and C over time

<table>
<thead>
<tr>
<th>Group</th>
<th>SEP</th>
<th>F87 (Retention Rate)</th>
<th>Sp88</th>
<th>F88 (Retention Rate)</th>
<th>Sp89</th>
<th>F89 (Retention Rate)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>39</td>
<td>38 (97%)</td>
<td>25</td>
<td>20 (66%)</td>
<td>18</td>
<td>18 (47%)</td>
</tr>
<tr>
<td>B</td>
<td>39</td>
<td>21 (100%)</td>
<td>18</td>
<td>17 (44%)</td>
<td>16</td>
<td>16 (41%)</td>
</tr>
<tr>
<td>C</td>
<td>38</td>
<td>34 (97%)</td>
<td>29</td>
<td>27 (89%)</td>
<td>28</td>
<td>28 (89%)</td>
</tr>
</tbody>
</table>

participating in a summer orientation program when the three groups were compared (chi-square (2) = 1.67, p = .435) (Table 2). Group A had a retention rate of 90%, Group B had a retention rate of 94%, and Group C had a retention rate of 93%. At the completion of Fall 1989, there was no significant difference in student retention with respect to participating in a summer orientation program when the three groups were compared (chi-square (2) = 1.89, p = .503) (Table 2). Group A had a retention rate of 100%, Group B had a retention rate of 94%, and Group C had a retention rate of 104%.

Successful completion of subsequent semesters

Descriptively, there was a difference in student retention
in regard to successful completion of each subsequent semester, with that difference decreasing over time. At the completion of Fall 1987, Group A had 49% of its students attain a C- (1.67 = 4.0) grade point average or better. Group B had 77% of its students attain a C- grade point average or better. Group C also had 77% of its students attain a C- grade point average or better. At the completion of Spring 1988, Group A had 57% of its students attain a C- grade point average or better. Group B had 71% attain a C- grade point average or better. At the completion of Fall 1988, Group A had 84% of its students attain a C- grade point average or better. Group B had 81% of its students attain a C- grade point average or better. Group C had 91% of its students attain a C- grade point average or better. At the completion of Spring 1989, Group A had 85% of its students attain a C- grade point average or better. Group B had 94% of its students attain a C- grade point average or better. Group C had 100% of its students attain a C- grade point average or better. At the completion of Fall 1989, Group A had 100% of its students attain a C- grade point average or better. Group B also had 100% of its students attain a C- grade point average or better. Group C had 96% of its students attain a C- grade point average or better.
Hypothesis three  There is a significant difference over time in academic performance as a result of participating in a summer orientation program in regard to gender.

There were no significant differences over time in academic performance with respect to participating in a summer orientation program in regard to gender (p = .396, .679, .307, .318, and .112, respectively) (Table 3). It may be interesting to note that over time, the females in Groups A and C had slightly higher mean grade point averages, but the male students in Group B had the slightly higher mean grade point averages. In looking for gender differences across groups (Table 4), there were no significant differences in academic performances over time (p > .05).

Hypothesis four  There is a significant difference over time in student retention as a result of participating in a summer orientation program in regard to gender.

There were no significant differences over time in student retention as a result of participating in a summer orientation program when compared for all groups (Table 5; p > .05). Each group has expected counts less than 5 at different time periods which does not permit clear conclusions. Across all groups, males had a consistently higher percentage of retention than females (Table 6).
Table 3. Analysis of males' and females' mean grade point averages over time

<table>
<thead>
<tr>
<th>Group</th>
<th>Sex</th>
<th>F87</th>
<th>Sp88</th>
<th>F88</th>
<th>Sp89</th>
<th>F89</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Male</td>
<td>1.58</td>
<td>1.71</td>
<td>1.91</td>
<td>2.18</td>
<td>2.29</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>1.63</td>
<td>2.11</td>
<td>2.49</td>
<td>2.52</td>
<td>2.67</td>
</tr>
<tr>
<td>B</td>
<td>Male</td>
<td>2.30</td>
<td>2.13</td>
<td>2.20</td>
<td>2.31</td>
<td>2.44</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>1.85</td>
<td>1.90</td>
<td>2.17</td>
<td>2.39</td>
<td>2.41</td>
</tr>
<tr>
<td>C</td>
<td>Male</td>
<td>2.25</td>
<td>2.37</td>
<td>2.55</td>
<td>2.62</td>
<td>2.53</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>2.32</td>
<td>2.43</td>
<td>2.48</td>
<td>2.67</td>
<td>2.79</td>
</tr>
<tr>
<td>All</td>
<td>Males</td>
<td>2.07</td>
<td>2.09</td>
<td>2.26</td>
<td>2.41</td>
<td>2.44</td>
</tr>
<tr>
<td></td>
<td>Females</td>
<td>1.92</td>
<td>2.16</td>
<td>2.42</td>
<td>2.56</td>
<td>2.67</td>
</tr>
</tbody>
</table>

Table 4. Analysis of males' and females' mean grade point averages over time

<table>
<thead>
<tr>
<th>Sex</th>
<th>Fall 1987 (n)</th>
<th>Spring 1988 (n)</th>
<th>Fall 1988 (n)</th>
<th>Spring 1989 (n)</th>
<th>Fall 1989 (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>2.07 (64)</td>
<td>2.09 (62)</td>
<td>2.26 (47)</td>
<td>2.41 (41)</td>
<td>2.44 (39)</td>
</tr>
<tr>
<td>Female</td>
<td>1.92 (52)</td>
<td>2.16 (44)</td>
<td>2.42 (33)</td>
<td>2.56 (26)</td>
<td>2.67 (23)</td>
</tr>
</tbody>
</table>
Table 5. Analysis of retention rates over time between males and females for Groups A, B, and C

<table>
<thead>
<tr>
<th>Group</th>
<th>Sex</th>
<th>F87</th>
<th>Sp88</th>
<th>F88</th>
<th>Sp89</th>
<th>F89</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>Males</td>
<td>19</td>
<td>14</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(74%)</td>
<td>(53%)</td>
<td>(53%)</td>
<td>(53%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Females</td>
<td>18</td>
<td>11</td>
<td>10</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td></td>
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<td></td>
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<tr>
<td></td>
<td></td>
<td>(61%)</td>
<td>(56%)</td>
<td>(44%)</td>
<td>(44%)</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>Males</td>
<td>23</td>
<td>14</td>
<td>13</td>
<td>12</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(61%)</td>
<td>(57%)</td>
<td>(52%)</td>
<td>(48%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Females</td>
<td>16</td>
<td>7</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(44%)</td>
<td>(31%)</td>
<td>(31%)</td>
<td>(31%)</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>Males</td>
<td>21</td>
<td>19</td>
<td>18</td>
<td>17</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(90%)</td>
<td>(86%)</td>
<td>(81%)</td>
<td>(86%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Females</td>
<td>16</td>
<td>15</td>
<td>11</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(94%)</td>
<td>(69%)</td>
<td>(63%)</td>
<td>(63%)</td>
<td></td>
</tr>
</tbody>
</table>

Table 6. Analysis of retention rates over time between males and females across groups

<table>
<thead>
<tr>
<th>(Retention Rate)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td>Sex</td>
</tr>
<tr>
<td>Males</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Females</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>
Experiment two

**Hypothesis one** There is a significant difference in academic performance as a result of participating in a summer orientation program as characterized by (a) grade point average and (b) test scores.

**Grade point averages** There was a significant difference at the .05 level of significance in academic performance in that each group differed significantly from each other group (Table 7; overall $F(2,260) = 10.17$, $p = .0001$).

**Test scores** There were significant ACT composite mean differences at the .05 level of significance in that each group differed significantly from each other group (Table 8; overall $F(2,226) = 17.96$, $p = .0001$).

There were no significant SAT composite mean differences at the .05 level of significance (Table 8; overall $F(2,76) = 2.42$, $p = .096$).

**Hypothesis two** There is a significant difference in student retention as a result of participating in a summer orientation program when the three groups are compared as determined by (a) continuing in the institution and (b) successful completion of first semester.

**Continuing in the institution** There seemed to be no significant difference in student retention with respect to participating in a summer orientation program
Table 7. Fall grade point averages of Group 2 A, B, and C

<table>
<thead>
<tr>
<th>Group 2</th>
<th>Number</th>
<th>Fall GPA Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>83</td>
<td>1.60</td>
</tr>
<tr>
<td>B</td>
<td>92</td>
<td>1.88</td>
</tr>
<tr>
<td>C</td>
<td>88</td>
<td>2.18</td>
</tr>
</tbody>
</table>

Table 8. Mean ACT and SAT composite scores of Group 2 A, B, and C

<table>
<thead>
<tr>
<th>Group 2</th>
<th>ACT (n)</th>
<th>SAT (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>16.65 (66)</td>
<td>924.67 (30)</td>
</tr>
<tr>
<td>B</td>
<td>19.93 (75)</td>
<td>939.46 (37)</td>
</tr>
<tr>
<td>C</td>
<td>21.69 (88)</td>
<td>1083.33 (12)</td>
</tr>
</tbody>
</table>
when the three groups are compared (chi-square (2) = 0.991, p = .609). Group2 A had a retention rate of 93% for the fall semester and 89% for the spring semester. Group2 B had a retention rate of 90% for the spring semester and Group2 C had a retention rate of 93% for the spring semester (Table 9).

Successful completion of first semester There was a significant difference in student retention in regard to successful completion of first semester with respect to participating in a summer orientation program (chi-square (2) = 16.551, p = .000). Group2 A had 46% of its returning students for the fall semester attain a C- (1.67 = 4.0) grade point average or better. Group2 B had 59% of its students attain a C- grade point average or better for the fall semester. Group2 C had 73% of its students attain a C-grade point average or better for the fall semester.

Hypothesis three There is a significant difference in academic performance as a result of participating in a summer orientation program in regard to gender.

There was no significant difference in academic performance (Table 10) in regard to gender in any of the groups (p > .05). It may be interesting to note that in Group2 A and Group2 B, the males had a slightly higher mean fall grade point average, but the female students in Group2 C had a slightly higher mean fall grade point average. In
Table 9. Analysis of student retention for spring semester for Group 2 A, B and C

<table>
<thead>
<tr>
<th>Group 2</th>
<th>Number Completed SEP</th>
<th>Number Enrolled in Fall</th>
<th>Number Returned in Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>92</td>
<td>86</td>
<td>77</td>
</tr>
<tr>
<td>B</td>
<td>92</td>
<td>83</td>
<td>83</td>
</tr>
<tr>
<td>C</td>
<td>92</td>
<td>86</td>
<td>86</td>
</tr>
</tbody>
</table>

Table 10. Analysis of males' and females' fall grade point averages

<table>
<thead>
<tr>
<th>Group 2</th>
<th>Sex</th>
<th>Number</th>
<th>Fall GPA Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Male</td>
<td>41</td>
<td>1.68</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>42</td>
<td>1.52</td>
</tr>
<tr>
<td>B</td>
<td>Male</td>
<td>44</td>
<td>2.06</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>48</td>
<td>1.72</td>
</tr>
<tr>
<td>C</td>
<td>Male</td>
<td>40</td>
<td>2.04</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>48</td>
<td>2.30</td>
</tr>
</tbody>
</table>
looking for gender differences across groups (Table 11), there was no significant difference in academic performance (p > .05). Overall across groups, males had a slightly higher mean fall grade point average than females.

**Hypothesis four** There is a significant difference in student retention as a result of participating in a summer orientation program in regard to gender.

There were no significant differences between males and females in student retention in any of the three groups (Table 12; p > .05). Group2 A had 94% females and 93% males return for fall semester and 89% females and 90% males return for spring semester. Group2 B had 85% females and 95% males return for spring semester. Group2 C had 96% females and 91% males return for the spring semester. Across all groups, 90% females and 92% males return for the spring semester (Table 13; p > .05).

**Hypothesis five** There is a significant difference in academic performance as a result of participating in a summer orientation program with respect to previous academic performance as characterized by (a) high school grade point average and (b) high school rank.

**High school grade point average** There was a significant difference in high school grade point average ($F(2,162) = 5.38$, $p = .0055$). Group2 A differed significantly from Group2 B and Group2 C, but there was no
Table 11. Analysis of males' and females' fall grade point averages across groups

<table>
<thead>
<tr>
<th>Sex</th>
<th>Number</th>
<th>Fall GPA Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>125</td>
<td>1.93</td>
</tr>
<tr>
<td>Female</td>
<td>138</td>
<td>1.86</td>
</tr>
</tbody>
</table>

Table 12. Analysis of retention rates between males and females for Group 2 A, B, and C

<table>
<thead>
<tr>
<th>Group 2</th>
<th>Sex</th>
<th>Number Completed SEP</th>
<th>Number Enrolled in Fall</th>
<th>Number Returned in Spring (Retention Rate)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Male</td>
<td>44</td>
<td>41</td>
<td>37 (90%)</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>48</td>
<td>45</td>
<td>40 (89%)</td>
</tr>
<tr>
<td>B</td>
<td>Male</td>
<td>44</td>
<td>42</td>
<td>42 (95%)</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>48</td>
<td>41</td>
<td>41 (85%)</td>
</tr>
<tr>
<td>C</td>
<td>Male</td>
<td>44</td>
<td>40</td>
<td>40 (85%)</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>48</td>
<td>46</td>
<td>46 (96%)</td>
</tr>
</tbody>
</table>
Table 13. Analysis of retention rates between males and females across groups

<table>
<thead>
<tr>
<th>Sex</th>
<th>Number Enrolled in Fall</th>
<th>Number Returned in Spring (Retention Rate)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>129</td>
<td>119 (92%)</td>
<td>.530</td>
</tr>
<tr>
<td>Female</td>
<td>141</td>
<td>127 (90%)</td>
<td></td>
</tr>
</tbody>
</table>

There was a significant difference between Group2 B and Group2 C (Table 14).

**High school rank** There was a significant difference in high school rank ($F(2,271) = 3.04$, $p = .0494$). Group2 A had a lower high school rank than Group2 B and Group2 C.

**Hypothesis six** There is a significant difference in academic performance as a result of participating in a summer orientation program for the experimental groups of experiments one and two as characterized by grade point average.

There was no significant difference in academic performance as a result of participating in a summer orientation program for the two experimental groups of this study ($F(1,119) = .00$, $p = .960$; Table 15). The 1987 SEP participants had a mean fall grade point average of 1.61 and
Table 14. Comparison of previous academic performance with fall grade point average for Group 2 A, B, and C

<table>
<thead>
<tr>
<th>Group 2</th>
<th>Number</th>
<th>High School GPA Mean</th>
<th>High School Rank Mean</th>
<th>Fall GPA Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>90</td>
<td>2.66</td>
<td>35.91</td>
<td>1.60</td>
</tr>
<tr>
<td>B</td>
<td>92</td>
<td>2.93</td>
<td>28.28</td>
<td>1.88</td>
</tr>
<tr>
<td>C</td>
<td>92</td>
<td>2.94</td>
<td>33.34</td>
<td>2.18</td>
</tr>
</tbody>
</table>

Table 15. Analysis of mean academic performance for two groups of participants of SEP

<table>
<thead>
<tr>
<th>Year</th>
<th>High School GPA</th>
<th>High School Rank</th>
<th>Summer GPA</th>
<th>Fall GPA</th>
<th>ACT Scores</th>
<th>SAT Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>1987</td>
<td>2.14</td>
<td>41.64</td>
<td>1.25</td>
<td>1.61</td>
<td>16.33</td>
<td>790.00</td>
</tr>
<tr>
<td>1987</td>
<td>2.66</td>
<td>35.91</td>
<td>2.25</td>
<td>1.60</td>
<td>16.65</td>
<td>924.67</td>
</tr>
</tbody>
</table>
the 1989 SEP participants had a mean fall grade point average of 1.60.

Hypothesis seven There is a significant difference in student retention as a result of participating in a summer orientation program for the experimental groups of experiments one and two as determined by (1) continuing in the institution and (2) successful completion of first semester.

Continuing in the institution There was no significant difference in student retention as a result of participating in a summer orientation program for the two experimental groups of this study (chi-square (1) = 2.181, p = .140). The 1987 SEP participants had 97% of their group return for the spring semester. The 1989 SEP participants had 90% of their group return for the spring semester (Table 16).

Successful completion of first semester There was no significant difference in student retention as a result of participating in a summer orientation program for the two experimental groups of this study (chi-square (1) = .612, p = .434). The 1987 SEP participants had 49% of its returning student for fall semester attain a C- (1.67 = 4.0) grade point average or better. The 1989 SEP participants had 46% of its returning students for fall semester attain a C- grade point average or better.
Table 16. Analysis of student retention for two groups of participants of SEP

<table>
<thead>
<tr>
<th>Year</th>
<th>Number Completed</th>
<th>Returned in Fall</th>
<th>Returned in Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>1987</td>
<td>39</td>
<td>38</td>
<td>37 (97%)</td>
</tr>
<tr>
<td>1989</td>
<td>92</td>
<td>86</td>
<td>77 (90%)</td>
</tr>
</tbody>
</table>

**Hypothesis eight** There is a significant difference in academic performance as a result of participating in a summer orientation program for the experimental groups of experiments one and two with respect to gender.

There was no significant gender difference in academic performance as a result of participating in a summer orientation program ($F(1,119) = 0.36, p = .548$). Across both groups, the males have a mean grade point average of 1.65 and the females have a mean grade point average of 1.55.

**Hypothesis nine** There is a significant difference in student retention as a result of participating in a summer orientation program for the experimental groups of experiments one and two with respect to gender.

There was no significant gender difference in summer orientation program ($\chi^2(1) = .081, p = .776$).
There were 95% males returning for the fall semester across both groups versus 94% females returning across both groups. There was no significant difference in student retention as a result of their participation in a summer orientation program with respect to gender between the two experimental groups in this study for the following spring semester (chi-square (1) = .306, p = .580). There were 93% males returning the spring semester across both groups versus 91% of females returning for the spring semester across both groups.
SUMMARY, CONCLUSION, AND RECOMMENDATIONS

Summary and Conclusions

The purpose of this study was two-fold: (1) to follow up the investigation on the summer orientation program (Sanford, 1988) and measure its long-term effectiveness on retention, attrition, and academic performance of entering college minority freshmen; and (2) to do a comparison study of the initial experimental group with the entering freshmen of the recent year to examine the effectiveness of summer orientation programs on student retention and subsequent academic performance of minority students at a Midwestern, land-grant science and technology university. This study was selected because of the growing interest in how minorities are competing at Midwestern, land-grant institutions and the impact of orientation programs on them. Minority students have been and are changing their perspectives toward achieving a higher education in today's society. The increased number of minorities who received master's degrees and above and obtain successful jobs is a concrete indication of some of these changes (American Council on Education, 1988).

Another indication of changes that are occurring is the current research that states that by the turn of the century, one-third of the population of this country will consist of ethnic minorities (American Council on Education, 1988).
The higher education system on this nation will need to prepare for and be ready to address and meet the needs of this rapidly changing student population. This forthcoming group will be the nation's future in meeting the challenges of our economy, the educational system, our technological/scientific advances, etc. The current challenges lie in our higher educational system to identify these students and ensure their success through college (i.e., academically, socially, and morally) and life thereafter. Wright (1984) states that minority students coming to college already possess a world-view and a frame of reference that is unique to them, as well as culture-specific learning needs that should not be grouped with those of the traditional majority student. She cautions also against stereotyping all minority students and asserts that they are not culturally homogeneous (Wright, 1984).

This study examined one segment of the target population for orientation programs—minorities. Given the purposes of orientation programs and the increased desire of institutions to retain students in academic programs, information regarding the long- and short-term effectiveness of orientation programs in student retention and academic performance of minority students was needed because it would (1) aid in strengthening/evaluating the Summer Enrichment
Program at Iowa State University, (2) assist the Office of Minority Student Affairs in program design and future implementation of SEP, (3) provide information about the degree of long- and short-term success of summer orientation programs in fostering retention and improving academic performance, and (4) aid in reducing attrition.

The objectives of this study were to examine the long- and short-term effects of participating in a summer orientation program specifically designed for educationally disadvantaged or low-income minorities on academic performance and retention. Experiment one was conducted to examine the long-term effects of the summer orientation program on academic performance and retention of minority students. Grade point averages and retention rates were analyzed to obtain findings and conclusions. Experiment two was conducted to examine the short-term effects of the summer orientation program on academic performance and retention. Previous high school academic performance was examined to give an indication of subjects' academic ability. Grade point averages, test scores, and retention rates were analyzed to obtain findings and conclusions. It was important to determine how the summer orientation program impacted these students. An examination of the academic background information on these students aided in determining previous academic performance and ability.
The sample population for this study for both experiments consisted primarily of black and Hispanic students at a Midwestern, land-grant science and technology university. These students were first-time, full-time freshmen enrollees at the predominantly white institution.

The primary objectives of the first experiment involved examining each subsequent semester of academic performance and student retention of ethnic minority students. This information was gathered based on each student's cumulative grade point average at the end of each semester and whether or not that student returned the following semester. The information collected indicated that, over time, the participants' of SEP (Group A) academic performance as measured by grade point average increased to become competitive with the grade point averages of minority students who did not participate in SEP (Group B) and majority students who had no orientation to the university (Group C). This supported the findings of Landward and Hepworth (1984) whose research showed increased academic performance after the first quarter. While Group A did differ significantly from Groups B and C at the completion of Fall 1987, and differed significantly from Group C at the completion of Spring 1988, the subsequent semesters through Fall 1989 showed no significant difference in academic performance. This finding would give strong support to the
long-term effectiveness of orientation programs on academic performance. This result would seem to suggest that there is a late-bloomer's effect that is attributing to the performance of the participants of the orientation program. That is, the participants of the orientation program are taking longer to adjust to the academic, and possibly the non-academic, environment of the institution. This would explain why the participants of SEP started out performing below average in academic performance, but increased their mean grade point averages after the first year to become competitive with the students who did not participate in the summer orientation program. This supports the findings of Upcraft (1984) and Upcraft and Gardner (1989) who stated that entering freshmen students who participate in orientation programs tend to increase their probability of being successful in the institution. However, the researcher would like to make one comparison before making conclusive statements. The number of subjects in Group A decreased 47%, the number of subjects in Group B decreased 41%, and the number of subjects in Group C decreased 72% from Fall 1987 through Fall 1989. Keeping this in mind, the researcher would hesitantly posit that by the end of the student's second year in college, those students who were not doing well or had difficulties in other areas withdrew by this time period. The data show that the cumulative
grade point averages at the completion of Fall 1989 for all students in all the groups, except one in Group C, were equal to or above 1.67, which is equivalent to a C- or passing score.

The information collected on the retention of the SEP participants in this experiment revealed no overall significant differences between Groups A, B, and C. Only one time period showed a significant difference and that was at the completion of Spring 1988 when Group A had a retention rate of 66%. Group B had a retention rate of 54%, and Group C had a retention rate of 89%. This finding supported the conclusions of Bynum and Thompson (1983) whose research showed that the dropout rate is the heaviest at the end of the freshmen year. However, it conflicted with the conclusions of Landward and Hepworth (1984) which stated that after three quarters, orientation participants still had the highest retention rate. Dukes and Gaither (1984) also found that participants of orientation programs tend to have higher retention rates at the end of their first and second semester. While the data showed no overall differences between groups for each of the time periods (i.e., semesters), if one were to look at the continual rate of retention for Fall 1987 through Fall 1989, the continuing low percentages of returnees would cause concern. For Groups A and B, both had retention rates at the completion
of Fall 1989 of less that 50% when compared to the number of students that started in each of the groups, respectively. This would suggest that the institution is losing at least 50% of their minority population by the end of their second year. In this instance, it would seem that SEP participation does not have a statistically significant effect on retention; however, this conclusion is tentative because it is based on a sample size so small and it does not exclude extenuating factors.

Analysis of information pertaining to the academic performance and retention rates of each gender across all groups over time revealed no significant difference in each of the categories. The author will note that when compared within groups, the females in Groups A and C had higher mean grade point averages over time, while the males in Group B had higher mean grade point averages over time.

The primary objectives of the second experiment involved examining various academic background information about the ethnic minority students. This information included: (1) high school grade point average, (2) high school rank, and (3) ACT/SAT scores. The information collected indicated that the participants of SEP (Group2 A) and that of majority students who had no orientation to the university (Group2 C). The data showed that when mean high school grade point averages were compared, Group2 A had significantly lower
grade point averages than either Group2 B or Group2 C. Furthermore, the means for high school rank showed that Group2 A differed significantly from Group2 B not but significantly from Group2 C - the difference between the two means was only 2.6. The results showed that while Group2 C performed higher in the high school grade point average category (leading Group2 B by only .02 points), Group2 B performed higher in the high school rank category, leading both groups by more than 5 points. The comparisons of ACT and SAT scores for all groups revealed that Group2 A had lower composite scores than both Group2s B and C. This supports the findings of Suhr (1980) that, of the Fall 1978 EOP special action freshmen, those who participated in summer STEP had lower high school grade point averages and lower test scores (SAT) on the average than students who began orientation in the fall.

Analysis of information pertaining to the academic performance of the SEP participants (Group2 A) compared to the other groups revealed that Group2 A had significantly lower fall grade point averages than Group2s B or C. This conflicted with the findings of Suhr (1980) and Hamby (1988) who found no significant difference in academic performance between those who are participating in the summer orientation and those who participated in the fall. This also conflicted with findings of Donnangelo and Santa Rita
(1982) and Jones (1984) who reported similarly of improved academic performance by the participants of summer orientation programs. When grade point averages were compared from high school, summer orientation, and fall semester for the SEP participants, the results showed a progressive decrease in mean grade point averages from high school to summer orientation through the fall semester. This seems to suggest a neutral to negative effect of orientation on academic performance. However, when mean high school grade point average was compared with mean university fall grade point average for all groups, the results showed that all groups decreased significantly from mean high school grade point average to the university fall grade point average.

The information collected on the retention of the SEP participants revealed no significant difference between the number of Group2 A students who returned in the spring and that of Group2s B and C. Group2 C had a slightly higher percentage of students return than Group2 B who had a slightly higher percentage of students return than Group2 C. It would seem that SEP participation does not have a statistically significant effect on retention; however this finding is tentative because it is based on one semester enrolled and it does not exclude extenuating factors. This conflicted with the findings of Groseth and Brigham (1984),
Jones (1984), and Suhr (1980) that summer orientation participation had a powerful impact on retention rates.

Analysis of information on the comparisons of the outcomes based on eight variables (i.e., high school rank, high school grade point average, summer grade point average, fall grade point average, ACT scores, SAT scores, returned in Fall, and returned in Spring) for both of the experimental groups (1987 SEP participants and 1989 SEP participants) revealed no significant differences for all variables but one - summer grade point average. These results could lead one to conclude that the two groups came to college equally prepared and thus performed equally after one semester of academic work. Also, the findings would suggest that the outcomes for the two groups are consistent with each other and that the SEP program had no improved effect (i.e., there was no year effect) on the participants of the program in regard to academic performance and retention. The researcher would like to indicate that while the mean SAT scores for the two groups were not statistically significant, there was a large difference in their mean SAT scores with the 1987 SEP participants scoring lower overall. A plausible explanation for this phenomenon is that there was a bigger thrust in minority student recruitment for Iowa State, especially in the east, starting 1988 with a mandate from the State Board of Regents.
College entrance requirements in the east tend to ask for SAT scores more than ACT scores. Therefore, this new influx of minority students tended to have not only more SAT scores reported, but higher SAT scores as well. Also, this group had more National Merit Scholars because of the increased interest in the east for the competition.

The Summer Enrichment Program participants were asked to list three (3) reasons why they selected to participate in the summer orientation program. Out of a wide range of answers, the three most common responses were: (1) to get to know faculty, other students, and the university, (2) opportunity to get a head start on their education, and (3) see what life would be like at the university. These responses may assist in providing a direction for the aims and goals of future orientation programs.

Conclusion

The primary purpose of this study was to determine if the summer orientation program had a long- and short-term impact on improving academic performance and increasing student retention of ethnic minority students at a Midwestern, land-grant science and technology university. The review of literature revealed that while research in the general area of orientation programs was extensive, research on summer orientation programs designed for ethnic minorities revealed fewer studies. Studies on longitudinal
effects of orientation programs are even fewer. Additional studies would contribute more knowledge toward effective implementation and evaluation of summer orientation programs designed to increase retention and improve academic performance of ethnic minority students. Studies in this area are needed because of the continual changes with minorities in higher education and the increasing demands of society on the successful achievement of college degrees by minorities. Summer orientation programs aimed toward minorities is one area of interest, but further longitudinal research would provide a summary of how minorities are impacted by participating in a summer orientation program.

This study provided an exploratory assessment of a summer orientation program and its long- and short-term effect on student retention and subsequent academic performance of minority students. Experiment one examined the long-term effects of a summer orientation program on the academic performance and retention of minority students who participated in the program. This experiment was based on five semesters of academic performance. Experiment two examined the short-term effects of a summer orientation program on the academic performance and retention of minority students who participated in the program. This experiment was based on previous high school performance,
summer academic performance, and the first semester academic performance.

In Experiment one, the participants of the 1987 Summer Enrichment Program, after the first two semesters, performed, academically, as competitively as the students who did not participate in the program. The data showed that as each semester passed, the SEP participants were becoming more and more competitive. Participants' gender did not prove to make a difference in academic performance.

When retention rates were compared for the three groups, there appeared to be no significant differences over time in the number of persisters per group except during one time period - Spring 1988. This finding is not conclusive because of the small sample size.

In Experiment two, the participants of the 1989 Summer Enrichment Program had significantly lower fall grade point averages than the other two groups. They also showed a decrease in summer grade point average when compared to high school grade point average and also decreased with fall grade point average. While all groups decreased in fall grade point average when compared to high school grade point average, SEP participants had the highest decrease of the three groups. Participants' gender did not appear to make a significant difference in academic performance.
When retention rates were compared for the three groups, there appeared to be no significant difference in the number of persisters per group.

In summary, it seems that by participating in the Summer Enrichment Program there is a long-term positive effect for academic performance but not for retention, while there is no positive short-term effect for academic performance or student retention. The majority of the SEP students do show promise on future academic ability, as measured by those that persisted did maintain a C- (1.67/4.00) grade point average or better. This showed that of those who persisted, they are equally competitive with other students, minority and majority, who did not participate in the program. These findings give validity to the existence of the orientation program; however, there needs to be structural and programmatic changes to the program. The program needs to be redesigned to improve the immediate effectiveness on the students' academic performance and adjustment to the university. Another area that should be addressed is the attrition of students after the first year. Better mentoring programs may help in alleviating this phenomenon.

Recommendations

In view of the findings of this study, several recommendations seem appropriate. They are:
1. Further studies should be conducted on the long-term effectiveness of summer orientation programs on retention and academic performance of minority students. Research would indicate whether the programs are making the impact they should on the minority student.

2. Additional studies should be conducted to compare the goals and objectives of orientation programs designed for ethnic minority students with orientation programs designed for the general majority students to identify if any differences exist in terms of the effectiveness on retention and academic performance.

3. A study should be conducted to compare goals, objectives, and outcomes of summer orientation programs designed for ethnic minorities at Midwestern, land-grant, predominantly white institutions with summer orientation programs offered at predominantly black institutions.

4. Further research is needed that will explore internal variables (e.g., motivation, attitude, self-esteem) and their impact on academic performance and retention of minority students.

5. There should be an on-going data-collection process that will enable the institution to track these minority students to follow-up on their academic performance and retention rates.
6. After the orientation program, there should be continued faculty involvement and various mentoring programs structured to facilitate the on-going transition and success of the minority students who participated in the orientation program.

7. Instead of offering these one-shot approaches to orientation, there should be more long-term intervention/survival programs designed for the identified individual student's needs their chances for survival and success.
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