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Recruitment and retention of African American students in baccalaureate technology teacher education programs

Johnson, Keith V., Ph.D.
The Ohio State University, 1994
RECRUITMENT AND RETENTION OF AFRICAN AMERICAN STUDENTS IN BACCALAUREATE TECHNOLOGY TEACHER EDUCATION PROGRAMS

DISSertation

Presented in Partial Fulfillment of the Requirements for the Degree Doctor of Philosophy in the Graduate School of The Ohio State University

By

Keith V. Johnson, B. S., M. S.

* * * * * *

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CHAPTER I

INTRODUCTION

Overview

Minorities are underrepresented in all areas of higher education. According to Mann (1990), in the spring of 1987, the leaders of the American Council on Education (ACE) and the Education Commission of the States (ECS) came together in deep concern that the nation's progress in minority advancement had lessened significantly during the last several years. This group generated a report entitled *One Third of a Nation* (1988), which focused on the challenges facing the United States and its minority citizens. Mann also stated the group's concern:

> Education was considered the passport to success in the United States and that educators must recruit minority students more aggressively at every level, create an academic atmosphere that values the diversity that minorities bring to institutions, place special emphasis on recruiting minority candidates for administrative positions, and improve the training and preparation of minority students. (p. 2)

The authors of *One Third of a Nation* (1988), support this by stating:

Now is the time for our nation to renew its commitment to minority advancement. We must redouble our efforts to expand the role and status of our minority population, men and women, boys and girls. All Americans as individuals and as
members of various groups, social organizations, and sectors of our society bear this responsibility, and all must share in the task. (p. ix)

Deans, chief executive officers, chairpersons and directors must be willing to admit that there are serious shortcomings with minority success in our educational system at all levels. These same people must also admit that their system, in many cases has impeded the growth and development, academically and professionally, of minority students, faculty and staff. Young (1987) believes that until this situation is acknowledged by all parties, no corrective action will be taken.

More specifically, ACE (1987a, 1987b), American Association of Colleges for Teacher Education (AACTE) (1987) and other organizations suggest that minority groups such as African Americans and Hispanics are extremely under-represented in teacher education. ACE (Mann, 1990) stated:

The decline in black and Hispanic enrollments in college has reached alarming proportions, and the shrinking numbers of minority students planning to become teachers could make the problem much worse in the future. (p. 4)

It is imperative that we address the low graduation and retention rates of African American students in our colleges and universities because the social and economic welfare of our country is at stake. According to Fordyce (1991), as the African American population continues to grow at a faster rate than the overall population, it is essential that more African American persons be prepared to fill key leadership positions in our society. This
leadership training can best be achieved through the completion of a college program of study.

Not only are African American students under-represented in colleges and universities, but other minority groups as well. Miller (1990), emphasized that the number of African Americans, and other minority groups such as Hispanics, Asians, and Native Americans attending colleges and universities are extremely low compared to the numbers of those minorities in our population at large. In many areas of the country, non-minority Americans comprise a smaller portion of the school population than African Americans and Hispanics combined. Miller further emphasized the tragic underrepresentation of minority technology education teachers:

Of the students now preparing to be technology teachers, 81.46 percent are white males, 8.77 percent are white females. Hispanic males make up only 1.53 percent of those identified, Hispanic females about 0.23 percent, black males 4.36 percent, black females only 0.78 percent, Asian males about 1.53 percent, and Asian females only 0.23 percent. American Indians were the least represented of all, with about 0.27 percent males from that group and only a single female identified in the entire sample. (p. 22)

If African American students are not majoring in technology education in significant numbers, then where are they? According to the Statistical Record of Black America (1989), 6.1% of African Americans major in accounting, 6.5% in business administration, 4.5% in management, 4.6% in elementary education, 3.0% in marketing, 3.0% in electrical engineering, 2.8% in nursing, 4.2% in psychology, 3.1% in
political science, 2.7% in communications, 6.9% undecided and 2.0% in mechanical engineering.

In addition to the increasing number of African Americans deciding to major in fields other than technology education, retirement of existing African Americans in technology education creates an even greater demand for African Americans. The National Education Association Reports (1990) emphasized that the retirement rate will increase as a disproportionate number of teachers begin to reach retirement eligibility. Early retirement will only accelerate the problem. Even for technology teacher educators, this problem exists. Davis (Edmunds, 1990) suggests that approximately 616 current postsecondary faculty, which includes African Americans, must be replaced in the next ten years due to retirement alone. Interestingly enough, a survey published in the January, 1990, issues of both School Shop/Tech Directions and The Technology Teacher, revealed that the majority of technology education teachers were 40 years of age or older, with an extremely small percentage of them under 30 years of age (Dugger, 1990).

Statement of the Problem

Recruiting and retaining significantly large numbers of minority students and faculty is a growing concern for American higher education. If successful efforts are not made, America will suffer in its efforts to compete with the rest of the world. Technology education is one field within the teaching profession that faces the dilemma of having many available positions with few students preparing for them (Beasley, Burns, & Love,
Traditionally, the success of technology education programs was dependent upon the availability and competency of its teachers. Fortunately, technology education was able to staff its laboratories and classrooms with qualified personnel. Today, however, prospective technology education students have the opportunity to pursue other areas in education. In addition, many current technology education teachers, because of their age, are retiring at a rate far greater than they are being replaced by college graduates entering the profession. The National Education Association (1986) indicated that approximately 60% of the current teaching force will be retired by the year 2000.

According to Miller (1990), "the greatest untapped potential source of students lies in the ranks of racial minorities" (p. 23). Ways must be developed to attract and retain minorities in the technology teacher education profession. If these efforts fail, the technology education field may eventually decrease substantially or possibly disappear altogether.

Therefore, the problem of this study is the shortage of African American students pursuing careers in technology teacher education, and the failure of technology teacher education programs to attract and retain them.

Research Questions

In order to determine what strategies are being used for the recruitment and retention of African American students in technology teacher education at colleges and universities, it is essential to examine
these programs on selective variables. Therefore, this study seeks to examine the following questions.

1. What is the status of African American students enrolled in technology teacher education programs during the 1992-1993 school year?
2. How are African American students recruited into technology teacher education?
3. What is done to support and retain African American students in technology teacher education?
4. Have technology teacher education programs modified their curriculum to be sensitive to a culturally diverse population?
5. How do administrators in technology teacher education describe the effectiveness of current recruitment and retention efforts targeted toward African American students?
6. What are administrators attitudes towards African Americans in technology teacher education programs?
7. How do TTE programs at historically black colleges and universities differ from TTE programs at predominately white colleges and universities on recruiting and retaining African American students?

**Purpose of the Study**

The purpose of this study was twofold. First, the study was designed to identify the policies, practices, and programs that could enhance the recruitment and retention of African American students in baccalaureate
technology teacher education programs. The second purpose of the study was to provide technology teacher educators, administrators, and practitioners with pertinent data on the strategies that various colleges and universities employ in their efforts toward recruitment and retention of African American students in technology teacher education. Furthermore, this study identified model institutions and practices that could enhance the retention of African American students in baccalaureate programs across the board.

**Significance of the Study**

Minorities, including African Americans, are a viable pool of prospective teachers. It is evident that there is a growing need for minority teachers in the technology teacher education profession, primarily because the literature suggests that minorities, including African Americans are under-represented in this field. This is mainly because technology educators fail to attract minorities. With minorities representing a growing pool of potential students and teachers, technology education must recruit them in order for these programs to continue. If this need is not met in the immediate future, we will find it increasingly impossible to maintain viable programs.

**Assumptions**

1. Appropriate survey procedures were delineated from a review of the literature.
2. The questionnaire developed for this study provided a sufficiently valid and reliable measure of the constructs it was supposed to measure.

3. Survey respondents were aware of minority recruitment and retention practices which were employed in their departments, colleges, and universities.

Limitations of the Study

This study was conducted with the following limitations:

1. The study was limited to technology teacher education and not to the broader context of industrial education.

2. The study was limited to technology teacher education administrators at colleges and universities that have baccalaureate technology teacher education programs. These programs and administrators were listed in the 1990-91 Industrial Teacher Education Directory (Dennis, 1990).

3. The questionnaire used in this study was valid and reliable only for the population studied.

Terminology

The following definitions are provided for the purpose of clarity and consistency:

1. Technology teacher education - Formerly referred to as industrial arts or industrial technology education, "technology education is the study of technology and its effect on the individual, society, and civilization process" (Ohio Industrial Technology Education Association, 1990).
Therefore, technology teacher education is the preparation of individuals to teach technology education.


3. **Minority** - Minorities are a group of people who are different from the majority group because of differences that include, but are not limited to culture, physical features, speech, and customs.

4. **Recruitment** - Any effort to market a program area in order to attract students, staff, or faculty for the purpose of matriculation.

5. **Retention** - Any effort to structurally or systematically stimulate students, staff, or faculty to remain at a college or university.

CHAPTER II

REVIEW OF LITERATURE

Overview

The review of literature is composed of seven major sections. The first section explores the historical background of the problem. The second section examines recruitment and retention in teacher education. The third section identifies special projects and programs for recruitment and retention in technology teacher education. The fourth section explores why students drop out of colleges and universities. The fifth section explores recruitment and retention in technology teacher education. The sixth section explores recruitment and retention at historically black colleges and universities. Finally, the seventh section contains the summary and conclusions.

Historical Background

The history of African Americans in America is primarily that of a work history. The Africans were brought to this country for use in labor. According to Spivey (1978), the death of the formal institution of slavery did not end that relationship.
To avoid confusing the reader with all of the terminology that has evolved to describe technology education, the writer will use the term industrial education throughout the historical background. Industrial education is a generic term including all educational activities concerned with modern industry and crafts, their raw materials, products, machines, personnel and problems (Gregg, 1929). It therefore includes industrial arts, manual training, and vocational industrial education.

As history reveals, working with the hands has been a long-time symbol of industrial training, and has been a significant part of the culture of African American people since coming to America. After being taken from their homeland and brought to America, African Americans were wrongfully enslaved. But, because of their many industrial skills, slavery became a flourishing economic institution. Therefore, according to Hall (1973), from the very beginning of their stay in this country, they have been involved in some type of training program learning the skills necessary for survival in a foreign culture which was forced upon them.

During the 1800s, Samuel Chapman Armstrong, the founder of Hampton Institute, and also the ideological father of African American industrial education, tried to address the race problem which was concerned with the social and economic relations of the newly freed men, women, and children to the rest of the white South (which fought not to free them). General Armstrong believed that African Americans should be taught to remain in their places, stay out of politics, keep quiet about their rights, and work hard. This educational theme that he emphasized was the need for African Americans to be good, subservient laborers (Spivey, 1978).
The comprehensiveness of his plan for Hampton Institute was quite obvious as revealed in one of his writings:

The thing to be done was clear: to train selected Negro youth who should go out and teach and lead their people, first by example, by getting land and homes; to give them not the dollar that they could earn for themselves; to teach respect for labor, to replace stupid drudgery with skilled hands, and to those ends to build up an industrial system for the sake not only of self-support and intelligent labor, but also for the sake of character. (Bennett, 1924, p. 244)

Hampton Normal and Industrial Institute (Hampton University) came into being April 1, 1868, with General Armstrong as its principal, one matron and 15 boarding pupils. By April 26th, the number of pupils had doubled and the school continued to grow during this period.

Booker T. Washington, who was General Armstrong’s prize student, took on the same values and philosophical views as his former mentor. These philosophical views of uplift through submission drew heated criticism from many African American leaders. Washington held firmly to his beliefs that industrial education is the ideal route for most African Americans, even though he was at one time on the Board of Trustees at Fisk University, which suggests that he supported African American’s pursuit of "classical" education. He advocated the superiority of industrial schooling over the academic. According to Spivey (1978), Booker T. Washington’s educational practices were based on his desire to please whites and gain their support. However, in his own way, he tried to create a suitable place in society for the average African American. Spivey also demonstrated Booker T. Washington’s narrow, yet practical thinking at that time, by stating:
If education for blacks was to be meaningful, Washington believed, it must prove to be economically worthwhile to the whites. (p. 50)

Washington's philosophical beliefs were to him, the "model" which African Americans should follow if they were to be educated. However, W.E.B. Du Bois and Marcus Garvey strongly opposed his views. Initially, Garvey was impressed with Washington's work at Tuskegee. However, he had never met Washington. After spending several years in the United States, Garvey concluded:

We have been misrepresented by our leadership. We have been taught to beg rather than to make demands. Booker T. Washington was not a leader for the Negro race. We do not look to Tuskegee. The world has recognized him as a leader, but we do not. We are going to make demands. (Spivey, 1978, p. 111)

Garvey believed this strongly because the world was constantly changing and evolving into a new ideal. As Garvey clearly indicates, Washington's program was not totally obsolete. However, it could have been included in the new ideal. As the world evolved and problems occurred, industrial leaders could not solve them alone, but needed support of political and military leaders as well. Garvey's (1994) opinions about Washington can best be summed as follows:

If Washington had lived he would have had to change his program. No leader can successfully lead this race of ours without giving an interpretation of the awakened spirit of the New Negro, who does not seek industrial opportunity alone, but a political voice. (p. 56)

DuBois strongly objected to the educational program of Washington. He accused Washington of teaching lessons of work and money, which
potentially encouraged African Americans to forget about the highest aims of life. He also referred to Washington's program as a cult which gained unquestioning followers (DuBois, 1961). These efforts in DuBois' opinion, asked that African Americans give up three things: political power; insistence on civil rights; and higher education for African American youth.

DuBois did not always oppose Washington's program because DuBois recognized the validity of African Americans gaining skills and knowledge in specific trades. On the other hand, Washington had not always been against higher education because he sent his own children to college (DuBois, 1984). Ironically, DuBois was almost employed by Tuskegee, but was offered a position at Wilberforce prior to Tuskegee's offer.

Meanwhile, the debate between Washington and DuBois had grown and developed into an historical event. The premise of the developed controversy between Dubois and Washington was emphasized by Franklin (1948):

If we make money the object of man-training, we shall develop money-makers but not necessarily men; if we make technical skill the object of education, we must possess artisans but not, in nature, men. Men we shall have only as we make manhood the object of the work of the schools--intelligence, broad sympathy, knowledge of the world that was and is, and in the relation of men to it--which must underlie true life. (p. 390)

African Americans have had a constant struggle in obtaining degrees in technology education. Historically, the education that African Americans did obtain was systematically designed to benefit the white race rather than their own. Technology education as we know it today has
traditionally included more white males than any other race of people (Hall, 1973; Wolfson, 1986; Lewis, 1991). There has been a continual struggle by African Americans to acquire baccalaureate degrees in technology education. This struggle is evident today in technology education by efforts made to increase the enrollment and retention of African Americans in technology education.

Historically, most of the industrial schools for African Americans were manual labor schools. Needless to say, many of those schools were started by liberal white people in the North after the Civil War. Not many of those schools were able to operate successfully for a long period of time. Some failed because they proceeded on the assumption that a student could obtain a classical education while learning a trade, and at the same time, earn sufficient funds to support themselves in school (Hall, 1973).

Also, a supply of competent teachers was not available. It was a travesty that the teachers who were chosen to teach in many institutions lacked the necessary preparation to carry out their tasks successfully. This is quite evident as Hall (1973) reveals in his writings:

Most of the teachers did not know how to unite industrial and academic instruction. Those who taught the academic courses knew little in industrial education, and cared still less for it; and those that possessed the knowledge of a trade knew little about methods of teaching. (p. 7)

Interestingly enough, white mechanics of the North refused African American youths as apprentices because they did not want to work with them on the same job. In 1833, this attitude led free African Americans leaders and white abolitionists to pool together and strategize the building
of their own schools. As expected, in Canaan, Connecticut, the idea was violently rejected by the townspeople. This rejection led to the destruction of the initial structure of the black manual labor college. However, the determination of African Americans to become educated by their own means led them, despite much opposition, to initiate the construction of other institutions (Anderson, 1988).

The 1880s saw a growth spurt for industrial education in black normal and black colleges. The John F. Slater Fund in 1881 was developed primarily for the establishment and development of industrial education for African Americans. With these funds, many of the established schools started vocational programs. The John F. Slater Fund was so important that many schools' reports suggest that their industrial programs would not have been possible without it (Anderson, 1988).

The General Education Board, another financial supporter of African American industrial education, was established in 1902. According to Anderson (1988), it was created by John D. Rockefeller, Sr. who gave an initial endowment of one million dollars. This amount was supplemented by other contributions amounting to 53 million dollars in 1909, and by 1921, Rockefeller had personally donated over 129 million dollars to the General Education Board.

The Anna T. Jeanes Fund was established by a Quaker named Anna T. Jeanes. Jeanes gave a board of trustees one million dollars on November 19, 1907 for the purpose of helping small rural African American schools. The Anna T. Jeanes Fund also supported industrial supervisors and teachers for rural African American schools.
Other important funds that contributed financially to this cause were: the Peabody Fund, the Phelps-Stokes Fund, the Carnegie Foundation, the Laura Spelman Rockefeller Memorial Fund, and the Julius Rosenwald Fund—most of which were established between 1902 and 1917.

Historically black colleges and universities (HBCUs) played a dynamic role in providing opportunities for African Americans to earn degrees in technology education. When African Americans could not attend other institutions of higher learning, the doors of HBCUs opened. These same institutions nurtured their students as though the students were children of the institution. Most students who attained degrees in the field of technology education earned them from HBCUs.

Wilberforce University, the first institution of higher learning for the education of African Americans, was established by the Methodist Episcopal Church. It was opened and incorporated at Tawawa Springs, near Xenia, Ohio, in 1856. Because of financial difficulties, Wilberforce was encouraged to combine with Union Seminary, a manual labor school.

By 1929, a two-year collegiate manual training teacher curriculum, leading to a diploma and an Ohio Teacher's Certificate had been developed. The name of the industrial department changed to the College of Education and Industrial Arts in 1941.

Central State University on the other hand, originated through an act of the Ohio Legislature in 1887. This act established a combined Normal and Industrial Department at Wilberforce University. Although Central State University was associated with Wilberforce, it was considered a separate entity with its own Board of Trustees. In 1941, the General
Assembly expanded the combined Normal and Industrial Department, which offered two-year courses, into the College of Education and Industrial Arts, which provided four-year college programs. In 1947, the college began to operate independently of Wilberforce University.

Other institutions that provided African Americans with industrial skills before the Civil War were Peterboro Manual Labor School, Madison County, New York (1934), Emlem Institute, Mercer County, Ohio (1930s), Philadelphia Institute for Colored Youth, Philadelphia, Pennsylvania (1939), and Avery College, Allegheny City, Pennsylvania (1949).

After the Civil War, many other HBCUs were established for the purpose of educating African American youth. These institutions sprouted up all over the country.

Alcorn State University, which was established in Mississippi, had its beginnings in 1830 as Oakland College. Oakland College was for the education of white males. At the beginning of the Civil War there was a shortage of students and the college closed. In 1871, the college reopened with a new name and focus. The name became Alcorn Agricultural and Mechanical College, and focus was placed on the education of African Americans.

Initially when industrial education was taught, there were no shop classes. The students were taught plumbing, carpentry, painting, and other skills by repairing the buildings on campus.

After passage of the Smith-Hughes Act of 1917, there was a need for industrial education teachers at the secondary school level. In response, Alcorn established a three-year, non-degree, teacher training course in
vocational industrial education. According to Hall (1973), in 1959, Alcorn constructed a new industrial building and reorganized the curricula in industrial education, agriculture, and home economics into the division of vocational education. The students had three options in vocational education which were technology education, technical education, and technical trades.

Alabama A&M State University, another HBCU, was initially organized at Huntsville, Alabama in 1875 after the state of Alabama approved one-thousand dollars for the establishment of a normal and industrial college for African Americans. After receiving appropriations from various funds and philanthropists, Alabama A&M moved into its new location in Normal, Alabama.

In 1915, the school's program of study consisted of elementary and secondary school courses which included recitation in the mornings, and three hours of manual trade practices in the afternoon. During the 1940s, the curriculum in vocational education included carpentry, plumbing, printing, shoemaking, and tailoring. It later expanded to drafting, auto mechanics, and sheet metal. According to Hall (1973), the vocational curriculum included college general education courses, leading to a degree. The technology education curriculum made it possible for students to rotate through different shops before graduation, which led to a state teacher's certificate.

Prairie View A&M State College, in Hempstead, Texas, was established when an act of the Fifteenth Legislature of the state of Texas made it possible by establishing an agriculture and mechanical college for
African Americans. In 1891, five-thousand dollars was given by the state for the development of an industrial department at the school. Unlike Alcorn, Prairie View had shops equipped with tools and equipment to teach their industrial courses. All students were required to participate in some industrial work each day.

In 1926, Prairie View offered a four-year curriculum leading to a bachelor of science degree in mechanical arts. From this program, college technical education expanded to include a graduate and undergraduate industrial teacher education curriculum in technology education.

North Carolina A&T State University, Greensboro, North Carolina, was founded to comply with the provisions set forth by the Morrill Act of 1890. The goal of the school was to provide education to African Americans in agriculture, and the mechanical arts. The industrial education offerings placed emphasis on the daily demand of life on the farm and in the home (Hall, 1973). In 1902, a four-year industrial education curriculum was taught. From the influences of industrial education and vocational education, a technology education curriculum was established leading to state certification.

Many other HBCUs were established after the Civil War. Some of those institutions include, but are not limited to Florida A&M University, Savannah State University, South Carolina State University, and Tennessee State University.

African Americans have encountered many hardships from generation to generation. However, their persistent struggle to educate themselves led them to obtain degrees in technology education. In 1890, a
second Morrill Act was passed, and historically black colleges were granted federal monies for the purpose of training African American students to become effective high school teachers. Soon after, the *Plessy v. Ferguson* (1896) court case brought about passage of the separate but equal facilities for the education of African Americans. These historical events, along with other initiatives from other African Americans provided great opportunities for African Americans to become career oriented teachers.

According to Anderton (1990), teaching became one of the major professional occupations for college-educated African Americans, mainly because of segregation and the lack of other professional occupations that were open to them. Also, Anderton (1990) highlighted Grant's views as:

> Historically, the change in the process of recruiting students into teacher education programs has paralleled the growth of our awareness of the rights of minorities and the emphasis of diversity in our society. (p. 11)

Anderton also referenced Grant (1980) by stating:

> Prior to 1954 was the period of tacit inequality when some educators were more or less aware of inequality, but few of them made it an issue for social action. (p. 10)

Cole (1986), advocated that by the time court actions and federal actions were initiated in the late 1960s and 1970s to prevent further displacement, the damage had already been done. According to Anderton, this massive damage due to displacement and a number of other factors such as low pay, and low status, have been carried over into the present.

**Recruitment and Retention in Higher Education**

According to Anderton (1990), in December, 1986, the Government Relations Committee of the Association of Colleges and Schools of
Education in the State Universities and Affiliated Private Universities conducted a study of its 108 minority institutions. The study was conducted to describe minority student enrollment in the institutions and to determine current practices of minority recruitment and retention within colleges of education in the association. Results indicated that the most frequently used recruitment strategies were college fairs (85%), direct mailing (68%), contacts with high school counselors (70%), explanations of support services (63%), and telephone contacts (51%). The data also suggest that 51% of the respondents identified individual contacts as the most effective recruitment strategy. The least effective methods revealed in the study were general and direct mailing. They also showed that college fairs were among the most frequently used recruitment strategies. Recruitment strategies are paramount when attempting to recruit minority students. What may be most important however, is where recruiters seek potential minority teachers. Hamilton, Anglin, and Mooradian (1992), state the following:

Teacher educators agree that historically the community college environment has been ignored as a resource pool for potential minority teacher education students, even though approximately one-half of all minority students who participate in postsecondary education start at a community college. (p. 25)

Pettigrew (1991) suggests that recruiters go to urban high schools. They should pay visits to the larger cities in America. Not exclusively to suburban school districts, but to inner city schools as well.

Oftentimes administrators and faculty members express their concern about the recruitment of African American students, however, little action
is being taken to curtail this problem. An example can be seen at Texas A&M University. According to Education Beat (1992), a report from faculty members at Texas A&M University documents that the school lags behind other state universities in its recruiting efforts for minority teachers and students. The report also states that the percentage of minorities at the school are far below the state's ethnic demographics despite efforts made a decade ago to improve representation. According to Campus Trends, Wiley (1991) noted that:

A study conducted by the American Council on Education (ACE), showed that while more than three-quarters of the predominately white institutions said they made some efforts to enroll African American students, nearly two-thirds of all administrators rated their own institutions ability to attract blacks as either 'fair' or 'poor.' Only one-third of the administrators rated their institutions commitment to recruiting African American students as 'high.' Fewer than a third of all institutions reported an increase in African American enrollment, even though nearly three-fourths noted general enrollment gains. (p. 10)

In essence, personal ideological differences prevent many administrators and faculty from really striving to recruit African American students into higher education. Oliver and Brown (1988) suggest that lip service is a major component of recruitment that hinders recruitment efforts:

A barrier that confounds recruitment efforts is the behavior of faculty who profess support of such programs but are unwilling to translate their beliefs into action. The presence of verbally committed but inactive faculty and administrators creates numerous unintentional problems. Their characteristically 'after the fact' public support, coupled with a selectively expressed private fervor, contributes to inflated expectations of the potential of recruitment programs and at times even leads to a reduction of critical resources (e.g., consultation, money, manpower). The assumption that
verbally committed persons will automatically contribute their expertise and time to recruitment activities is frequently false. The assumption is particularly likely to be false when such volunteer work is not systematically linked to the professional and university reward structure. (p. 41)

Case et al. (1988), also realized that "the inadequacy of the knowledge base [on recruitment] is made worse by disagreement and uncertainty as to which of the limited methods will do the best job, and the tendency by universities to approach minority recruitment in a nonsystematic, ad hoc fashion. A first step in breaking this pattern is to develop recruitment principles that serve as a general guideline for recruitment decisions" (p. 42).

According to an American Council of Education (ACE) report, the following are the most successful minority recruitment programs for college students:

1. Aggressive and personalized recruitment
2. Full fellowships to cover financial needs so students may focus on their academic work
3. Academic and social support--creation of an office of minority programs
4. An atmosphere of expected success
5. Support groups that allow students to share success
6. A culture that supports mentoring by faculty
7. Curricula that reflect diverse ethnicity. (Morgan, 1992)

According to the American Council on Education (ACE), Conciatore (1991) noted that African Americans represented 9.2% of all 1986 undergraduates, but earned only 5.7% of bachelor degrees awarded in 1987.
Whites represented 79.2% of undergraduates, yet earned 87.5% of bachelor degrees. ACE also revealed a 13% difference in the retention rate of African Americans and whites who enter college immediately after high school. For the 1980 high school graduates who went to four-year colleges full-time, 43.5% of African Americans and 42% of Hispanics were still in college four years later as compared to 61% of Asian Americans, 56% of whites, and 54% of Native Americans.

Many scholars suggest that the retention of African American students at the collegiate level is a growing problem that needs immediate attention (Thomas, 1987; Pearson & Bechtel, 1989; Summers, 1990; Smith, 1986; Birdsell, 1984). Statistics indicate that African American males drop out of college at a much higher rate than white males and African American females. Therefore, the practice of mentoring must become very common in higher education as a way to address retention problems. One of the most vital components contributing to African American students' retention in colleges and universities is the individual mentoring received from working African American professional role models. African American students need someone they can go to comfortably for advice. This is most important because they then see someone of the same race and similar background doing well on the job. Stodt and Klepper (1987) also support the notion that mentoring is vital to minority retention in higher education.

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Mentoring gives students the chance to speak with persons who can answer career-related questions, offer personal insight, and provide relevant information about particular jobs. Mentoring helps students to find out what they do not know and to prepare themselves for career competition in white-dominated organizations. Minority students are rarely in a position to know people who can 'open doors' for them. Professionals who agree to act in the mentor role provide a level of comfort they would not have enjoyed otherwise. (p. 72)

Mentoring can be operationally defined as a dynamic, reciprocal relationship in a work environment between an advanced career incumbent (mentor) and a beginner (protégé) aimed at promoting the career development of both. For the protégé, the object of mentoring is the achievement of an identity transformation, a movement from the status of understudy to that of self-directing colleague (Healy & Welchert, 1990). For the mentor, the relationship is a vehicle for achieving mid-life generativity (Erikson, 1963). Healy (1990) also contrasted mentoring with supervising and teaching. The mentor, but not the supervisor per se, engages in interactions vis-à-vis the protégé aimed at passing on his or her professional legacy—a manifestation of generativity. Mentors transmit a complex legacy of professional acumen that reflects their own unique ability to identify salient issues and heuristics in the work environment. They cultivate qualitative changes in the protégé's approach to tasks rather than his or her immediate productivity. Mentors, but not teachers, invite protégés to partake of the wisdom and style that has enabled them to excel
professionally. These professional troves are not concepts and methods from textbooks, but approaches with which the mentor applies the knowledge of the craft.

Mentoring relationships bring encouragement, feedback, training, political guidance, interpersonal support, and visibility to the junior member of the relationship (Blackwell, 1989; Brown, 1985; Collins, 1983; Richey, Gambrill & Blyhte, 1988). Richey et al. (1988) contend that the senior member in the mentoring relationship also benefits through increased admiration, respect, possible workload support, and visibility in the institution. Cameron (1981) observed that academic mentors derived gratification from collaborating with protégés to produce new knowledge.

For a mentoring program to be most effective, faculty should recognize and seek to understand the various cultures of their protégé. Quite often, students' attitudes reflect their cultural background. Phillips (1977) and Kram (1985) note that the mentor and protégé must experience the relationship as a reciprocal venture, and each party must increasingly encourage one another.

Astin, Korn, and Green (1987), in a study of entering freshmen who began college in 1981, paid special attention to the low graduation rate in American colleges and universities. They suggested that the situation is getting worse. They concluded that "the proportion (of students in four-year colleges) completing a bachelors degree within four years is remarkably low (31.2 %), especially in comparison to figures from 15 years earlier (46.7 % of the 1966 freshmen had earned degrees by 1970). For whatever reason, it would appear that retention rates of students entering
(1991), African Americans make up about 14% of the nation's college-age population and about 9% of the college enrollment. They also account for about 6% of the bachelor's degrees awarded to U. S. colleges and universities. Also, according to the National Institute of Independent Colleges and Universities, Porter (1989) points out that only about one-quarter of African American students who began college in the fall of 1980 had completed their bachelor's degree requirements by the spring of 1986.

It is quite obvious that the needs of African American students are not being met in higher education. Dr. Winston Bert, Associate Professor, Norfolk State University, recognized that it is crucial that white institutions of higher learning begin to understand and emphasize the African American perspective, since the process of education draws upon the cultural roots of society. African American personnel at these institutions can be seen as occupying a unique role in the development of strategies to address this situation which is a key ingredient in any retention effort. Evidence that supports the shortcomings of higher education is revealed in a study conducted by Anderson (1989). Anderson reported that in Georgia's 20 public four-year colleges and universities, only about 16% of all African American students who entered these institutions graduated within five years. The graduation rates were computed for first-time, full-time entering students who matriculated in the fall of 1983. The study examined the graduation rates of regularly admitted African American students as well as those who were initially admitted into a developmental studies program. According to Fordyce (1991), students with either a verbal or a math score lower than 350 on the
computed for first-time, full-time entering students who matriculated in the fall of 1983. The study examined the graduation rates of regularly admitted African American students as well as those who were initially admitted into a developmental studies program. According to Fordyce (1991), students with either a verbal or a math score lower than 350 on the Scholastic Aptitude Test were placed in the developmental studies program. The study showed a considerable difference in the graduation rates for those who entered as developmental students: 30% of the regular students were graduated as opposed to only 10% of the developmental students. Fordyce further noticed that similar findings have been reported in Tennessee and North Carolina.

After recognition of the problem, Fordyce, identified key ideas which could improve the retention and graduation rates of African American students in colleges. Even though he addressed only colleges, these key ideas are also applicable to universities.

1. If a college grants admission to students who lack adequate preparation for college-level work, the college should offer appropriate developmental or remedial support to these students.

2. The college should insure that each student who enrolls has adequate financial resources.

3. The college should provide an organizational structure that will insure that at least one person at the college is deeply concerned about the cares for each individual student.
5. The college should become more rigorous in the evaluation of its programs to insure that these programs are meeting the needs of students.

6. Colleges should be willing to modify a number of long-standing practices and procedures which consciously or unconsciously, may have a detrimental effect on the retention of students, particularly black students.

7. The college that cares about the retention of its students should keep accurate records about retention/graduation.

In addition, the literature clearly demonstrates that there are cultural factors that lend themselves to the use of particular teaching strategies which can greatly enhance the learning process and retention of African American students. There are cognitive learning patterns that are culturally influenced (Grosy, 1989). Grosy also maintains that the ideal environment which would assure academic success for African American students is one in which culturally related teaching strategies and cognitive patterns are integrated into the curriculum on a campus-wide basis.

Across the board, many institutions of higher learning are using lecturing as a strategy to impart knowledge and wisdom to students. However this approach may not always be most effective and depends on the preparation of the students. Cross (1971) supported this same logic by emphasizing that the traditional lecture method of instruction was not effective with most community college students who had weak basic skills. According to Hugh (1991), lecturing does not promote student
involvement; it is a crutch for the instructor to say that the material has been covered rather than a way to stimulate and motivate students. Retention requires the effort of everyone involved in the educational process. Therefore, everyone must be willing to constantly evaluate their practices and attitudes toward retaining students.

Copeland (1988) projects that the high birthrates and immigration over the next 10 years will foster a growth rate in the minority population in the United States that will be seven times greater than the growth rate in the corresponding white population. The college and university student population will eventually reflect these changes. Therefore, it is imperative that all collegiate institutions, including technology education institutions, make retention a top priority. Unlike Asians, Hispanics, and Native Americans, the college population of African American students has decreased significantly (Blackwell, 1989).

Mann (1990) conducted a study to determine the perceptions of technology education program leaders regarding minority participation in programs at the collegiate level. His findings indicated that all of the leaders recognized and acknowledged that there was a major problem with the under-representation of minorities in the field. With the retention problem of African American students in white institutions remaining unresolved, an increasing number of top African Americans are deciding to attend black colleges because these institutions have an outstanding reputation for retention rates, and placement into graduate schools (Lyons, 1989).
to attend black colleges because these institutions have an outstanding reputation for retention rates, and placement into graduate schools (Lyons, 1989).

It is no secret that technology education has traditionally been dominated by white males. However, it is slowly evolving to include women and minorities. According to Adams (1988), two trends will impact the academic labor force throughout the rest of the century: about half of the existing professional positions are held by persons within 15 years of retirement, and demographic projections indicate that by the year 2000, ethnic minority groups will constitute 30% of the national population. Adams also contends that under-represented minority students may not be able to take full advantage of this favorable climate due to their continuing under-representation among Ph.D. recipients. Between 1980 and 1984, overall minority school enrollment declined 8.5%. In 1984, underrepresented minority students received only 5.5% of the Ph.Ds awarded. Wilson (1988) supports the same notion by saying that this will create a ripple effect: that is continuing to have a decline in African American enrollment in technology education and other areas of study.

Special Projects and Programs

Traditional higher education methods of recruitment and retention of high school African American students have failed to serve the needs of the urban poor (Welch, Hodges, & Warden, 1989). Therefore, it behooves each individual institution to document the effects of innovative programs aimed at improving recruitment and retention of urban African
American students for college life (Ginsburg & Bennet, 1989). There is no single best strategy or program for improving African American achievement in higher education. However, many of the current programs fail to recruit and retain minority students because they were designed 20 years ago. According to an article written by Rodriquez (1991), "for students to succeed in the 1990s, recruitment and retention programs in design and development must be linked to curriculum and faculty" (p. 36).

This section of the review of literature will identify effective and innovative programs and projects that are aimed at the recruitment and retention of minority students in various institutions. According to Conciatore (1991) there are several building blocks that contribute to the successful operation of a recruitment and retention program (see Figure 1).

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Frequent monitoring of students  
Academic advising of students  
Peer study groups  
Peer tutoring  
Summer transition/orientation programs to focus on skills, improvement, and adjustment to college life  
Study skill workshops  
Student/faculty contact  
High expectations/assumptions all students can achieve  
Financial/tuition assistance  
Job counseling  
Mentoring  
Summer job opportunities  
Social and cultural achievements to increase sensitivity and cross-cultural awareness  
Institutionalization of retention efforts

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Figure 1. Building blocks of successful recruitment and retention programs: A checklist.
A project was undertaken by Clewell and Flicklen (1987) to identify factors that enhance minority retention on predominately white campuses and are adaptable to other sites. In doing so, the project involved examining programs and policies at predominately white four-year institutions with good minority retention rates. Four institutions were selected that represented different institutional types, different geographical locations, varying programs and services, and good rates of minority retention. The data for this project were gathered through interviews and document review.

Institution A was a private, Catholic institution located in a suburb of a major northeastern city. Its academic programs include undergraduate and graduate colleges of arts and sciences, and schools in law, social work, education, management, nursing, and theology. This same institution catered to middle-class students. African Americans comprise only about 3% of undergraduate enrollment, Hispanics 4%, and other minorities 4% out of the approximately 8,000 undergraduate student body. The institution had an office of Special Student Programs (SSP) which served African American, Hispanic, Asian, and Native American students, and was the center for academic and personal counseling for minority students. A major activity of that office was the Options Through Education Program (OTE), a six-week residential program during the summer. The program was designed for 40 to 50 freshmen who are selected as high-risk minority students with the potential for success. The student had to sign a contractual agreement in which he or she agreed to attend all classes, participate in the study halls, meet regularly with an advisor, and seek
help when experiencing difficulties. The OTE students received monitoring and advising throughout their four years at the institution. Students met with advisors monthly, and as an additional check on performances, the SSP office requested progress reports about student performance.

The measure of success has been the high retention rate for the at-risk students. In a study conducted in 1984, the retention rate for OTE participants after 1 year was 94%; after 2 years, 84%; after 3 years 78%; and after 4 years, 69%. Only eight percent left for academic reasons, indicating that this program has been very successful in addressing the academic needs of students.

Institution B was a state institution. Founded in 1910 as a junior college, it has grown to more than 16,000 students. This public institution is in an agricultural area of a western state. The institution served a large geographical area with a rapidly growing population, a very large portion of which is Mexican American (30% to 35%). The institution contended that part of its mission as a publicly supported institution was to serve students from groups that historically have not participated in university education, whether because of age, socioeconomic background, physical ability, or geographical location. To accomplish the goal of increasing the Hispanic and African American enrollment, as well as meeting the needs of its minority students, the institution's two major programs were Student Affirmative Action (SAA), which serves regularly admitted students, and the Educational Opportunity Program (EOP), which serves specially admitted students.
The SSA program is designed to recruit and retain the regularly admissible minority student. The program had three components: outreach, retention, and enhancement. The outreach component included recruitment, counseling, orientation, and career awareness. The retention component had three major activities: peer counseling, where graduate students counsel freshman transfers and students on probation; the Faculty Referral Program, whereby students were referred by faculty for tutorial services; and the Special Retention Advising Program which provided courses for credit to students on academic probation to increase their study and academic skills. The educational enhancement component attempted to increase faculty awareness of the needs of minority and nontraditional students. This was accomplished by workshops on advising minority students, an African American staff/student mentorship program, and a Chicano student leadership program.

Institution C enrolled approximately 32,000 students with a minority representation of about 8% and a Hispanic population that constitutes only 2%. The total undergraduate minority enrollment was about four percent and most of those students were African American. The admissions office made an effort to recruit minority students, concentrating on areas with large minority populations and working closely with the Minorities in Engineering Program (MEP). The MEP was comprised of several components that combined various approaches to recruiting, enrolling, retaining, and graduating minority engineers. The goal of the program was to increase minority enrollment by 25% each year. The MEP operated pre-college and college level programs. Pre-college programs were designed to
identify, motivate, and enroll high school students who demonstrated high potential and who indicated mathematics, science and engineering as interests. College-level programs focused on the retention of minority students already enrolled at that institution.

Institution D had a long-standing commitment to the liberal arts in undergraduate and graduate education. This institution's enrollment was over 10,000 students, of which over one-fourth were graduate students. African American students comprised about 10% of the student body and other minorities comprised about 3%. Many factors at this institution seem to have contributed to the high minority retention rate. These factors included admissions, student aid, student affairs, academic advising, and academic department. In addition, the institution had two special projects, special service and a new Student Retention Project that was designed specifically to improve retention and the academic performance of students. Both projects were under academic affairs. The special service program provided a variety of academic and support services which included academic advising, mathematics instruction, reading and study skills, writing instruction, tutoring, and counseling. Before the students registered for their classes, they were given assessments in writing and math and a program of study was developed. Students who participated in the special program had higher retention rates than those special services students who did not participate. The one-year retention rate for special services students in good standing was 87% versus 39% for those students who did not participate.
The project functioned to identify academic difficulties, develop special study programs, and enhance academic advising. The project also held a series of workshops on time management, test taking, and note taking.

A Student Retention Model for Higher Education

A Student Retention Model for Higher Education was developed by Janet Mancini and Margast Brooks Terry. The model was based on the premise that increasing student involvement and improving student support will reduce attrition. The model included eight discrete phases that were identical across institutions, although specific programs or policies within each phase may be institution-specific: Outreach (to high schools), Recruitment/Selection, Assessment, Preparation, Orientation, Integration, Maintenance, and Separation. Each phase identified retention strategies that would serve all institutions, but especially those with heavy enrollments of higher-risk students. This phase represented a conceptualization of the students' path through any institution of higher education. Five of the eight phases occurred well before the student actually entered the first semester or quarter of classes, and the last phase occurred towards the end of that path.
The Black Freshman Network (BFN)

The BFN was a minority retention program at Georgia State University, a predominantly white non-residential, state-supported institution located in downtown Atlanta. The program brought together faculty, staff, and students as partners in improving the freshman experience for minorities. BFN addressed social and personal needs along with academic needs. All faculty, staff, and students, who were involved were carefully selected to participate in an orientation seminar. Additionally, through BFN, workshops have been conducted by professional staff on financial aid concerns, career planning, and academic advising. The BFN was a multifaceted outreach/retention program. Its goal was to help African American freshmen:

1. Make the emotional transition to college
2. Understand requirements, rules, and regulations
3. Make the social transition to college life
4. Make the intellectual transition to college
5. Set academic career and personal goals
6. Seek appropriate academic advising.

Undergraduate and graduate students also functioned as peer advisors and were responsible for facilitating quarterly support group meetings with their advisers, conducting telephone information sharing, and attending quarterly staff meetings called by the director of BFN. Lewis (1986) presented an insightful overview of this network. The network interacted with about 400 students each quarter. The first six months were the most crucial because many impressions and decisions were made during this
time, therefore all efforts were made to involve students in the institution. This was where peer advising played a major role.

At the end of the 1983 fall quarter, telephone interviews were conducted to determine the perceived need and effectiveness of the program. All of the freshmen responded yes when asked if they thought the program was needed, and the majority (68%) answered yes when asked if they thought the program had a positive image (Lewis, 1986).

**Minority Education Initiative Program**

The Community College of Philadelphia's Minority Education Initiative Program was created to increase the enrollment of African American and Hispanic students through proactive recruitment and retention strategies. According to Preston (1988), one component of the initiative, a minority mentoring program, was developed and piloted in 1988. Faculty and staff volunteers in the mentor program assisted in orientation and pre-registration, met regularly with students, and provided letters of recommendation. Another aspect of the initiative is a recruitment campaign which works with community agencies, high schools, local churches, and the mayor's office to target minority communities. A third component, involving the assessment of students' information needs was followed by a series of seminars on such topics as financial aid, career exploration and decision making, transfer planning, study habits, and dealing with stress and anxiety.
Health Sciences Recruitment and Retention Program

The purpose of the Health Sciences Recruitment and Retention Program at Florida International University was to increase the number of qualified Hispanic and African American students applying to the health sciences program, and to admit and retain them. During 1981-1984, there were 18 African Americans in health science, 18 in 1982-1983, 21 in 1983-1984, and 16 in 1984-1985.

Partners in Progress (PIP) is a cooperative program between Florida International University and the Dade County School Board to identify promising African American high school students, and provide them with a systematic program of skill development. Another program at the university designed to entice more local students to attend FIU is the Vested Interest Program. This program's mission is to recruit students from surrounding counties. Each high school identifies one student and an alternate to participate. Students enroll in six college credits, which include a three credit research and report writing course, Modes of Inquiry. Hispanic and African American students recruited by this program will be counseled as to the availability of health careers/health awareness courses offered. As a result of the recruitment and retention strategies that were used, African American enrollment in the programs increased from 9 students in 1986 to 16 in 1988 and Hispanic enrollment went from 62 to 78 in the same period.
Black to the Future

"Black to the Future" was a video and discussion program that was designed to inform faculty about African American students' perceptions of life at a predominantly white institution. The program was further intended to raise the consciousness of faculty about the special needs of African American students and to provide faculty with suggestions for responding to those needs. The complete program, in addition to the video, included a carefully organized discussion process. After viewing the video, participants were asked to form groups and engage in discussion of questions which were designed to explore the participants' perceptions of African American students' experiences at this institution. Participants may prescribe some techniques and methodologies that help to make the teaching and learning process more conducive to African American student retention (Black Students Retention in Higher Education, Proceedings of the National Conference, 1989).

Faculty/Peer Mentor Retention Program

In 1988, California State University, Sacramento, established a pilot faculty/peer mentor program using designated funds from the California state lottery. One hundred second year under-represented minority students (African American and Hispanic), elected to participate in the program. Ten faculty members and 10 upper division students from departments across the university formed 10 faculty/peer mentor teams. Approximately 10 students were assigned to each team based on their majors. The goal of the program was to enhance the retention and
eventual graduation rates of these students by providing individual and group activities in an attempt to help the students develop an academic, social and cultural support system.

The faculty and peer mentors were responsible for providing intensive advising, assessing academic performance, assisting students in developing study skills and managing their time, organizing study sessions, planning social and cultural group activities, and referring students to appropriate academic and personal support services on campus (e.g., tutoring and counseling). Students met on a regular basis with their faculty mentors and in small groups with faculty and peer mentors. Students kept journals where they addressed such issues as academic and personal goals for the year, long term career goals and objectives, personal support networks, study habits, family, work, school and community commitment, and reactions to speakers, films and discussion topics from the group meetings. The journal entries formed the basis for some of the faculty and peer mentor interaction with students.

To assess the effectiveness of this program in enhancing retention, the enrollment of students at California State University, Sacramento, for the fall 1989 semester who selected to participate in the program were compared to the enrollment rate of students who did not select the program (The Minority Student Today: Recruitment, Retention, and Success, 1989).
Minority Outreach

The Ogontz campus of the Pennsylvania State University, located in metropolitan Philadelphia, designed and implemented a minority recruitment and retention program. As a result, in four years minority enrollment increased by more than 10% and minority attrition decreased by approximately 15%.

The major components of the Ogontz Minority Recruitment and Retention Program as stated in the *Proceedings of a Conference on the Minority Student Today* (1989) were as follows:

1. **Periodic Bus Trips to the Campus** - Tenth, eleventh, and twelfth grade minority students from Philadelphia and suburban high schools visit the Ogontz campus and participate in a snapshot of college life orientation.

2. **Minority Advancement Program (MAP)** - Academically talented eleventh grade minority students selected for MAP, earn free tuition for a three credit college course, free textbooks and transportation, and a weekend trip to the University Park Campus, at Ogontz. The weekend trip included activities ranging from an SAT prep course, to financial aid workshops, to tennis lessons.

3. **Summer Bridge at Ogontz** - Selected minority freshmen who demonstrate the need and willingness to work on strengthening academic skills essential to success in college during the summer preceding their freshmen year earn free tuition, computer
instruction, and counseling sessions dealing with important academic, financial, and career concerns of the first year student.

4. **English as a Second Language Project - Entering Ogontz**

   freshmen who speak English as a second language and whose personal interviews and diagnostic writing samples indicate a need for specially designed composition and study skills courses will be offered the opportunity to take six credits of English composition and study skills specifically geared to ESL students and augmented by professional tutoring and mentoring.

5. **Cultural Activities and Guest Speakers Demonstrating Diversity**

   - Ogontz students, faculty, staff, and neighbors will be invited to attend multicultural performances in dance, music, and theater.

**The Bridge**

The "Bridge" was a summer enrichment program developed to recruit and retain minority students at Georgia State University. The summer preparation sessions were also designed to orient them to college life, and to provide non-credit remedial assistance in reading, mathematics, and composition. Career counseling and study skills instructions were also offered. The students who attended Georgia State University's summer program were provided with follow-up tutoring services which were made available throughout the next academic year at no cost to the student. Each year, the program incorporated the most successful elements of the previous program.
The program ran for four weeks, for four-and-one-half hours each day. The students were divided into two groups of 20 students each, with each group having instruction in reading, composition, mathematics, and study skills. Career counseling was offered by academic advisors on the development studies staff. Follow-up tutoring was provided by tutors in the developmental studies learning laboratory throughout the following academic year.

Follow-up evaluations of the students included the following:

1. Pre-post scores on the initial placement test.
2. Number of quarters required in remedial courses.
3. Number of quarters retained at Georgia State University.
4. Grade point average after 25 hours of credit courses.

Data for retention of Bridge students indicate that they have been retained at about 73% to 81% after one academic year. Data over a comparable period show that only between 60% and 64% of all departmental studies students regardless of race, are retained normally after one academic year.

Pre-Freshman and Cooperative Education for Minorities

PREFACE (Pre-Freshman and Cooperative Education for Minorities) is a summer enrichment program designed to prepare minority students for a freshman engineering curriculum at The Ohio State University. The program consists of a six-week academic component in which students attend classes in physics, mathematics, chemistry, English, and engineering graphics while living on campus. Following the academic component, an attempt is made to place all program participants in an engineering related
work assignment for an additional six weeks. Incentive awards are given to the top students in each class.

PREFACE was established to increase the enrollment of African American, Hispanic, and American Indian students in engineering and other technically related fields. The program is designed to offer academic enrichment to the inadequately prepared student, and motivation and encouragement to well prepared students. The academic component of PREFACE starts at the beginning of the university's summer quarter and ends six weeks later. Those students placed in work assignments will begin their co-ops shortly thereafter.

Teacher Assistance Program (TAP)

According to Pierce (1990), the New York City Public Schools have a special program to attract technology teachers who have proven successful. "People who have completed 60 college credits are eligible to enter the Teacher Assistance Program, in which they spend four half-days and one full day in a school as a teaching assistant each week. They also take courses at City College to qualify as technology teachers. They receive health benefits, and their college course work is free if they sign on as teachers in the New York City Schools" (p. 19).

Recruitment Plan at VPI

According to the literature, the most crucial step in any successful effort to recruit students in any program should be the development of a formal recruitment plan. Virginia Polytechnic Institute and State University (VPI), Blacksburg, Virginia, has a formal recruitment plan. This
plan has the potential to recruit students from many different cultural
groups. However, if the plan is not executed properly by all parties
involved, the university will not fully maximize its ability to reach and
recruit minority students who will therefore, identify other means of
obtaining careers. VPI's recruitment plan was based upon a series of goals.
From each of these goals, recruiting strategies were developed. Sanders
(1986), listed several figures to describe VPI's formal recruitment plan that
are important to this project:

<table>
<thead>
<tr>
<th>GOAL</th>
<th>STRATEGIES/ACTIVITIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increase freshmen enrollment by increasing communication and activities directed toward off-campus clientele.</td>
<td>1. Send recruitment letters to alumni and master teachers.</td>
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<tr>
<td></td>
<td>2. Set-up a recruitment booth at AIAA conferences.</td>
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<tr>
<td></td>
<td>3. Letter to community college teachers and guidance personnel.</td>
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<td></td>
<td>4. Host Virginia IA summer conference.</td>
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<td>5. Host IA Fall Rally.</td>
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<td>6. Host SW Virginia IA Spring Fair.</td>
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<td>7. Present recruitment materials at student teaching centers.</td>
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<td></td>
<td>8. Visit selected community colleges and present at articulation conferences.</td>
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<tr>
<td></td>
<td>9. Communicate (letters, phone calls, campus visits) with prospective students.</td>
</tr>
</tbody>
</table>

Figure 2. Goal #1: Increase freshman enrollment by increasing communication and activities directed toward off-campus clientele.
<table>
<thead>
<tr>
<th>GOAL</th>
<th>STRATEGIES/ACTIVITIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increase class enrollment by increasing communication and activities directed toward on-campus and local clientele.</td>
<td>1. Distribute promotional letters to on-campus students.</td>
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<td></td>
<td>2. Display cases in student union.</td>
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<tr>
<td></td>
<td>3. Open house.</td>
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<td></td>
<td>4. Meet with advisors from other departments on campus.</td>
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<td></td>
<td>5. Meet with counseling center personnel.</td>
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<td></td>
<td>6. Utilize undergraduate students as recruiters.</td>
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<td></td>
<td>7. Prepare a new slide/tape promoting industrial arts.</td>
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<td></td>
<td>8. Participate in Vocational Education Week.</td>
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</tbody>
</table>

Figure 3. Goal #2: Increase class enrollment by increasing communication and activities directed toward on-campus and local clientele.

<table>
<thead>
<tr>
<th>GOAL</th>
<th>STRATEGIES/ACTIVITIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increase class enrollment by conducting promotional activities.</td>
<td>1. Design, print, and distribute brochures on Graphic Arts I class.</td>
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<tr>
<td></td>
<td>3. Prepare a promotional article for a trade publication.</td>
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<tr>
<td></td>
<td>4. Prepare a news release on shortage of IA students.</td>
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<td></td>
<td>5. Community service project conducted by IA students.</td>
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<td></td>
<td>6. IA Day promotion conducted by IA student association.</td>
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<td></td>
<td>7. Prepare a handout on new graphic communications course sequence.</td>
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<td></td>
<td>8. Assist with the development of a TV PSA.</td>
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<td></td>
<td>9. Prepare and distribute a radio PSA or IA.</td>
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<td></td>
<td>10. Prepare promotional fliers for selected IA classes.</td>
</tr>
</tbody>
</table>

Figure 4. Goal #3: Increase class enrollment by conducting promotional activities.
GOAL
Establish and/or promote scholarship programs for IA students.

STRATEGIES/ACTIVITIES
1. Solicit foundation moneys from industries.
2. Utilize the University's Development Office.
3. Promote existing scholarships for IA students.

Figure 5. Goal #4: Establish and/or promote scholarship programs for IA students.

GOAL
Coordinating recruitment efforts within the Industrial Arts Program Area, Division of Vocational and Technical Education, and the College of Education.

STRATEGIES/ACTIVITIES
1. Establish an IA Program Area recruitment committee.
2. Send a representative to the Division of VTE Recruitment Committee meetings.
3. Send a representative to the College of Education Recruitment Committee meetings.

Figure 6. Goal #5: Coordinate recruitment effort within the Industrial Arts Program Area, Division of Vocational and Technical Education, and the College of Education.

Why Students Drop Out

African American students have experienced many specific problems in higher education. This portion of the review of the literature will examine why these students drop out of college.

Castaneda, James, and Robbins (1974) recognize that the first two years for college students are crucial because, most dropouts occur during this period. Two factors that contribute to the dropout rate are: a lack of money
for student expenses, and an educational environment that does not nurture the student.

In an attempt to remedy this problem, Elias Blake, in a paper delivered at the National Policy Conference on Education for African Americans, suggested a financial aid program that would free the student from work obligations during the first two years. He also urged colleges and universities to follow the black college model which entailed taking young people as they are and doing what is necessary to give them the skills needed to academically succeed (p. 123). That which is necessary may include, but is not limited to small group learning, peer/faculty tutoring, and developmental courses.

The writer believes that everyone can learn and can meet goals and objectives that are put before them, if they are met with positive programming, and receive encouragement to conquer assignments. Without this positive programming, self-esteem, motivation and a desire to continue will decrease and/or diminish. African American students, on many occasions, fail to receive positive programming simply because of an assumption that all African American students are the same. Castaneda notes that:

Many well-intended college administrators and faculty members see all blacks as victims of poverty, broken families, and poor elementary and secondary school preparation. They assume that black students come to them with low motivation and limited potential. Further, many see the black college student as a 'militant'—a supporter of the separatist ideology. These blanket assumptions are not only damaging to the well-being of black students, they prevent the institution from responding to individual needs and abilities. (p. 73)
This same assumption is acknowledged in a recent study by the National Advisory Committee on Black Colleges and Universities when they identified the following conditions:

Black students who receive special financial aid or academic assistance get the message that 'special' is inferior—that they do not deserve to be at the predominantly white university. The badge of inferiority is then pinned on all black students, including those of the highest academic ability and those with no financial need. (p. 19)

Sedlacek and Brooks (1976) also hypothesized factors that may contribute to the attrition of African American students. They proposed seven non-cognitive variables that are related to academic success. Because of the focus on why students drop out, those variables will be rephrased to identify catalysts for dropping out. They include: (a) lack of positive self-concept, (b) non-realistic self-appraisal, (c) lack of understanding of, and an inability to deal with racism, (d) non-preference for long-term goals over more immediate, short-term needs, (e) absence of a strong support person, (f) non-successful leadership experience, and (g) lack of demonstrated community service.

Garcia and Seligsohn (1981) emphasized that many retention programs are operated by "soft" money; that is when those funds are no longer available, the programs which they initiated or supported are usually phased out. Very often this involves the dismissal of African Americans hired to perform specific tasks associated with minority student programs. In the absence of a financial commitment, there can be no continuity of programs, personnel, nor the assurance of prolonged and
purposeful intervention. Again, this contributes to the attrition of African American students.

Another problem systemic to American higher education is the continued presence of institutional racism, reinforced by low expectations for the academic success of African Americans and other minority students. Research is extensive on teacher expectations and teacher behaviors (Cornel, 1982). Recent studies clearly reveal that (a) teachers do form different expectations for different students, (b) these expectations influence the instructional interactions, and (c) students' achievement gains are correlated with the teachers' expectations. This problem alone causes many African American students to drop out of school. This problem exists at all levels of education.

A research project was conducted by McNeese State University during the fall of 1985 to describe minority students' perceptions toward their academic professors. Three hundred fifty-seven students enrolled in colleges of education from Louisiana, Alabama, and Texas participated in the project. Questionnaires were sent to minority students enrolled in the developmental education courses in various universities throughout the states (Duhan & Chavis, 1985).

The results of the study indicated the overwhelming evidence of a need for college professors to develop an improved sensitivity toward students' emotional and academic needs. These results clearly suggest that there is a need for the educational system to equip faculty and administrators in higher education with strategies to deal effectively with
attrition by providing information on the significance of meeting students' emotional needs as well as their intellectual needs.

Billson and Terry (1987), through their research, suggest that students who withdraw from college are less integrated into the academic environment, less involved on campus, and benefit from less family support than do those who persist to graduation. They also found that students who withdraw report lower levels of institutional commitment to a definition of higher education as the most important route of upward mobility; and they show higher rates of work-college and work-family conflict. Billson and Terry further stated:

In addition, students face five central problems whose solution will determine whether or not they remain in higher education: difficulty coping with the transition into adulthood (for traditional age students); lack of study skills and discipline; inadequate family support (especially for first-generation students); underdeveloped problem-solving skills; difficulty relating academic work to career plans (or lack of career goals). (p. 292)

Attrition of African American students is a major concern that did not surface today or yesterday. It has existed for a long time. There were concerns about the attrition of African American students during the early 1970s. These concerns prompted a survey to determine what African American students were doing to survive on the predominantly white campus (Lyons, 1973).

The colleges and universities used in that survey were selected at random from a list of institutions of higher learning in the United States. The institutions were classified into four geographic regions—Northeast, South, Midwest, and West. The individuals who responded to the
questionnaire ranged from undergraduate students to vice-presidents and provosts.

Findings indicated that political, cultural, and social participation in campus activities were extremely important for African American students. Thus the lack of these activities will contribute to an attrition problem.

Eddins (1981), also acknowledging the dropout problem among African American students, was motivated to complete a dissertation titled *A Causal Model of the Attrition of Specially Admitted Black Students in Higher Education*. Her results revealed that the important indicators of on-campus academic behaviors were: adequate class attendance, asking questions, careful and complete studying for tests, and putting forth maximum effort for class success. In essence, the lack of performing these tasks leads individuals to potentially dropping out of higher education.

More specifically, McClung (1988) conducted a study to identify factors that contribute to African American student withdrawal at Clemson University. Reasons given by students for the high dropout rate of African American students, included the following: (a) isolated location; (b) small black community; and (c) lack of cultural outlets. The results also revealed that the major aspects of college experience identified as significant indicators of success included involvement in campus organizations and activities, and positive interaction with faculty and staff.

Finally, Caufield (1989) conducted a study to identify factors related to the retention of African American students at the University of Illinois. Based on his extensive literature review, he cites 16 factors:
1. Participation in activities  
2. Number of hours preparing for class  
3. Attendance at on-campus social events  
4. Time with faculty outside of class  
5. Discussion of educational/career plans with advisor, faculty or parents  
6. Participation in special academic programs  
7. Personal support system  
8. Spending time with college friends  
9. Impression of efforts made to recruit minorities  
10. Number of best friends  
11. Importance attached to graduation  
12. Extent of racial prejudice  
13. Impressions of number of minority faculty  
14. Correct choice in attending the university  
15. Father and mother's occupational levels  
16. Father and mother's educational background

**Recruitment and Retention in Technology Teacher Education**

Recruitment and retention in technology education are topics that need to be aggressively addressed. Technology education has become a field of concern in this regard because not enough students are studying to become technology education teachers. According to Van Almen II (1990), "the combination of current teacher shortages, the impending retirement of many in the field, and the small number of persons currently preparing to be technology education and T&I teachers will present substantial crisis in the near future" (p. 17). This section of the review of literature will explore the recruitment and retention efforts in the field of technology teacher education.

It is obvious that our current supply sources of technology teachers will not meet the demands for future technology education teachers. We
need to become innovative in attracting qualified students from all walks of life. Miller (1990) conducted a survey to gain insight into the teacher supply problem in technology education. This was done by soliciting responses from technology education departments at all colleges and universities listed in the 1988-1989 edition of the *Industrial Teacher Education Directory*. Data revealed that freshmen just out of high school comprise 48% of teacher education candidates. Those transferring from community colleges and other institutions make up 30.8% of the total. Displaced homemakers comprise 0.1% and displaced industrial workers 5.3% of the group, retired military amount to 3.3%, and persons with previous degrees seeking credentials 4.3%.

Miller also made special note of the racial composition of undergraduates preparing to become technology education teachers. White males comprise the vast majority of students—3,946 of a total of 4,844 students, or 81.5%; 8.77% are white females; Hispanic males made up 1.53% of those identified; Hispanic females .23%. African American males made up 4.36%, while African American females comprised .78%. Asian males made up 1.53%, and Asian females 0.23%. Native Americans were the least represented of all, with 0.27% males and only one female in the entire sample. These are startling figures. Therefore, Mann recommended the establishment of a National Technology Advisory Panel to review the history of minority participation in technology education to offer an agenda for the future, in an attempt to gain more insight into the problem.

In addition to these data, the study determined the number of male and female students currently enrolled in technology education programs
across the nation. The findings revealed that 89.9% of the technology education students were males and 10.1% were females. Of the 105 institutions that returned their instrument, 45 reported having fewer than 20 technology education students; 22 of those schools reported fewer than 10 undergraduates in technology education programs.

Technology education teachers have the greatest opportunity to recruit future teachers because they work each day with students who have the potential to become excellent teachers. Dugger (1990) points out that the first responsibility of any good teacher is to communicate to the students that teaching is a very rewarding profession. Dugger also suggests several other ways of recruiting teachers such as establishing student organizations that place emphasis on the technology education field. Such organizations include the Technology Student Association (TSA) and the Vocational Industrial Clubs of America (VICA).

Dugger concluded by suggesting that the state, school system, and colleges and universities have a responsibility to assist in the recruiting efforts. The state supervisor of technology education should provide valuable data to the various administrative units in the state. He/she should develop a recruitment program such as using posters, television, radio, brochures, etc. The colleges and universities must play their part by also developing a recruitment program such as scheduling open-houses or campus recruiting fairs for surrounding students, including community and junior colleges.

Many recruitment strategies that are geared toward minority students sound pleasing to the ear. However, many of the strategies are not effective
primarily because many who are using the strategies could care less about recruiting and retaining minority students. Maley (1990) suggests that:

> Attitudes and attitude change on the part of technology education teachers are important concerns in attacking the problem of teacher recruitment. The vitality of a person's existence is closely tied to the attitude one has towards life and work on a daily basis. Likewise, the vitality of teaching is inextricably tied to the attitudes teachers bring to their laboratories and associated professional involvement. The very existence of that vitality in our teachers will determine the future of technology education. Without that vitality, how can we expect bright, sensitive and capable people to be attracted to teaching as a career. (p. 18)

Maley also made note that if technology education teachers are to effectively attract more students, their attitudes must consist of several dimensions including commitment, faith or belief, and concern. This is a major concern because as he points out, many teachers and supervisors of technology education do not really see a need for an aggressive teacher recruitment effort.

In addition to Dugger's strategies for recruitment, Fixler (1989) lists several others that may assist in that effort. Such strategies include: word of mouth, advice from parents and friends, visits from college representatives, identification and direct referral of students by the high school technology teachers and guidance counselors, and a one-on-one approach by a school staff that is familiar with the requirements of the profession.

As part of the recruitment program, every technology teacher, administrator, and guidance counselor has the obligation to talk to students about the nationwide opportunities in our profession. This discussion should take the form of a career
information presentation. The exciting hands-on activities with machines, tools and computers and rewards of working with young people should be emphasized. Fringe benefits, pension and the vacation aspect of the profession should be included in the talk. (p. 8)

Recruitment and Retention in Historically Black Colleges and Universities

According to Fleming (1985), the key to retention at historically black colleges and universities (HBCUs) is the socio-psychological climate of the institution in which African American students find themselves. It is that climate that makes a difference, and that provides the motivation for learning and the motivation for growth. To further emphasize the role that HBCUs play in the recruitment and retention of African American students, Fleming acknowledged:

In thinking back about the issue of retention, I thought back over my favorite psychologists, and wonder what they might have to say on this issue, if I could talk to them personally. And in reviewing what they have written and what they have said, it seems that beyond money and beyond aptitude, that students are retained well in any environment where there is a critical confluence of factors present. When there are enough of these critical factors present, what happens is that students are able to produce a connection in the environment. Connection is sort of a oriented term and in it, it concerns a number of factors. It concerns things like a feeling of belonging to the institution that you dearly want. Concerns feelings of progress in that institution, feeling of being able to or being invited to participate in the goings on of the community in which you're in. Concerns the ability to establish friendships in the community. To achieve an empathy that goes from you to other people then back again. And probably most important it concerns a feeling of success in the institution. (p. 46)
Fleming also reminds us that HBCUs increase retention among African American students by their unique ability of enriching students with education, pride, self-esteem, a feeling of belonging, the establishment of long-lasting and meaningful relationships, a sense of security, self-determination, and hope. To further support, emphasize, and confirm Flemings' findings, the Carnegie Foundation study pointed to the fact that HBCUs promote more positive intellectual development among African American students than white colleges, and that students in HBCUs have an enhanced ability to complete and to achieve, while in white institutions they may suffer decline in their competitive performance.

Gurin and Epps (1975) conducted longitudinal studies of HBCUs to examine certain variables such as, the interaction of key individual characteristics and different types of instructional environments (i.e., diversity of extracurricular activities, the role of student activities on campus, and student-faculty informal contacts). They concluded that when African American students' academic success was measured by completion of college, African American students in HBCUs placed above the national average in completing their baccalaureate degrees.

Finto (1975) contends that an institution's character is extremely influential on students progress and success. It is the characteristic of the institution (i.e., instructional type and quality structural arrangements, resources, facilities, composition of members) that placed limits upon the development and integration of students within the institution (cited in Carroll, 1988).
The fact that HBCUs have a successful track record in graduating significant leaders means that HBCUs are powerful tools for recruiting other students, especially African Americans. Some of these great leaders include: Dr. Martin Luther King (Morehouse College); Dr. Ronald McNair (NCA&T); and The Reverend Jesse Jackson (NCA&T)—to name a few. This is further emphasized by Lewis (1992) as she gives praise and thanks to HBCUs:

In spite of limited endowments, low faculty salaries and comparatively low tuition, these schools [HBCUs] have produced approximately 50 percent of the black professional class. Approximately 15 percent of today's black teachers and 70 percent of today's black dentists and physicians earn their degrees at HBCUs. Each year, Clark-Atlanta University, Mehary Medical College, and Howard University collectively award over half of the Ph. D's earned by African Americans in the field of science. Claflin College has produced over 70 percent of the black pastors in the state of South Carolina. At Philander Smith College, 30 percent of the class of 1991 went on to graduate school. Houston-Tillotson College trained the nuclear chemist whose research team discovered chemical elements 104 and 105. (p. 73)

Summary and Conclusions

Recruitment of African American students in higher education is increasingly becoming top priority. Many institutions of higher learning are revamping their programs to include special personnel for recruiting, special programs, fellowships, grants, and many other creative strategies to attract African American students. For example, many colleges and universities are sending recruiters to visit high schools and smaller colleges that are located in highly populated African American communities. These same institutions are using national databases to
locate prospective students. Other recruitment components include newsletters, workshops and brochures.

Even though many recruitment methods are proven successful, the writer believes that the best recruitment method for African American students is the presence of African American faculty role models. This within itself creates another problem. African American faculty presence is rare and potentially getting worse—especially in predominantly white institutions. An article published in the January issue of The Ohio State University faculty newspaper *On Campus* (1993), titled "Ohio State is Fifth in Ph.D.'s Granted to African Americans," emphasized the disproportionate number of African American faculty at The Ohio State University. The numbers reflect that there are 3,323 faculty members, and only 104 of them are African American. The article further reveals that there is a general perception that in academia you do not hire your own. If this is the case, many institutions are not totally committing themselves to the recruitment process of attracting African American students.

Retention of African American students in higher education is synonymous with recruitment. The enthusiasm used to attract African American students to a particular institution must continue to exist if the institution intends to graduate them. Many strategies have been developed to assist in the retention efforts for African American students. Such strategies include monitoring students' progress during their stay at the institution, tutoring, funding, African American organizations, African American cultural centers, mentor programs, and many others. Many must realize that a supportive environment helps tremendously when
young African American students are new on campus. They need to be assured of the feeling of belongingness or they may become isolated or feel that their counterparts may alienate them. A non-supportive environment serves as a catalyst for potentially leading a student to drop out.

In conclusion, recruitment and retention are no single person's responsibility. They require the participation of the entire institution. Recruitment and retention should be driven by an attitude rather than a list of goals and objectives. Everyone should ask themselves, do I really want African American students on this campus, or more specifically, in my classroom. If the answer is no, a weak link is present in the recruitment and retention chain. And oftentimes, that weak link is the determinant factor which turns students away or contributes to a student's decision to drop out.
CHAPTER III
METHODOLOGY

Overview

This chapter describes the methodology which was utilized to collect and analyze data. This chapter is organized into seven sections: (a) research design, (b) population, (c) instrumentation, (d) validity issues, (e) reliability issues, (f) data collection, and (g) data analysis.

Research Design

This study was designed to be a descriptive survey. Figure 7, which is an adaptation from Davis (1981), gives the operational procedures that guided this study. Fraenkel and Wallen (1990), stated that "a descriptive survey involves asking the same set of questions (often prepared in the form of a written questionnaire or ability test) to a large number of individuals either by mail, by telephone, or in person. The big advantage of survey research is that it has the potential to provide us with a lot of information obtained from quite a large sample of individuals" (p. 10).

Also, because of the nature of this study, a census survey, rather than a sample survey, was utilized to collect data. According to Gay (1987), "in a census survey, an attempt is made to acquire data from each and every member of the population" (p. 192).
Phase I

Identification of the Problem

Critical Examination of Literature Review

Formulation of Research Topic:
"Recruitment & Retention of African American Students in Technology Teacher Education"

Development of six (6) Research Questions

Phase II

Design Questionnaire for the Study

Chair's Questionnaire

Review Questionnaire by Panel of Experts

Revision of Questionnaire

Pilot Test

Final Revision of Questionnaire

Phase III

Survey / Data Collection

Phase IV

Analysis of Data and Recommendation for Further Study

Figure 7. Operational model of research procedures.

Population

The population for this study was all department heads or chairs in technology teacher education at colleges and universities. The names of the programs and administrators were obtained from the Industrial
Teacher Education Directory 1992-1993 (Dennis, 1991), published by the Council on Technology Teacher Education (CTTE), and the National Association of Industrial and Technical Teacher Educators (NAITTE) and from personal contacts with potential programs.

Instrumentation

The instrument that was designed for this study was a questionnaire. According to Gay (1987), "a questionnaire is much more efficient in that it requires less time, is less expensive, and permits collection of data from a much larger population" (p. 195). Since an instrument was located in the literature which measured the recruitment and retention of African American students in baccalaureate nursing programs (July, 1988), several of those questions were revised and modified to fit the proposed study. This was done after receiving written permission from the author. Other questions were generated from the review of literature (see appendix).

Validity (Non-Random) Issues

Non-random error occurs when the quality of the instrument is so poor that the performance on the instrument does not represent that which the instrument was intended to measure. Non-random error will always be present to some extent. However, for the purpose of this study, non-random error was assessed by a panel of experts. The panel critiqued the instrument for content and face validity.

The panel of experts consisted of African American faculty in technology teacher education programs at various universities. They were
selected because they were African Americans who were knowledgeable of the subject matter, and had an awareness of recruitment and retention efforts of African Americans in technology teacher education. The panel who met these criteria were as follows:

Dr. Ray Davis  
North Carolina A&T State University

Dr. Charles Pinder  
Virginia Polytechnic State University

Dr. Michael Scott  
The Ohio State University

Dr. LaVerne Young  
Texas A&M State University

Dr. Ted Lewis  
University of Minnesota

On February 15, 1993, a cover letter and an instrument was mailed to each of the participants identified as the panel of experts. The subjects in the field test were faculty members of technology teacher education programs at selected colleges and universities (N = 5). These participants assessed the length, ease of use, and clarity of the instrument. A validity checklist was provided for that purpose (see Appendix A). Face validity is the degree to which the instrument physically appears to measure what it is intended to measure. Content validity is the degree to which a test measures an intended area. In addition, item validity is concerned with whether the test items represent measurements in the intended content area (Gay, 1981).

The field test resulted in minor revisions being made to the wording and the organization of the items. The instrument was then prepared for the pilot test.
Reliability (Random) Issues

Random error occurs when the quality of the instrument is so poor that performance on the instrument depends upon outside influences (environmental disturbances, individual differences related to the instrument). To assess this error, a pilot test was conducted.

Reliability of the instrument was assessed by means of a pilot test using 11 selected administrators in technology teacher education who were representative of the population in the study. They were persons who had very recent past administrative experience in technology teacher education.

Since most of the items in the instrument contained demographic data, a reliability test was calculated on three scales consisting of 43 items.

On April 8, 1993, a cover letter was mailed to the participants informing them of the study and the importance of their participation. On April 11, 1993, a self-addressed, stamped copy of the instrument was mailed to each of the identified pilot test participants. A copy of the letter to the participants in the pilot study is included in Appendix A. The researcher was able to obtain participation from 9 of the 11 identified administrators. One of the 11 respondents could not provide the researcher with adequate data to support the study because of disassociation with the university. The other respondent was eliminated because the technology teacher education program at that university was terminated. As a result, nine respondents were able to provide pertinent data to support the pilot study.
The reliability of the instrument was established by using the Statistical Package for the Social Sciences (SPSS) reliability computer subprogram. Cronbach's Alpha was used to measure internal consistency (Norusis, 1987). In essence, when the Alpha Coefficient is larger (i.e., closer to 1.00), the test items are interrelated. Also, when the Alpha Coefficient is smaller (i.e., closer to 0), the test item indicates not much of a relationship or no relationship at all.

An Alpha coefficient of .91 was achieved for the three scale, 43-item instrument based on the data collected from the pilot study. According to Nunnally (1967), .50 - .60 would be high enough in the early stages of research. A coefficient of .80 is commonly used in the social science research arena. However, if a study requires greater precision, .90 or higher is required.

The results of the reliability analysis using SPSS can be found in Table 1. The Cronbach Alpha Coefficient reliability estimates for each of the scales were at acceptable levels.

Table 1

<table>
<thead>
<tr>
<th>Scale Variable</th>
<th>Cronbach's Alpha</th>
<th>Number of Items</th>
<th>Pilot Study (n = 9)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recruitment Approaches</td>
<td>.87</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>Retention Approaches</td>
<td>.90</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>Administrators Attitudes</td>
<td>.79</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Total Scale</td>
<td>.91</td>
<td>43</td>
<td></td>
</tr>
</tbody>
</table>
Human Subjects Protection Review

An application for exemption from human subjects committee review was completed and returned to the Office of Research Risks at The Ohio State University. The exemption was sought because the participants of this study were all voluntary participants, all were adults over the age of 17, and no information of a sensitive nature was to be collected. The OSU Human Subjects' criteria exempt a study of this type.

Data Collection Procedures

A descriptive survey was conducted among technology education administrators to describe the current state of recruitment and retention of African Americans in technology teacher education. In order to ascertain this information, an instrument in the form of a questionnaire was designed. This type of instrument was chosen because according to Ary, Jacobs, and Razavieh (1985), descriptive survey studies are designed to obtain information concerning the current status of a population of interest.

On May 14, 1993, 208 technology education administrators who were identified in the Industrial Teacher Education Directory 1990-1991, were mailed a letter (Appendix B). This letter informed the administrators of a forthcoming questionnaire, the purpose of the study, the importance of their response, and instructions as to the completion of the instrument. On May 29, 1993, the stamped, self-addressed questionnaires (Appendix C) were mailed to the 208 administrators. In addition to the questionnaire, a cover letter explaining the purpose of the study, the need for the subjects'
input, assurance of confidentiality, and instructions for completing and returning the questionnaire were also included. The initial deadline for returning the completed questionnaire was June 11, 1993. However, because of conflicting variables such as summer vacations, and quarter verses semester schedules, the deadline was extended to September 20, 1993.

Two weeks after the first mailing, June 4, 1993, a reminder in the form of a postcard was sent to those administrators who had not responded (Appendix D). On July 2, 1993, a second cover letter, and another copy of the questionnaire was mailed to administrators who had not responded after receiving the postcard.

Administrators who did not return their instruments after these efforts were made, were considered non-respondents. On July 15, 1993, phone calls were made to non-respondents to encourage participation. The researcher was informed that many administrators were on vacation, and others would return at a later date. During the period between September 12, 1993 and September 17, 1993, phone calls were made as an effort to contact the non-respondents. Table 2 summarizes the procedures taken in order to collect data for the study. In sum, the administrators who received the questionnaires, either completed them or passed them on to an appropriate person who could provide the needed information. Eighty (38.4 %) of the questionnaires returned indicated that they had a technology teacher education program; 57 (27.4%) of the administrators indicated that they did not have a technology teacher education program; and 10 (4.8%) of the respondents indicated by phone that they did not have
a technology teacher education program. Of the 208 questionnaires mailed, 147 (70.6%) responded. Of the 147 administrators, 80 (54.4%) indicated that they had technology teacher education programs, and 67 (45.6%) did not.

Table 2

Response Rate for the Study

<table>
<thead>
<tr>
<th>Methodology</th>
<th>Date</th>
<th># Mailed</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introductory Letter</td>
<td>05/14/93</td>
<td>208</td>
<td></td>
</tr>
<tr>
<td>Initial Mailing</td>
<td>05/29/93</td>
<td>208</td>
<td>62</td>
</tr>
<tr>
<td>1st follow-up (postcard)</td>
<td>06/04/93</td>
<td>146</td>
<td>34</td>
</tr>
<tr>
<td>2nd Mailing of survey packet</td>
<td>07/02/93</td>
<td>112</td>
<td>28</td>
</tr>
<tr>
<td>2nd follow-up (telephone)</td>
<td>07/15/93-08/15/93</td>
<td>15</td>
<td>05</td>
</tr>
<tr>
<td>3rd follow-up (telephone)</td>
<td>09/12/93-09/17/93</td>
<td>84</td>
<td>18</td>
</tr>
<tr>
<td>Data verification (telephone)</td>
<td>01/94-02/94</td>
<td>31</td>
<td>22</td>
</tr>
</tbody>
</table>

Data Analysis

This chapter addresses the appropriate strategies and statistics that were used to analyze the data collected by the survey. The types of data that were collected are nominal and ordinal data. According to Norusis (1987), nominal variables are merely labels or names, and ordinal variables have order, nothing more. Table 3 provides the reader with a reference to the type of variable, and the questionnaire item that responds to that variable.
Table 3

**Questionnaire Items Identified as Nominal or Ordinal Data**

<table>
<thead>
<tr>
<th>Type of Variable</th>
<th>Questionnaire Item #</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal</td>
<td>1,3,5,8,11,12,14,17,22,23,24,26</td>
</tr>
<tr>
<td>Ordinal</td>
<td>4,7,10,15,16,18,19,20,21,25</td>
</tr>
</tbody>
</table>

Because of the descriptive nature of this study, descriptive statistics, including frequency distributions were used where appropriate. According to Freund and Smith (1986), a frequency distribution is "an arrangement of statistical data that shows how many items, or what parts of the data, go into the different intervals or categories, into which the data is grouped" (p. 11).

In order to address research question #7, which compares HBCUs and PWCUs, the researcher hypothesized that there would be no difference between the dichotomous population ($H_0: P_1 = P_2$). To develop dichotomous tables for the comparisons, the response categories were fused: very successful, successful and moderately successful were categorized as successful - not very successful and unsuccessful were categorized as unsuccessful. To form a dichotomy, public and private HBCUs were combined, as were private and public PWCUs.

In order to add value, or make the tables more meaningful, the success categories were assigned the following values: very successful = 5; successful = 4; moderately successful = 3; unsuccessful = 2; and not very successful = 1. The total number of responses in a category was multiplied...
by the assigned values. For example, if 10 administrators chose very successful for a particular item, it was given a value of 50, or 10 (# administrators x 5 (value assigned). If there were eight responses for successful, it was valued at 32 (8 x 4), and if nine responded moderately successful 27 (9 x 3). The sum of these categories (109) developed "success points." The same strategy was also used to determine the "unsuccessful points." Unsuccessful responses were multiplied by 2 and not very successful responses were multiplied by 1.

Items that required the respondents to select strongly disagree, disagree, agree, and strongly agree were also changed to form a dichotomous scale. The two new categories were agree and disagree. The categories were assigned the following values: strongly disagree = 4; disagree = 3; agree = 2; and strongly agree = 1.

After the tables were completed, a z-test was performed on the data. The null hypothesis stated that the recruitment and retention efforts of African American students at HBCUs (P₁) and PWCU (P₂) were the same. The hypothesis was tested against the directional alternative that the recruitment and retention efforts of African American students at HBCUs would be more active and involved.

\[ H₀: P₁ = P₂ \text{ or } H₀: P₁ - P₂ = 0 \]
\[ Hₐ: P₁ > P₂ \text{ or } Hₐ: P₁ - P₂ > 0 \]

The level of significance was established at \( \alpha = .05 \). When the observed value of the test statistic exceeds the critical value (\( Zcv = 1.645 \)), the null hypothesis is rejected.
When the respondents returned their instruments, they were inspected for missing data. Those respondents who failed to complete the entire instrument or those administrators who did not return their instrument were handled accordingly. A reference index of the relationship between the research questions and the items that they responded to on the questionnaire is provided in Table 4.

Table 4

Research Questions and Their Relationship With the Survey Instrument Items

<table>
<thead>
<tr>
<th>Research Questions</th>
<th>Survey Instrument Item #</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1</td>
<td>3, 4, 6, 7, 8</td>
</tr>
<tr>
<td>#2</td>
<td>1, 11, 13, 14, 15, 24</td>
</tr>
<tr>
<td>#3</td>
<td>5, 9, 10, 12, 16, 21</td>
</tr>
<tr>
<td>#4</td>
<td>17, 20</td>
</tr>
<tr>
<td>#5</td>
<td>19</td>
</tr>
<tr>
<td>#6</td>
<td>2, 18, 22, 23, 25</td>
</tr>
</tbody>
</table>
CHAPTER IV
FINDINGS

Overview

The purpose of the study was to identify model practices in technology teacher education at colleges and universities that could be valuable to administrators and faculty for the recruitment and retention of African American students in baccalaureate TTE programs. The study also served to provide pertinent data on the strategies that could enhance minority students’ success in the field.

Chapter four presents a summary of the data collected to answer the research questions stated in Chapter I of the research study, which includes the following:

1. What is the status of African American students enrolled in technology teacher education programs during the 1992-1993 school year?
2. How are African American students recruited into technology teacher education?
3. What is done to support and retain African American students in technology teacher education?
4. Have technology teacher educators modified their programs to be sensitive to a culturally diverse population?

5. How do administrators in technology teacher education describe the effectiveness of current recruitment and retention efforts targeted toward African American students?

6. What are administrators' attitudes towards African Americans in technology teacher education programs?

7. How do TTE programs at HBCUs differ from TTE programs at PWCUs on recruiting and retaining African American students?

**Respondent Demographic Data**

The questionnaire was mailed to technology teacher education administrators in four-year colleges and universities in the United States. Table 5 describes the types of institutions that responded to the questionnaire. The data revealed that 12 (15.0%) were public historically black colleges and universities; 2 (2.5%) were private historically black colleges or universities; 58 (72.5%) were public predominantly white colleges and universities; and 7 (8.4%) were private predominantly white colleges and universities.

**Research Questions**

What is the status of African American students enrolled in technology teacher education programs during the 1992-1993 school year?

Table 6 describes the data collected on students currently enrolled in technology teacher education programs. The number of students enrolled
Table 5

**Types of Institutions Responding to the Questionnaire**

<table>
<thead>
<tr>
<th>Institution</th>
<th>Number of Programs</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public Historically Black College or University</td>
<td>12</td>
<td>15.0</td>
</tr>
<tr>
<td>Private Historically Black College or University</td>
<td>2</td>
<td>2.5</td>
</tr>
<tr>
<td>Public Predominantly White College or University</td>
<td>59</td>
<td>73.8</td>
</tr>
<tr>
<td>Private Predominantly White College or University</td>
<td>7</td>
<td>8.7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>80</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

In technology teacher education programs ranged from 21 (26.3%) programs having 0 to 10 students to 15 (18.8%) programs 40 or more students.

Table 6

**Number of Students in Technology Teacher Education Programs**

<table>
<thead>
<tr>
<th>Number of Students</th>
<th>Number of Programs</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-10</td>
<td>21</td>
<td>26.3</td>
</tr>
<tr>
<td>11-20</td>
<td>24</td>
<td>30.0</td>
</tr>
<tr>
<td>21-30</td>
<td>15</td>
<td>18.8</td>
</tr>
<tr>
<td>31-40</td>
<td>5</td>
<td>6.3</td>
</tr>
<tr>
<td>Above 40</td>
<td>15</td>
<td>18.8</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>80</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

Table 7 describes the current status of enrollment of African American males in technology teacher education programs. Seventy - one (88.8%) of the programs had 0-5 African American male students, whereas 5 (6.3%) of the programs had 10 or more African American male students.
Table 7

**Enrollment of African American Males in Technology Teacher Education Programs**

<table>
<thead>
<tr>
<th>Enrollment of African American Males</th>
<th>Number of Programs</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-5</td>
<td>71</td>
<td>88.8</td>
</tr>
<tr>
<td>6-10</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Above 10</td>
<td>5</td>
<td>6.3</td>
</tr>
<tr>
<td>Total</td>
<td>80</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 8 describes the current status of enrollment of African American females in technology teacher education programs. The status on enrollment ranges from 77 (96.3%) of the technology teacher education programs having 0-5 African American females to only 3 (3.8%) of the programs having more than 5.

Table 8

**Enrollment of African American Females in Technology Teacher Education**

<table>
<thead>
<tr>
<th>Enrollment of African American Females</th>
<th>Number of Programs</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-5</td>
<td>77</td>
<td>96.3</td>
</tr>
<tr>
<td>Above 5</td>
<td>3</td>
<td>3.8</td>
</tr>
<tr>
<td>Total</td>
<td>80</td>
<td>100.0</td>
</tr>
</tbody>
</table>
Table 9 describes African American students who are receiving financial aid. Data reveal that 58 (72.5%) of the programs reported that no African American students were receiving financial aid or the administrators were not sure.

Table 9

**African American Students Receiving Financial Aid**

<table>
<thead>
<tr>
<th>Students Receiving Financial Aid</th>
<th>Number of Programs</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>58</td>
<td>72.5</td>
</tr>
<tr>
<td>1</td>
<td>6</td>
<td>7.9</td>
</tr>
<tr>
<td>2</td>
<td>6</td>
<td>7.9</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>1.3</td>
</tr>
<tr>
<td>4</td>
<td>2</td>
<td>2.5</td>
</tr>
<tr>
<td>11</td>
<td>1</td>
<td>1.3</td>
</tr>
<tr>
<td>14</td>
<td>1</td>
<td>1.3</td>
</tr>
<tr>
<td>15</td>
<td>1</td>
<td>1.3</td>
</tr>
<tr>
<td>20</td>
<td>1</td>
<td>1.3</td>
</tr>
<tr>
<td>42</td>
<td>1</td>
<td>1.3</td>
</tr>
<tr>
<td>52</td>
<td>1</td>
<td>1.3</td>
</tr>
<tr>
<td>60</td>
<td>1</td>
<td>1.3</td>
</tr>
</tbody>
</table>

Table 10 identifies primary and secondary reasons why African American students are denied admission into technology teacher education. The data revealed that 69 (86.3%) of the programs indicated that African American students were not denied admission into technology teacher education; 9 (11.3%) indicated that inadequate grade point averages was the primary reason African American students were denied admission into technology teacher education; 2 (2.5%) indicated that inadequate grade
point averages was a secondary reason why African American students were denied admission into technology teacher education.

**Table 10**

**Variables Affecting Admission into Technology Teacher Education**

<table>
<thead>
<tr>
<th>Variables Affecting Admission</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>Less Than Required GPA</td>
<td>69</td>
<td>86.3</td>
<td>9</td>
</tr>
<tr>
<td>Insufficient Prerequisite Coursework</td>
<td>73</td>
<td>91.3</td>
<td>0</td>
</tr>
<tr>
<td>Incomplete Application</td>
<td>77</td>
<td>96.3</td>
<td>0</td>
</tr>
<tr>
<td>Did Not Meet Stipulated Deadline</td>
<td>78</td>
<td>97.5</td>
<td>0</td>
</tr>
<tr>
<td>Less Than Satisfactory SAT Scores</td>
<td>73</td>
<td>91.3</td>
<td>5</td>
</tr>
<tr>
<td>Other</td>
<td>67</td>
<td>83.8</td>
<td>10</td>
</tr>
</tbody>
</table>

*Note: 1 = Not Denied Admission; 2 = Primary Reason for Denied Admission; 3 = Secondary Reason for Denied Admission.*

Table 11 describes the number of African American students who graduated from technology teacher education programs during the 1992-1993 school year. The data revealed that 73 (91.3%) of the programs indicated that they had between 0-4 African American students who would graduate during the 1992-1993 academic school year; and 1 (1.3%) of the programs indicated that they had 20 or more African Americans who would graduate during the 1992-1993 academic school year.

Table 12 describes the number of African American students in technology teacher education who graduated within the last five years (1988-1993). The data revealed that 64 (80.0%) of the programs indicated that they had 0-5 African American students in technology teacher
education who graduated within the last five years; and 2 (2.5%) of the programs indicated that they had more than 30 African American students in technology teacher education who graduated within the last five years.

Table 11

**Number of African Americans Graduating During the 1992-1993 School Year**

<table>
<thead>
<tr>
<th>Number of Students</th>
<th>Number of Programs</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-4</td>
<td>73</td>
<td>91.3</td>
</tr>
<tr>
<td>5-9</td>
<td>2</td>
<td>2.5</td>
</tr>
<tr>
<td>10-14</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>15-19</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>20 or More</td>
<td>1</td>
<td>1.3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>80</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

Table 12

**Graduation Rate of African Americans Between 1988-1993**

<table>
<thead>
<tr>
<th>Number of Students</th>
<th>Number of Programs</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-5</td>
<td>64</td>
<td>80.0</td>
</tr>
<tr>
<td>6-10</td>
<td>5</td>
<td>6.3</td>
</tr>
<tr>
<td>11-15</td>
<td>3</td>
<td>3.8</td>
</tr>
<tr>
<td>16-20</td>
<td>2</td>
<td>2.5</td>
</tr>
<tr>
<td>21-25</td>
<td>1</td>
<td>1.3</td>
</tr>
<tr>
<td>26-30</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>More than 30</td>
<td>2</td>
<td>2.5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>80</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>
How are African American Students Recruited Into Technology Teacher Education?

This section of the findings describes the methods by which African American students are recruited into technology teacher education programs. Those items listed in Chapter IV will be addressed.

Table 13 describes the number of technology teacher education programs that target the main markets for recruiting African American students. The data revealed that 15 (18.8%) of the programs did not target high schools as main markets to recruit African American students into technology teacher education programs, whereas 65 (81.3%) of the programs did.

Table 13

Main Markets for Recruiting African American Students

<table>
<thead>
<tr>
<th>Market</th>
<th>Do Not Target Market</th>
<th>Do Target Market</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number of Programs</td>
<td>%</td>
</tr>
<tr>
<td>High Schools</td>
<td>15</td>
<td>18.8</td>
</tr>
<tr>
<td>Vocational Education Programs</td>
<td>49</td>
<td>61.3</td>
</tr>
<tr>
<td>Community Colleges</td>
<td>39</td>
<td>48.8</td>
</tr>
<tr>
<td>Other Markets</td>
<td>59</td>
<td>73.8</td>
</tr>
</tbody>
</table>

Table 14 identifies the number of technology teacher education programs that received funding for the recruitment of African American students. The data revealed that 67 (83.8%) of the technology teacher education programs did not receive funding for the recruitment of African American students, whereas 13 (16.3%) of the technology teacher education
programs did receive funding for recruitment. Currently, of the 13 (16.3%) technology teacher education programs that received funding, one department received $250.00, another received $1,000.00, and only one received $2,500.00.

Table 14

**TTE Programs Receiving Funding for Recruiting African American Students**

<table>
<thead>
<tr>
<th>Funding</th>
<th>Number of Programs</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>67</td>
<td>83.8</td>
</tr>
<tr>
<td>Yes</td>
<td>13</td>
<td>16.3</td>
</tr>
<tr>
<td>Total</td>
<td>80</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 15 identified whether technology teacher education departments have specific faculty members designated to recruit African American students. The data revealed that 73 (91.3%) of the technology teacher education programs do not have a specific faculty member designated to recruit African American students, whereas 7 (8.4%) of them do have a designated recruiter.

Table 15

**Programs Using Faculty as Recruiters**

<table>
<thead>
<tr>
<th>Faculty as Recruiters</th>
<th>Number of Programs</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>73</td>
<td>91.3</td>
</tr>
<tr>
<td>Yes</td>
<td>7</td>
<td>8.4</td>
</tr>
<tr>
<td>Total</td>
<td>80</td>
<td>100.0</td>
</tr>
</tbody>
</table>
Table 16 describes marketing plans for recruiting African American students into technology teacher education programs. The data revealed that 48 (60%) of the technology teacher education programs do not have marketing plans for recruiting African American students, whereas, 32 (40%) do have such plans.

**Table 16**

**TTE Programs Having Marketing Plans for Recruiting African American Students**

<table>
<thead>
<tr>
<th>Marketing Plans</th>
<th>Number of Programs</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>48</td>
<td>60.0</td>
</tr>
<tr>
<td>Yes</td>
<td>32</td>
<td>40.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>80</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

Table 17 identifies technology teacher education departments that have an affirmative action goal. The data revealed that 34 (42.5%) of the technology teacher education programs do not have an affirmative action goal; 41 (51.3%) do; and 5 (6.3%) did not respond to this item.

**Table 17**

**Programs Having an Affirmative Action Goal**

<table>
<thead>
<tr>
<th>Affirmation Action Goal</th>
<th>Number of Programs</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>34</td>
<td>42.5</td>
</tr>
<tr>
<td>Yes</td>
<td>41</td>
<td>51.3</td>
</tr>
<tr>
<td>N/A</td>
<td>5</td>
<td>6.3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>80</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>
Table 18 describes and rates the success of retention approaches that technology teacher education programs utilize in order to retain African American students. The data revealed that 54 (67.5%) of the programs did not utilize African American faculty or students as recruiting tools; 4 (5.0%) of the programs indicated that they utilized African American faculty or students as a means of recruiting and it was very successful; 7 (8.4%) programs utilized African American faculty or students and indicated that it was successful; 8 (10%) utilized African American faculty or students and indicated that it was moderately successful; 3 (3.8%) utilized African American faculty or students and indicated that it was unsuccessful; and 4 (5.0%) programs utilized African American faculty or students and indicated that it was not very successful.

What Is Done To Support And Retain African American Students In Technology Teacher Education?

Table 19 identifies the availability of special retention funds just for African American students in technology teacher education. The data revealed that 1 (1.3%) of the programs did not respond to this item; 76 (95%) indicated that they had no special funds; and 3 (3.8%) had special funds for retention.
### Table 18

**Administrator Ratings of Approaches Used to Recruit African American Students in Technology Teacher Education**

<table>
<thead>
<tr>
<th>Approaches to Recruitment</th>
<th>N/A</th>
<th>VS</th>
<th>S</th>
<th>MS</th>
<th>U</th>
<th>NVS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Afr. Am. Faculty or Students as Recruiters</td>
<td>54</td>
<td>67.5</td>
<td>4</td>
<td>5.0</td>
<td>7</td>
<td>8.4</td>
</tr>
<tr>
<td>Recruiters Speaking to Large Afr. Am. Populations</td>
<td>39</td>
<td>48.8</td>
<td>4</td>
<td>5.0</td>
<td>11</td>
<td>13.8</td>
</tr>
<tr>
<td>Recruiters Holding Conferences with High School Counselors</td>
<td>42</td>
<td>52.5</td>
<td>2</td>
<td>2.5</td>
<td>8</td>
<td>10.0</td>
</tr>
<tr>
<td>Afr. Am. Recruiters Going into Afr. Am. Communities</td>
<td>58</td>
<td>72.5</td>
<td>3</td>
<td>3.8</td>
<td>5</td>
<td>6.3</td>
</tr>
<tr>
<td>Minority Student Technology Teacher’s Day</td>
<td>70</td>
<td>87.5</td>
<td>1</td>
<td>1.3</td>
<td>2</td>
<td>2.5</td>
</tr>
<tr>
<td>Pre-Technology Teacher Education Program</td>
<td>66</td>
<td>82.5</td>
<td>0</td>
<td>0.0</td>
<td>1</td>
<td>1.3</td>
</tr>
<tr>
<td>Mail Brochures to Minority Groups</td>
<td>55</td>
<td>68.8</td>
<td>3</td>
<td>3.8</td>
<td>3</td>
<td>3.8</td>
</tr>
<tr>
<td>Special Financial Packages</td>
<td>62</td>
<td>77.5</td>
<td>3</td>
<td>3.8</td>
<td>7</td>
<td>8.4</td>
</tr>
<tr>
<td>Place Ads in Minority Group Media</td>
<td>67</td>
<td>83.8</td>
<td>0</td>
<td>0.0</td>
<td>2</td>
<td>2.5</td>
</tr>
<tr>
<td>College Catalogs as Recruiting Tools</td>
<td>34</td>
<td>42.5</td>
<td>1</td>
<td>1.3</td>
<td>2</td>
<td>2.5</td>
</tr>
<tr>
<td>Department of Technology Teacher Education Catalog</td>
<td>62</td>
<td>77.5</td>
<td>1</td>
<td>1.3</td>
<td>3</td>
<td>3.8</td>
</tr>
<tr>
<td>Newspaper Articles Published in Local Papers</td>
<td>63</td>
<td>78.8</td>
<td>1</td>
<td>1.3</td>
<td>2</td>
<td>2.5</td>
</tr>
<tr>
<td>School or Department of Technology Brochures</td>
<td>37</td>
<td>46.3</td>
<td>2</td>
<td>2.5</td>
<td>10</td>
<td>12.5</td>
</tr>
<tr>
<td>Television and Radio Air Time</td>
<td>68</td>
<td>85.0</td>
<td>3</td>
<td>3.8</td>
<td>1</td>
<td>1.3</td>
</tr>
<tr>
<td>Flyers and Posters</td>
<td>50</td>
<td>62.5</td>
<td>2</td>
<td>2.5</td>
<td>4</td>
<td>5.0</td>
</tr>
<tr>
<td>Slide Presentation</td>
<td>65</td>
<td>81.3</td>
<td>1</td>
<td>1.3</td>
<td>4</td>
<td>5.0</td>
</tr>
<tr>
<td>Afr. Am. Technology Education Journals</td>
<td>76</td>
<td>95.0</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Billboards</td>
<td>74</td>
<td>92.5</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Other Recruiting Methods</td>
<td>73</td>
<td>91.3</td>
<td>3</td>
<td>3.8</td>
<td>1</td>
<td>1.3</td>
</tr>
<tr>
<td>No Promotional Tools</td>
<td>76</td>
<td>95.0</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
<td>0.0</td>
</tr>
</tbody>
</table>

Note: N/A = Not Applicable; VS = Very Successful; S = Successful; MS = Moderately Successful; U = Unsuccessful; NVS = Not Very Successful
Table 19

**Funds Available for Retention of African American Students**

<table>
<thead>
<tr>
<th>Retention Funds</th>
<th>No. of Programs</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Response</td>
<td>1</td>
<td>1.3</td>
</tr>
<tr>
<td>No Special Funds</td>
<td>76</td>
<td>95.0</td>
</tr>
<tr>
<td>Special Funds</td>
<td>3</td>
<td>3.8</td>
</tr>
<tr>
<td>Total</td>
<td>80</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 20 identifies the number of full-time faculty members that are in technology teacher education. The data revealed that 58 (75.4%) of the technology teacher education programs had between 0 and 5 full-time faculty; 13 (16.9%) of the technology teacher education programs had between 6 and 10 full-time faculty; and 8 (10.4%) of the technology teacher education programs had 10 or more full-time faculty members.

Table 20

**Number of Full-Time Faculty in TTE Programs**

<table>
<thead>
<tr>
<th>Number of Faculty</th>
<th>Number of Programs</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 5</td>
<td>59</td>
<td>76.7</td>
</tr>
<tr>
<td>6 - 10</td>
<td>13</td>
<td>16.9</td>
</tr>
<tr>
<td>Above 10</td>
<td>8</td>
<td>10.4</td>
</tr>
<tr>
<td>Total</td>
<td>80</td>
<td>100.0</td>
</tr>
</tbody>
</table>
Table 21 identifies the number of full-time African American faculty that are in technology teacher education. The data revealed that 63 (78.8%) of the programs had no African American faculty; 10 (12.5%) of the programs had only 1; and 1 (1.3%) had 5. Table 21 also shows that a total of 37 full-time African Americans were in the technology teacher education programs surveyed in the study.

Table 21

Number of African American Faculty in TTE Programs

<table>
<thead>
<tr>
<th>Number of Faculty</th>
<th>Number of Programs</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>63</td>
<td>78.8</td>
</tr>
<tr>
<td>1</td>
<td>10</td>
<td>12.5</td>
</tr>
<tr>
<td>3</td>
<td>2</td>
<td>2.5</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
<td>5.0</td>
</tr>
<tr>
<td>5</td>
<td>1</td>
<td>1.3</td>
</tr>
<tr>
<td>Total</td>
<td>80</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 22 describes and rates the recruitment approaches that technology teacher education programs utilize in order to recruit African American students. The data revealed that 33 (41.3%) of the programs did not utilize academic advising as a recruiting tool; 20 (25%) utilized academic advising and indicated that it was very successful; 18 (22.5%) utilized academic advising and indicated that this method was successful; 9 (11.3%) used academic advising to recruit African American students and indicated that this approach was moderately successful. No department
Table 22
TTE Program Ratings of the Approaches Used to Retain African American Students in Technology Teacher Education

<table>
<thead>
<tr>
<th>Approaches to Retention</th>
<th>N/A No. of Programs</th>
<th>N/A %</th>
<th>VS No. of Programs</th>
<th>VS %</th>
<th>S No. of Programs</th>
<th>S %</th>
<th>MS No. of Programs</th>
<th>MS %</th>
<th>U No. of Programs</th>
<th>U %</th>
<th>NVS No. of Programs</th>
<th>NVS %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic Advising</td>
<td>33</td>
<td>41.3</td>
<td>20</td>
<td>25.5</td>
<td>18</td>
<td>22.5</td>
<td>9</td>
<td>11.3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Financial Aid Package</td>
<td>51</td>
<td>63.8</td>
<td>9</td>
<td>11.3</td>
<td>13</td>
<td>16.3</td>
<td>7</td>
<td>8.4</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Early Warnings and Predictions</td>
<td>57</td>
<td>71.3</td>
<td>7</td>
<td>8.4</td>
<td>7</td>
<td>8.4</td>
<td>7</td>
<td>8.4</td>
<td>1</td>
<td>1.3</td>
<td>1</td>
<td>1.3</td>
</tr>
<tr>
<td>Exit Interviews</td>
<td>64</td>
<td>80.0</td>
<td>6</td>
<td>7.5</td>
<td>3</td>
<td>3.8</td>
<td>6</td>
<td>7.5</td>
<td>1</td>
<td>1.3</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Ethnic-Oriented Activities</td>
<td>61</td>
<td>76.3</td>
<td>3</td>
<td>3.8</td>
<td>10</td>
<td>12.5</td>
<td>5</td>
<td>6.3</td>
<td>1</td>
<td>1.3</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Curriculum Modifications</td>
<td>63</td>
<td>78.8</td>
<td>3</td>
<td>3.8</td>
<td>6</td>
<td>7.5</td>
<td>4</td>
<td>5.0</td>
<td>0</td>
<td>0.0</td>
<td>3</td>
<td>3.8</td>
</tr>
<tr>
<td>Learning and Academic Support</td>
<td>48</td>
<td>60.0</td>
<td>11</td>
<td>13.8</td>
<td>12</td>
<td>15.0</td>
<td>7</td>
<td>8.4</td>
<td>1</td>
<td>1.3</td>
<td>1</td>
<td>1.3</td>
</tr>
<tr>
<td>Support for Housing</td>
<td>71</td>
<td>88.0</td>
<td>2</td>
<td>2.5</td>
<td>1</td>
<td>1.3</td>
<td>4</td>
<td>5.0</td>
<td>0</td>
<td>0.0</td>
<td>2</td>
<td>2.5</td>
</tr>
<tr>
<td>Orientation</td>
<td>48</td>
<td>60.0</td>
<td>10</td>
<td>12.5</td>
<td>11</td>
<td>13.8</td>
<td>10</td>
<td>12.5</td>
<td>0</td>
<td>0.0</td>
<td>1</td>
<td>1.3</td>
</tr>
<tr>
<td>Policy Changes</td>
<td>73</td>
<td>91.3</td>
<td>2</td>
<td>2.5</td>
<td>2</td>
<td>2.5</td>
<td>3</td>
<td>3.8</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Increase African American Faculty</td>
<td>67</td>
<td>83.8</td>
<td>6</td>
<td>7.5</td>
<td>3</td>
<td>3.8</td>
<td>3</td>
<td>3.8</td>
<td>1</td>
<td>1.3</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Peer Tutors/Faculty Tutors</td>
<td>62</td>
<td>77.5</td>
<td>9</td>
<td>11.3</td>
<td>4</td>
<td>5.0</td>
<td>4</td>
<td>5.0</td>
<td>0</td>
<td>0.0</td>
<td>1</td>
<td>1.3</td>
</tr>
<tr>
<td>African American Counselors</td>
<td>64</td>
<td>80.0</td>
<td>7</td>
<td>8.4</td>
<td>3</td>
<td>3.8</td>
<td>6</td>
<td>7.5</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Course Load Reduction</td>
<td>68</td>
<td>89.5</td>
<td>2</td>
<td>2.5</td>
<td>4</td>
<td>5.3</td>
<td>2</td>
<td>2.5</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Summer Session Make-Up</td>
<td>72</td>
<td>90.0</td>
<td>2</td>
<td>2.5</td>
<td>3</td>
<td>3.8</td>
<td>1</td>
<td>1.3</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Small Group Learning</td>
<td>64</td>
<td>80.0</td>
<td>5</td>
<td>6.3</td>
<td>7</td>
<td>8.4</td>
<td>4</td>
<td>5.0</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>No Special Approaches</td>
<td>1</td>
<td>1.3</td>
<td>2</td>
<td>2.5</td>
<td>5</td>
<td>6.3</td>
<td>1</td>
<td>1.3</td>
<td>1</td>
<td>1.3</td>
<td>1</td>
<td>1.3</td>
</tr>
</tbody>
</table>

Note: N/A = Not Applicable; VS = Very Successful; S = Successful; MS = Moderately Successful; U = Unsuccessful; NVS = Not Very Successful
that utilized academic advising as a recruiting tool indicated that this method was unsuccessful or not very successful.

Table 23 describes retention methods utilized by technology teacher education other than those listed in Table 21 as a means of retaining African American students. The data revealed that 76 (95%) of the programs did not utilize other methods; and 4 (5.0%) did use other methods for retention.

Table 23

Programs Utilizing Other Retention Methods to Retain African American Students Other Than Those Identified in the Study

<table>
<thead>
<tr>
<th>Utilization of Other Methods</th>
<th>Number of Programs</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Did Not Utilize Other Methods</td>
<td>76</td>
<td>95.0</td>
</tr>
<tr>
<td>Utilized Other Methods</td>
<td>4</td>
<td>5.0</td>
</tr>
<tr>
<td>Total</td>
<td>80</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 24 questions if technology teacher education administrators are aware of any retention approaches used by their colleges or universities in addition to the retention approaches used by their department. The data revealed that 18 (22.5 %) of the programs were able to identify and list approaches; 42 (52 %) did not respond to the item; 17 (21.3 %) indicated that they were not aware of any approaches; 1 (1.3 %) indicated that focusing on retention for African American students alone was illegal; and 2 (2.5 %) indicated that this item did not apply to them.
Table 24

Administrator Awareness of Retention Approaches Used by the College or University in Addition to Those Used by the Technology Teacher Education Departments

<table>
<thead>
<tr>
<th>Awareness of Approaches</th>
<th>Number of Programs</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Response</td>
<td>42</td>
<td>52.5</td>
</tr>
<tr>
<td>No</td>
<td>17</td>
<td>21.3</td>
</tr>
<tr>
<td>Yes</td>
<td>18</td>
<td>22.5</td>
</tr>
<tr>
<td>Illegal Practice</td>
<td>1</td>
<td>1.3</td>
</tr>
<tr>
<td>N/A</td>
<td>2</td>
<td>2.5</td>
</tr>
<tr>
<td>Total</td>
<td>80</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Have Technology Teacher Educators Modified Their Programs To Be Sensitive To A Culturally Diverse Population?

Table 25 identifies those programs that utilized various methods of retaining African American students. The data revealed that of the programs that responded to the survey, 46 (57.5%) indicated that their curriculum included works of African Americans as a means of retaining African American students; 22 (28.6%) of the programs indicated that their programs included sensitivity training as a means of retaining African American students; and 30 (39.0%) of the programs utilized affirmative action committees as a means of retaining African American students in technology teacher education.
Table 25

**TTE Programs Using Methods to Retain African American Students**

<table>
<thead>
<tr>
<th>Retention Method</th>
<th>Number of Programs</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Curriculum Sensitivity</td>
<td>46</td>
<td>57.5</td>
</tr>
<tr>
<td>Sensitivity Training</td>
<td>22</td>
<td>28.6</td>
</tr>
<tr>
<td>Affirmative Action Committees</td>
<td>30</td>
<td>39.0</td>
</tr>
<tr>
<td>Release Time</td>
<td>11</td>
<td>14.3</td>
</tr>
<tr>
<td>Grant Writing</td>
<td>13</td>
<td>16.9</td>
</tr>
<tr>
<td>No Special Programs</td>
<td>41</td>
<td>53.7</td>
</tr>
</tbody>
</table>

How Do Administrators in Technology Teacher Education Describe the Effectiveness of Current Recruitment and Retention Efforts Targeted Toward African American Students?

Table 26 identifies administrators' perceptions of factors that are especially helpful in achieving desired goals for recruiting and retaining African American students. The data revealed that of the administrators who responded, 16 (20%) identified counseling and advising as a key factor; 12 (15%) identified a positive atmosphere as a key factor; and 11 (13.8%) identified funding as a key factor helpful in achieving desired goals in recruiting and retaining African American students (see Appendix E).

Table 27 identifies factors that inhibit technology teacher education program ability to attract and retain African American students. The data revealed that 30 (37.5%) of the program administrators identified poor race relations as an inhibiting factor; 11 (13.8%) identified lack of financial assistance as an inhibiting factor; 11 (13.8%) identified program structure as an inhibiting factor; 8 (10%) identified university structure as an inhibiting
Table 26

**Administrators' Perceptions of the Effectiveness of Recruitment and Retention of African American Students**

<table>
<thead>
<tr>
<th>Perceptions</th>
<th>Number of Programs</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Counseling and Advising</td>
<td>16</td>
<td>20.0</td>
</tr>
<tr>
<td>Positive Atmosphere</td>
<td>12</td>
<td>15.0</td>
</tr>
<tr>
<td>Funding</td>
<td>11</td>
<td>13.8</td>
</tr>
<tr>
<td>Special Programs</td>
<td>9</td>
<td>11.3</td>
</tr>
<tr>
<td>Program Structure</td>
<td>4</td>
<td>5.0</td>
</tr>
<tr>
<td>No Response</td>
<td>28</td>
<td>36.4</td>
</tr>
<tr>
<td>Total</td>
<td>80</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 27

**Administrators' Perceptions of Factors Inhibiting the Ability to Attract and Retain African American Students**

<table>
<thead>
<tr>
<th>Factors</th>
<th>Number of Programs</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor Race Relations</td>
<td>30</td>
<td>37.5</td>
</tr>
<tr>
<td>Lack of Financial Assistance</td>
<td>11</td>
<td>13.8</td>
</tr>
<tr>
<td>Program Structure</td>
<td>11</td>
<td>13.8</td>
</tr>
<tr>
<td>University Structure</td>
<td>8</td>
<td>10.0</td>
</tr>
<tr>
<td>Student Disinterest</td>
<td>5</td>
<td>6.3</td>
</tr>
<tr>
<td>No Response</td>
<td>15</td>
<td>19.5</td>
</tr>
<tr>
<td>Total</td>
<td>80</td>
<td>100.0</td>
</tr>
</tbody>
</table>

factor; and 5 (6.3%) identified student disinterest as an inhibiting factor (see Appendix F).
What Are Administrators' Attitudes Toward African Americans In Technology Teacher Education?

Table 28 describes the opinions of administrators about the United States teaching force including racial and ethnic groups at a level consistent with their demographic percentage in the population. The data revealed that 4 (5.0%) of the administrators strongly disagreed that the teaching force should include racial and ethnic groups at a level consistent with their percentage in the population; 12 (15.0%) disagreed that the teaching force should include racial and ethnic groups proportionate to their representation in the population; 9 (11.3%) of the administrators were neutral; 24 (30.0%) of the administrators agreed that the teaching force should include proportionate representation of racial and ethnic groups; and 28 (35.0%) of the administrators strongly agreed that the teaching force should include proportionate representation of racial and ethnic groups.

How Do Technology Teacher Education Programs at Historically Black Colleges and Universities Differ From Technology Teacher Education Programs at Predominantly White Colleges and Universities on Recruiting and Retaining African American American Students?

This section of the findings describes the results of comparing the variables of the study for four types of institutions using a Z-test. Because of the high percentage of cells having expected counts of less than five, caution must be used when interpreting the results. Those tables that show there is a significance difference may be because of chance alone, and those tables that indicate that there is no significant difference may possibly be because of chance as well.
Table 28

**Administrators' Attitudes Toward African Americans in Teacher Education**

<table>
<thead>
<tr>
<th>Attitudes</th>
<th>SD</th>
<th>%</th>
<th>D</th>
<th>%</th>
<th>N</th>
<th>%</th>
<th>A</th>
<th>%</th>
<th>SA</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>The teaching force including racial and ethnic groups is at a level consistent with their demographic percentage in the population.</td>
<td>4</td>
<td>5.0</td>
<td>12</td>
<td>15.0</td>
<td>9</td>
<td>11.3</td>
<td>24</td>
<td>30.0</td>
<td>28</td>
<td>35.0</td>
</tr>
<tr>
<td>African Americans are highly under-represented in teacher education.</td>
<td>3</td>
<td>3.8</td>
<td>3</td>
<td>3.8</td>
<td>9</td>
<td>11.3</td>
<td>27</td>
<td>33.8</td>
<td>35</td>
<td>43.8</td>
</tr>
<tr>
<td>Teacher education reform may further restrict access of African Americans who wish to enter the teaching profession.</td>
<td>5</td>
<td>6.3</td>
<td>7</td>
<td>8.4</td>
<td>15</td>
<td>18.8</td>
<td>28</td>
<td>35.0</td>
<td>21</td>
<td>26.3</td>
</tr>
<tr>
<td>There is a need to implement programs to encourage African Americans to enter technology education.</td>
<td>28</td>
<td>35.0</td>
<td>31</td>
<td>38.8</td>
<td>6</td>
<td>7.5</td>
<td>5</td>
<td>6.3</td>
<td>35</td>
<td>43.8</td>
</tr>
<tr>
<td>African Americans are needed as role models to attract more African American students.</td>
<td>4</td>
<td>5.0</td>
<td>7</td>
<td>8.4</td>
<td>4</td>
<td>5.0</td>
<td>28</td>
<td>35.0</td>
<td>35</td>
<td>43.8</td>
</tr>
</tbody>
</table>

Note: SD = Strongly Disagree; D = Disagree; N = Neutral; A = Agree; SA = Strongly Agree
Status of African American Students

Table 29 identifies and compares the participating institutions on the reasons African American students who were denied admission into technology teacher education programs. The data revealed that no TTE programs at HBCUs, as a primary reason, denied admissions of African American students because of insufficient prerequisite coursework; 6 (7.5%) of the TTE programs at HBCUs, as a secondary reason, denied admissions of African American students because of insufficient prerequisite coursework; TTE programs at PWCUs, as a primary reason did not deny admissions to African American students because of insufficient prerequisite coursework; and 1 (1.3%) of the TTE programs at PWCUs, as a secondary reason, denied admissions of African American students because of insufficient prerequisite coursework. The data also indicated that there was no significant difference between HBCUs and PWCUs on the various reasons African American students were denied admission into technology teacher education.

Table 30 identifies and compares the participating institutions on the number of African American students who will graduate from technology teacher education programs during the 1992-1993 academic school year. The data revealed that, of the institutions that responded to this item, 10 (12.5%) of the HBCUs will graduate fewer than 20 African American students; none of the HBCUs will graduate more than 20 African American students; 64 (80%) of PWCUs will graduate fewer than 10 African American students; and 1 (1.3%) of PWCUs will graduate more than 20 African American students. The data also indicated that there was
no significant difference between HBCUs and PWCUs on the number of African American students who graduated during the 1992 - 1993 academic school year.
## Table 29

Comparison of HBCUs and PWCUs on the Reasons African American Students Were Denied Admission Into Technology Teacher Education

<table>
<thead>
<tr>
<th>Reasons for Denial of Admissions</th>
<th>HBCUs</th>
<th>PWCUs</th>
<th>z</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PR</td>
<td>SR</td>
<td>PR</td>
</tr>
<tr>
<td>Insufficient Prerequisite Coursework</td>
<td>0</td>
<td>6 (7.5%)</td>
<td>0</td>
</tr>
<tr>
<td>Less Than Required Grade Point Average</td>
<td>4 (5.0%)</td>
<td>1 (1.3%)</td>
<td>5 (6.3%)</td>
</tr>
<tr>
<td>Incomplete Applications</td>
<td>0</td>
<td>3 (3.8%)</td>
<td>0</td>
</tr>
<tr>
<td>Failure to Meet Stipulated Deadlines</td>
<td>0</td>
<td>2 (2.5%)</td>
<td>0</td>
</tr>
<tr>
<td>Unsatisfactory SAT Scores</td>
<td>2 (2.5%)</td>
<td>1 (1.3%)</td>
<td>3 (3.8%)</td>
</tr>
</tbody>
</table>

Note: PR = Primary Reason; SR = Secondary Reason

*Significant at z > 1.96 or z < -1.96
Table 30

Comparison of HBCUs and PWCUs on the Number of African American Students Who Will Graduate During the 1992-1993 Academic School Year

<table>
<thead>
<tr>
<th>Institutions</th>
<th>Less Than 20</th>
<th>20 or More</th>
</tr>
</thead>
<tbody>
<tr>
<td>HBCUs</td>
<td>10 (12.5%)</td>
<td>0</td>
</tr>
<tr>
<td>PWCUs</td>
<td>64 (80.0%)</td>
<td>1 (13%)</td>
</tr>
</tbody>
</table>

Significant at $z > 1.96$ or $z < -1.96$ $z = .59$

Table 31 identifies and compares the participating institutions on the number of African American students who graduated from technology teacher education programs within the last five years (1988-1993). The data revealed that, of the number of institutions that responded to this item, 11 (13.8%) of programs at HBCUs graduated less than 20 African American students; 2 (2.5%) of the TTE programs at HBCUs graduated 20 or more African students; 62 (77.5%) of the TTE programs at PWCUs graduated less than 20 African American students; and 1 (1.3%) of the TTE programs at PWCUs graduated 20 or more African American students. The data also indicated that of the number of administrators that responded, there was a significant difference between HBCUs and PWCUs on the number of African American students who graduated within the last five years (1988-1993). PWCUs have graduated more African American students in TTE during 1988-1993 than HBCUs.
Table 31

Comparison of HBCUs and PWCUs on the Number of African American Students Who Graduated Within the Last Five Years (1988-1993)

<table>
<thead>
<tr>
<th>Institutions</th>
<th>Less Than 20</th>
<th>20 or More</th>
</tr>
</thead>
<tbody>
<tr>
<td>HBCUs</td>
<td>11 (13.8%)</td>
<td>2 (2.5%)</td>
</tr>
<tr>
<td>PWCUs</td>
<td>62 (77.5%)</td>
<td>1 (1.3%)</td>
</tr>
</tbody>
</table>

Significant at $z > 1.96$ or $z < -1.96$  
$z = 2.18$

Recruiting African American Students

Table 32 describes how the four types of institutions that participated in the study compare on having a marketing plan for the recruitment of African American students. The data revealed that 7 (8.4%) HBCUs did not have a marketing plan; 8 (10.0%) HBCUs did; 39 (48.8%) PWCUs did not have a marketing plan; and 28 (35.0%) PWCUs did have a marketing plan. The data also indicated that there was no significant difference between HBCUs and PWCUs on having marketing plans for recruiting African American students.
Table 32

Comparison of HBCUs and PWCUs on Having Marketing Plans for Recruiting African American Students

<table>
<thead>
<tr>
<th>Institutions</th>
<th>No Institutional Comparisons</th>
<th>Marketing Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>HBCUs</td>
<td>7 (8.4%)</td>
<td>8 (10.0%)</td>
</tr>
<tr>
<td>PWCUs</td>
<td>39 (48.8%)</td>
<td>28 (35.0%)</td>
</tr>
</tbody>
</table>

Significant at $z > 1.96$ or $z < -1.96$ $z = -.78$

Table 33 describes how the institutions compare on having an affirmative action goal. The data revealed that, of the number of institutions that responded to this item, 7 (8.4%) HBCUs did not have an affirmative action goal; 9 (11.3%) HBCUs did have an affirmative action goal; 39 (48.8%) PWCUs did not have an affirmative action goal; and 29 (3.3%) PWCUs did have an affirmative action goal. The data also indicated that there was no significant difference between HBCUs and PWCUs on having an affirmative action goal.
Table 33

**Comparison of HBCUs and PWCUs on Having an Affirmative Action Goal**

<table>
<thead>
<tr>
<th>Institutions</th>
<th>No Affirmative Action Goal</th>
<th>Affirmative Action Goal</th>
</tr>
</thead>
<tbody>
<tr>
<td>HBCUs</td>
<td>7 (8.4%)</td>
<td>9 (11.3%)</td>
</tr>
<tr>
<td>PWCUs</td>
<td>39 (48.8%)</td>
<td>29 (36.3%)</td>
</tr>
</tbody>
</table>

Significant at $z > 1.96$ or $z < -1.96$ \( z = -.94 \)

**Retaining African American Students**

Table 34 identifies and compares the participating institutions that have special retention funds just for African American students in technology teacher education. The data revealed that of the institutions that responded, 13 (16.3%) HBCUs did not earmark special retention funds for African American students; 1 (1.3%) HBCUs did earmark retention funds for African American students; 62 (77.5%) PWCUs earmarked special retention funding for African American students; and 2 (2.5%) PWCUs did not earmark special retention funding for African American students. The data also indicated that there was no significant difference between HBCUs and PWCUs on earmarking special retention funds for African American students.
Table 34

Comparison of HBCUs and PWCUs on Earmarking Special Retention Funds for African Americans

<table>
<thead>
<tr>
<th>Institutions</th>
<th>No Special Funds</th>
<th>Special Funds</th>
</tr>
</thead>
<tbody>
<tr>
<td>HBCUs</td>
<td>13 (16.3%)</td>
<td>1 (1.3%)</td>
</tr>
<tr>
<td>PWCUs</td>
<td>62 (77.5%)</td>
<td>2 (2.5%)</td>
</tr>
</tbody>
</table>

Significant at $z > 1.96$ or $z < -1.96$  
$z = -.69$

Table 35 identifies and compares the participating institutions on the use of selected approaches to increase faculty sensitivity toward African American students in technology teacher education. The data indicated that 3 (3.8%) of the TTE programs at HBCUs used sensitivity training as a primary approach to increase faculty sensitivity toward African American students; 3 (3.8%) of the programs at HBCUs used the same approach as a secondary approach to increase faculty sensitivity; 11 (13.8%) of the TTE programs at PWCUs used sensitivity training as a primary approach to increase faculty sensitivity toward African American students; 5 (6.3%) of the TTE programs at PWCUs used sensitivity training as a secondary approach to increase faculty sensitivity toward African American students. There was no significant difference between HBCUs and PWCUs in their use to increase faculty sensitivity toward African American students.
Table 35

Comparison of HBCUs and PWCUs on Using Selected Approaches to Increase Faculty Sensitivity Toward African American Students

<table>
<thead>
<tr>
<th>Sensitivity Approaches</th>
<th>HBCUs</th>
<th></th>
<th>PWCUs</th>
<th></th>
<th>z</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PA</td>
<td>%</td>
<td>SA</td>
<td>%</td>
<td>PA</td>
</tr>
<tr>
<td>Sensitivity Training</td>
<td>3</td>
<td>3.8</td>
<td>3</td>
<td>3.8</td>
<td>11</td>
</tr>
<tr>
<td>Faculty Development Workshops</td>
<td>6</td>
<td>7.5</td>
<td>5</td>
<td>6.3</td>
<td>19</td>
</tr>
<tr>
<td>Affirmative Action Committees</td>
<td>2</td>
<td>2.5</td>
<td>3</td>
<td>3.8</td>
<td>15</td>
</tr>
<tr>
<td>Release Time</td>
<td>2</td>
<td>2.5</td>
<td>3</td>
<td>3.8</td>
<td>3</td>
</tr>
<tr>
<td>Grant Writing</td>
<td>4</td>
<td>5.0</td>
<td>2</td>
<td>2.5</td>
<td>3</td>
</tr>
</tbody>
</table>

Note: PA = Primary Approach, SA = Secondary Approach

Modifying Technology Teacher Education Programs

Table 36 identifies and compares the participating technology teacher education curriculums that take into account contributions of African Americans into their curriculum. Of the institutions that responded to this item, 3 (3.8%) HBCUs did not incorporate works of African Americans in their curriculum; 11 (13.8%) HBCUs incorporated works of African Americans into their curriculum; 8 (10.0%) PWCUs did not include works of African Americans in their curriculum; and 27 (33.8%) PWCUs included works of African Americans in their curriculum. The data also indicated that there was no significant difference between HBCUs and PWCUs on incorporating works of African Americans into the TTE curriculum.
Table 36

**Comparison of HBCUs and PWCUs on Incorporating Works of African Americans into the Technology Teacher Education Curriculum**

<table>
<thead>
<tr>
<th>Institutions</th>
<th>No</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>HBCUs</td>
<td>3 (3.8%)</td>
<td>11 (13.8%)</td>
</tr>
<tr>
<td>PWCUs</td>
<td>8 (10.0%)</td>
<td>27 (33.8%)</td>
</tr>
</tbody>
</table>

Significant at $Z > 1.96$ or $Z < -1.96$ $Z = .79$

**Administrators' Attitudes Towards African Americans In Technology Teacher Education**

Table 37 describes and compares participating administrator opinions about the United States teaching force, including the representation of racial and ethnic groups. Of the number of administrators who responded to this item, 8 (10.4%) HBCUs administrators strongly agreed that the United States teaching force should include racial and ethnic groups at levels consistent with their demographic percentage in the population; 11 (14.3%) HBCUs administrators agreed; 44 (57.2%) PWCUs disagreed; and 67 (87.1%) PWCUs agreed. The data also indicated that there was a significant difference between HBCUs and PWCUs on the administrators opinions about African Americans being highly underrepresented in teacher education. The administrators at PWCUs agree significantly more than the administrators at HBCUs, that African Americans are highly underrepresented in teacher education.
<table>
<thead>
<tr>
<th>Policies and Practices That Impact the Number of African Americans</th>
<th>HBUCs</th>
<th>PWCUs</th>
<th>Z</th>
</tr>
</thead>
<tbody>
<tr>
<td>The United States teaching force should include racial and ethnic groups at a level consistent with their demographic percentage in the population.</td>
<td>8</td>
<td>11</td>
<td>44</td>
</tr>
<tr>
<td>African Americans are highly underrepresented in teacher education.</td>
<td>8</td>
<td>10</td>
<td>13</td>
</tr>
<tr>
<td>Teacher education reform groups have called for eliminating undergraduate degrees in teacher education. Adoption of this recommendation may further restrict access of African Americans who wish to enter the teaching profession.</td>
<td>7</td>
<td>11</td>
<td>34</td>
</tr>
<tr>
<td>There is no need to implement programs to encourage African Americans to enter technology teacher education.</td>
<td>23</td>
<td>5</td>
<td>91</td>
</tr>
<tr>
<td>African American faculty are needed as role models to attract more African American students into technology teacher education.</td>
<td>8</td>
<td>13</td>
<td>22</td>
</tr>
</tbody>
</table>

Note: DA = Disagree; A = Agree

*Significant at Z > 1.96 or Z < -1.96
Table 38 describes and compares the participating institutions approaches for recruiting African American students in technology teacher education. The data revealed that the most successful approaches used by HBCUs were African American faculty or students speaking to high school students and recruiters speaking in schools with large African American populations. The most unsuccessful approach used by HBCUs was placing ads in minority group media. Also, the most successful approaches used by PWCUH were the college catalogs and the department of technology teacher education catalogs. The most unsuccessful approach used by PWCUH was recruiters speaking to schools with large African American populations. The data also indicated that there were significant differences between HBCUs and PWCUH on approaches to recruit African American students. The differences included the following: Of the number of administrators that responded, HBCUs experienced more success having recruiters speak in schools with large African American populations than PWCUH; HBCUs experienced more success with recruiters holding conferences with high school counselors than PWCUH; HBCUs experienced more success with African American recruiters going into African American communities than PWCUH; HBCUs experienced more success by mailing brochures to minority groups than PWCUH; HBCUs experienced more success using college catalogs, department of technology teacher education catalogs, and school or department of technology brochures than PWCUH.

Table 39 compares HBCUs to PWCUH on their approaches to the retention of African American students in technology teacher education. The data revealed that the most successful approaches used by HBCUs
were academic advising and orientation. The most unsuccessful approach used by HBCUs was support for housing. Also, the most successful approaches used by PWCUs were academic advising and financial aid packages. The most unsuccessful approaches used by PWCUs were summer session make-up, policy changes and support for housing. The data also indicated that there were significant differences between HBCUs and PWCUs. The differences included the following: HBCUs experienced more success using exit interviews, and summer session make-up than PWCUs.
Table 38

Comparison of HBCUs and PWCUs on Approaches Used for Recruiting African American Students

<table>
<thead>
<tr>
<th>Approaches to Recruitment</th>
<th>Institutional Comparison</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>HBCUs</td>
<td>PWCUs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>African American Faculty or Students Speaking to H.S. Students</td>
<td>44</td>
<td>2</td>
<td>25</td>
<td>0</td>
<td>-.94</td>
</tr>
<tr>
<td>Recruiters Speaking in Schools with Large African American Populations</td>
<td>33</td>
<td>1</td>
<td>70</td>
<td>16</td>
<td>2.28*</td>
</tr>
<tr>
<td>Recruiters Holding Conferences with High School Counselors</td>
<td>27</td>
<td>2</td>
<td>61</td>
<td>20</td>
<td>2.08*</td>
</tr>
<tr>
<td>African American Recruiters Going into African American Communities</td>
<td>29</td>
<td>2</td>
<td>27</td>
<td>9</td>
<td>2.12*</td>
</tr>
<tr>
<td>Mail Brochures to Minority Groups</td>
<td>29</td>
<td>0</td>
<td>28</td>
<td>13</td>
<td>3.36*</td>
</tr>
<tr>
<td>Special Financial Packages</td>
<td>17</td>
<td>0</td>
<td>38</td>
<td>71</td>
<td>.80</td>
</tr>
<tr>
<td>Place Ads in Minority Group Media</td>
<td>7</td>
<td>4</td>
<td>13</td>
<td>8</td>
<td>.11</td>
</tr>
<tr>
<td>College Catalogs as Recruiting Tools</td>
<td>27</td>
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<td>55</td>
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<td>Newspaper Articles Published in Local Papers</td>
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Note: S = Successful; US = Unsuccessful

*Significant at Z > 1.96 or Z < -1.96
Table 39

Comparison of HBCUs and PWCUs on Approaches Used to Retain African American Students?

<table>
<thead>
<tr>
<th>Approaches to Retention</th>
<th>Institutional Comparisons</th>
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<td>Academic Advising</td>
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<td>Early Warnings and Predictions</td>
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<td>Exit Interviews</td>
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<td>Learning and Academic Support</td>
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<td>Orientation</td>
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<td>Policy Changes</td>
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<td>Increase African American Faculty</td>
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<td>African American Counselors</td>
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<td>Course Load Reduction</td>
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<td>Summer Session Make-Up</td>
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<td>Small Group Learning</td>
<td>38</td>
</tr>
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</table>

Note: S = Successful; US = Unsuccessful

*Significant at Z > 1.96 or Z < -1.96
Summary

The data identifies strengths and weaknesses in the recruitment and retention of African American students in technology teacher education. Because of the minimal number of African American students entering into and graduating from technology teacher education programs, alternative methods are needed to recruit and retain these students. The major strategy that most TTE programs at HBCUs employ to attract and retain African American students is using African American faculty and African American students as recruiters. Conversely, this method has not been successful for PWCUs. Administrators from TTE programs at HBCUs indicate that recruiters speaking in schools with large African American populations is successful, PWCUs describe this approach as unsuccessful. Alternative strategies that have consistently aided TTE programs at both HBCUs and PWCUs in achieving their goals for recruiting and retaining students are: counseling and advising, which includes individual advising and administrators' support.

Recruitment and retention cannot be pinned to one particular strategy nor is it the responsibility of a single person or department. Students need to feel a sense of belonging to and a connection with their department. If the TTE field is going to survive, we have to be more innovative and motivated to attract and retain students of all races, including African Americans.
CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Introduction

The major problem addressed in this research study was the underrepresentation of African Americans in technology teacher education. If successful ways are not developed to attract and retain minorities in this field, the technology education field may eventually decrease substantially or diminish altogether.

This research serves to provide administrators and faculty with valuable data and new insights into the recruitment and retention of African American students in technology teacher education programs. The study also provides minority students with pertinent data or strategies that could enhance their success in the field.

Chapter five is comprised of three sections. Section one presents a review of the study and procedures, and a statement of the research questions; section two contains a summary of the findings, conclusions, and implications of the study to the field of technology teacher education, and section three presents the researchers recommendations for practice and further research.
Summary of the Study

This study examined the views of program administrators concerning the recruitment and retention of African American students in technology teacher education programs. It serves as a means to determine ways of increasing the pool of minority students in the field of technology education. The purpose of this study was to identify the policies, practices, and programs that could enhance the recruitment and retention of African American students in baccalaureate technology teacher education programs. It also serves to provide technology teacher educators, administrators, and practitioners with pertinent data on the strategies used by various colleges and universities in the recruitment and retention of African American students in technology teacher education. This study sought to answer the following research questions:

1. What is the status of African American students currently enrolled in technology teacher education?
2. What are the main ways African American students are recruited into technology teacher education?
3. What is done to support and retain African American students in technology teacher education?
4. Have technology teacher education programs modified their curriculum to become sensitive to a culturally diverse population?
5. How do administrators in technology teacher education describe the effectiveness of current recruitment and retention efforts targeted toward African American students?

6. What are the administrator attitudes towards African Americans in technology teacher education?

7. How do TTE programs at HBCUs differ from TTE programs at PWCUs on recruiting and retaining African American students?

In order to answer these research questions, a questionnaire entitled "Recruitment and Retention of African American Students in Technology Teacher Education" was mailed to all colleges and universities in the United States believed to have technology teacher education programs. Before the questionnaires were sent to the administrators in technology teacher education, a pilot study was conducted to evaluate and validate the questions. The questionnaire was also reviewed by a panel of experts to assess its content validity and useability, then suggested revisions were made following their review. The results of the pilot study indicated that the Cronbach Alpha Coefficient of reliability for the 43-items selected from the instrument was 0.91.

The administrators either completed the questionnaires, or passed them on to the appropriate person who could provide the needed information. Respondents completed the questionnaires within the time frame developed for the study. Three follow-up questionnaires were mailed, and phone calls were made to non-respondents. Eighty (38.4%) of the instruments returned indicated that they had a technology teacher
education program; 57 (27.4%) of the instruments returned indicated that they did not have a technology teacher education program; and 10 (4.8%) of the respondents indicated by phone that they did not have a technology teacher education program. Of the 208 instruments mailed, 147 (70.6%) of the administrators responded.

The data collected by this study were analyzed using the SPSS. The descriptive statistics consisted of frequency distributions and percentages. Participating technology teacher education programs were compared using a Z-test.

Conclusions, Discussions, and Implications

The following conclusions were derived from the research findings. Each of the six research questions which guided the study are stated, followed by the conclusions drawn, and a discussion of the conclusions. Implications of the findings for each question are discussed.

Research Question 1

What is the status of African American students currently enrolled in technology teacher education?

The data from this study revealed that there were many students enrolled in technology teacher education, but very few were African Americans. According to the respondents, there were 2,503 students enrolled in technology teacher education in 1992 and 1993. Of this number, there were only 308 (12.3%) African American students. These findings are supported by the review of literature which led to the
conclusion that African Americans are underrepresented in technology teacher education.

With the student population growing towards the minority becoming the majority, more minority teachers, including African Americans, will be needed. Today, African Americans are not limiting themselves to traditional occupations such as teaching and preaching, but are branching out into other areas such as law, engineering and medicine. This trend creates competition for the educational arena with other fields. Therefore, technology educators must begin recruiting minorities, including African Americans, at a much earlier level than high school, preferably elementary school. Technology educators have to sell their programs, and educate students about the field, in order for technology teacher education programs to attract more African American students. This includes having open houses, scholarships and summer programs. Technology educators should not take for granted that high school counselors will identify and direct interested African American students into technology education. Technology educators also need to communicate with the university recruiting office to make sure that all avenues are covered, and no potential student is neglected or overlooked.

Finally, technology educators need to realize that the retention of African American students is the responsibility of everyone at the college or university. Responsibility should not be placed upon a minority recruitment and retention office, or some other organization. It must be shared among the staff, faculty and administrators.
Research Question 2

What are the main ways African American students are recruited into technology teacher education?

The respondents were asked about the main markets used by baccalaureate technology teacher education departments for recruiting African American students. The majority of the respondents targeted high schools as their main market for recruiting. As suggested in the discussion of research question 1, technology educators must place emphasis at the elementary and middle school level if they are looking to increase the number of African American students who want to become technology education teachers. It is at these levels that students are exposed to various careers through field trips, speakers and video tapes. One possibility is that technology educators could develop video tapes highlighting their programs and distribute these tapes to local schools as part of their career exploration program.

The data also indicated that there are not many funds available for the purpose of recruiting African American students. This also suggests that if technology education has a goal of increasing the number of African American students, they have to compete financially by providing scholarships, and other financial aids that will increase the attractiveness of the programs. The research also indicated that there is not a substantial number of technology education faculty who actually recruit students for their departments.
The respondents were also asked if their schools have a marketing plan for the recruitment of African American students. The majority of schools did not have a marketing plan for this purpose. These results reveal the perceived importance of the role of African Americans in technology teacher education.

Research Question 3

What is done to support and retain African American students in technology teacher education?

The respondents were asked if they had special retention funds just for African American students in technology education. Most of the programs did not have special funds just for African Americans. As a respondent indicated, it may be illegal to earmark money just for African American students for retention efforts. However, if money is available for retention, it should be used to create activities that will bring students and faculty together.

Also, the research suggests that there were 370 full-time faculty members in technology education, and of this number 37 were African Americans. The review of literature suggests that African American faculty play a major role in the retention of African American students. With an African American faculty member present, it provides an outlet for African American students. This is not to suggest that African American students cannot survive without an African American faculty
member. The implication is that if there is a shared culture, it increases the students' chances of remaining in school.

The respondents were also asked what approaches their technology teacher education programs utilized in order to retain African American students, and how successful these approaches were. The most popular approach was academic advising and was rated as very successful. These results indicate that technology educators see a need for academic advising and are willing to commit to it. However, ethnic-oriented, extra-curricular and cultural activities were not seen as important activities since 76.3 percent of the respondents did not plan such activities.

Research Question 4

Have technology teacher education programs modified their curriculum to be sensitive to a culturally diverse population?

The respondents were asked if their technology teacher education curriculum takes into account contributions of African Americans. The majority of the respondents indicated that their curriculum did not take into account contributions of African Americans. The Eurocentric curriculum denies non-white students role models, and denies white students self-understanding. The absence of African American contributions in curriculums such as the great debate between Booker T. Washington and W.E. B. DuBois is an insult to those pioneers who paved the way and in the author's opinion represents academic racism.
The respondents were also asked what approaches have been used to increase faculty sensitivity to support African American students. The primary approach was faculty development workshops. It is extremely important that faculty are made aware of the needs of African American students so they may be able to get past the stereotypes and myths.

Implications for technology education are to continue to have faculty development workshops to educate and allow faculty members to express their concerns and ideas. Technology educators also need to update and revise their curriculum as appropriate to include works of African Americans, as well as other minorities.

Research Question 5

How do administrators in technology teacher education describe the effectiveness of current recruitment and retention efforts targeted towards African American students?

The respondents were asked what factors are especially helpful in achieving desired goals in recruiting and retaining African American students. The most popular response was counseling and advising. There were several elements within counseling and advising which included, but are not limited to, peer support; administrators support; individual advising; and cultural sensitivity. These elements help to create a social-psychological climate for the institution and specifically the technology education department. Fleming (1985) describes this type of climate as one that makes a difference and provides the motivation for learning and the
motivation for growth. This climate creates a catalyst for retaining African American students.

The respondents were also asked what factors inhibit their ability to attract and retain African American students in technology teacher education. The most popular response was poor race relations. Many respondents indicated that there are just not many African Americans living in the university's geographic location. The second most popular response was the lack of financial assistance to support African American students.

Other implications for technology teacher education programs are to create their own unique ability to enrich students with education, pride, self-esteem, a feeling of belonging, the establishment of long-lasting and meaningful relationships, a sense of security, self-determination, and hope. A Carnegie Foundation study pointed out the fact that HBCUs promote a more positive intellectual development among African American students than white colleges, and that students of HBCUs have an enhanced ability to compete and to achieve compared to African American students at predominantly white institutions where they may suffer decline in their competitive performance. One method for technology teacher education programs to create ways to attract and retain African American students would be to observe what technology teacher education programs at HBCUs are doing and tailor these methods to fit their program.
Research Question 6

What are administrator attitudes toward African Americans in technology teacher education?

The administrators were asked to comment on several statements which reflected attitudes towards African Americans. The statements were: (a) The United States teaching force should include racial and ethnic groups at a level consistent with their demographic percentages in the population; (b) African Americans are highly underrepresented in teacher education; (c) Teacher education reform groups have called for eliminating undergraduate degrees in teacher education. Adoption of this recommendation may further restrict access of African Americans who wish to enter the teaching profession; and (d) African American faculty are needed as role models to attract more African American students into technology teacher education. The overwhelming majority strongly agreed and supported these statements. This suggests that there may be discussion among administrators to recruit more African American faculty into technology teacher education. The majority of the respondents also felt that there is a need to implement programs to encourage African Americans to enter technology teacher education.

The implications for technology education are to begin placing the good ideas and discussions into practical applications and create innovative programs for recruiting and especially retaining African American students. The literature is filled with proven, effective and innovative programs used for this purpose. There is no need to re-invent
the wheel. Technology educators can implement an existing program, and reap the benefits of recruiting more minorities, including African Americans. Many of the existing programs do not require a great deal of funding. And, if it is costly, then the question should be, does the cost outweigh the benefits.

Research Question 7

How do TTE programs at HBCUs differ from TTE programs at PWCUs on recruiting African American students?

The administrators were asked to identify their institution based on the following categories: public historically black colleges and universities; private historically black colleges and universities; public predominately white colleges and universities; and private predominately white colleges and universities. The status of each university was then compared using all of the variables of the study.

The administrators were also asked to identify and rate the approaches used to recruit African American students in technology teacher education. Technology teacher education programs at HBCUs used African American faculty and students, whereas PWCUs did not. This is due to the fact that PWCUs do not have many African American faculty and students. Technology teacher education programs at HBCUs also differed from TTE programs at PWCUs in that HBCUs used the following recruiting strategies: recruiters speak to large African American populations; recruiters hold conferences with high school counselors;
African American recruiters go into African American communities; have a minority student technology teachers' day; and mail brochures to minority groups.

The administrators were asked to identify and rate approaches used to retain African American students in technology teacher education. Those areas that TTE programs at HBCUs had a tendency to concentrate on more than TTE programs at PWCUWs included: providing financial aid packages for their students; having early warning and predictions for potential dropouts; exit interviews; orientation; peer tutors/faculty tutors, and small group learning.

The implications for technology teacher education is to follow the lead of many HBCUs. If they are to be successful at retaining African American students, then maybe TTE programs at PWCUWs should adapt many of the HBCUs' effective strategies. The literature is filled with other effective retention strategies for retaining African American students, along with discussions concerning the underrepresentation of African American students in TTE. It is obvious that TTE programs must develop better marketing plans, and all TTE administrators, faculty, and students must become active in the recruitment and retention of all students, including African American students.
Recommendations

Based on the findings and conclusions of this study, the researcher makes the following recommendations and suggestions for practice and further research in the field of technology teacher education.

Recommendations for Practice

1. Due to the under-representation of minority students including African Americans in technology education, an annual study should be conducted to collect data on the progress of recruiting and retention efforts of technology education departments.

2. Because of the success rate of recruiting and retaining African American students in technology education at HBCUs, technology educators should observe and adopt some of their practices.

3. Due to the low enrollment of African Americans in technology education, administrators and faculty should undertake an active role in recruiting. Promotion should begin at the elementary and middle school levels and continue through high school.

4. Due to the attrition of African American students in technology teacher education, administrators and faculty should participate in some types of programs to become more aware of or become sensitive to the needs of these students.

5. Due to the number of technology educators who are not aware of the recruiting and retention strategies of the university, efforts
should be made to create a line of communication to make sure strategies exist so that students are not neglected.

6. With to the few number of African American faculty in TTE and even fewer entering TTE programs, white faculty and other ethnic groups will have to play a vital role recruiting and retaining African American students. For these faculty to be most effective, they should participate in special training programs mentioned in recommendation four.

Recommendations for Further Study

As a result of this study, additional research opportunities may surface for individuals who wish to pursue similar studies. The following suggestions are presented for consideration:

1. Since the population of this study was limited to African American students in technology education, it may be helpful to replicate this study using different populations. A better understanding of the overall recruitment and retention process in technology education may be obtained if a broader population were included in the study.

2. Further study of the recruitment and retention process in technology education should be conducted using a qualitative methodology, such as the case study or focus group approaches. These approaches would provide a data base describing additional factors which may be valuable to recruiting students.
3. This study should be expanded to include visitations to many of the programs that participated in the research study. This will allow the researcher to gain a better understanding of efforts and approaches used to recruit and retain African American students.

4. This study should be conducted in other disciplines to investigate the strategies and methods being used to recruit and retain African American students.

5. A more valid data base should be established identifying those institutions that have technology teacher education programs, rather than those institutions that have vocational education, trade and industry, industrial technology, industrial arts, and industrial education programs. Technology educators should develop consistent names for their programs, and constantly update the data base when personnel changes occur.
APPENDIX A

VALIDITY CHECKLIST
Dear __________:

Please evaluate the validity of the questionnaire in the areas listed below. Feel free to make comments and suggest revisions on the questionnaire. Please pay close attention to the questionnaire's content validity, the degree to which the questionnaire measures its intended content area.

Content validity: (Does the instrument measures its intended content area?)

Item clarity: (Are items written clearly and precise?)

Wording: (Are items worded correctly?)

Complexity: (How difficult is the instrument?)

Format: (Is the instrument laid out to assure ease of use?)

Length: (Is the instrument too long?)

Biased Items: (Are there any items that should not be included in the survey?)

Appearance: (How does the instrument look?)
APPENDIX B

LETTER TO PILOT TEST PARTICIPANTS
Dear Participant:

I am writing to solicit your assistance in a dissertation research study in the field of Technology Teacher Education. Specifically, I would like for you to be a part of the pilot test which will enable me to establish its reliability. Because most of the items on the instrument are designed to collect ordinal and nominal data, you only need to complete three selected items. Those items will be mailed to you in a couple of days. When you receive them, please take the time to complete them immediately, and if possible, FAX them to me at (614) 292-9021, or mail them to me at the address listed above.

You were selected to be a part of the pilot test because of your past administrative responsibilities for technology education. Your name will not be placed on the questionnaire or reported in any of the study reports.

The survey in its entirety has been developed to describe the recruitment and retention of African American students in baccalaureate technology teacher education programs. The final version of the instrument will be sent to administrations in technology teacher education at various colleges and universities.

If you have any questions, please call me at (614) 268-7026 or (614) 292-2493. Thank you very much for your assistance. Your input on this project is greatly appreciated.

Sincerely,

Keith V. Johnson
Ph.D. Candidate

Dr. Michael L. Scott, Ph.D.
Graduate Adviser
APPENDIX C

LETTER TO PANEL OF EXPERTS
Dear Participant:

The purpose of this letter is to solicit your assistance in a dissertation research study in the field of technology teacher education. Specifically, I would like for you to critique the enclosed instrument which will enable me to establish its validity.

The enclosed instrument is a survey that has been developed to describe the recruitment and retention of African American students in baccalaureate technology teacher education. The final version of this instrument will be sent to administrators in technology teacher education at various colleges and universities.

I am requesting your assistance as a participant in the pilot study of the survey instrument which requires you to critique the enclosed survey instrument. Please review the questions and write any additional comments that may be helpful to the validity of the instrument (i.e. clarity, length, ease of use, etc.) directly on the instrument. Write any additional information about the overall instrument on the validity check list enclosed.

Please fold the instrument so that my address appears on one side and the instrument covers appears on the other side, staple, and return to me by March 3, 1993. Please use the enclosed complimentary ink pen provided as a convenience to you. Your name will not be placed on the questionnaire or reported in any of the study reports.

If you have any questions, please call me at (614) 268-7026 or (614) 292-2493. Thank you for your assistance. Your input on this project is greatly appreciated.

Sincerely,

Keith V. Johnson
Principal Investigator

Michael L. Scott, Ph.D.
Graduate Adviser
APPENDIX D

LETTER REQUESTING MAILING LABELS
Dear Dr. E. A. Dennis:

I talked with you recently concerning the attainment of mailing labels for all of the technology teacher education programs. I am currently a graduate student at The Ohio State University, working on a dissertation titled "Recruitment and Retention of African American Students in Technology Teacher Education Programs." I am requesting those labels in alphabetical order, rather than by order of zip codes.

Enclosed is a check for $22.00 which will cover the cost of the labels and shipping and handling.

Thank you for your assistance.

Sincerely,

Keith V. Johnson
Graduate Student
APPENDIX E

NOTIFICATION OF STUDY
Dear Participant:

As part of my dissertation research at The Ohio State University, I am conducting a survey entitled "Recruitment and Retention of African American Students in Baccalaureate Technology Teacher Education Programs". This survey has been developed to assess the recruitment and retention efforts made by baccalaureate technology teacher education programs to recruit and retain African Americans.

The survey will be mailed to you in a few days. Please fill it out and return it to me by June 11, 1993. Your assistance on this project is greatly needed.

Your name will not be placed on the questionnaire or reported in any of the study reports. If you have any questions, please call me at (614) 292-2493 or (614) 268-7026. Thank you.

Keith V. Johnson
Ph.D. Candidate

Michael L. Scott, Ph.D.
Adviser
APPENDIX F

FOLLOW-UP POST CARD
Dear Participant:

This is a time of the year when schedules are very demanding. It just does not seem that there are enough hours in the day. But please take a few minutes out of your busy schedule to complete and return the survey that I recently mailed to you concerning the recruitment and retention of African Americans in baccalaureate technology teacher education programs.

If your survey was lost in the mail, please let me know so that I can mail you another one immediately.

As stated previously, your name will not be placed on the questionnaire or reported in any of the study reports. If you have any questions, please call me at (614) 292-2493 or (614) 268-7026.

If you have already returned the questionnaire, please accept this card as a generous thank you.

Keith V. Johnson
Ph.D. Candidate

Michael L. Scott
Graduate Adviser
APPENDIX G

LETTER TO PILOT TEST PARTICIPANTS
Dear Participant:

I am writing to solicit your assistance in a dissertation research study in the field of Technology Teacher Education. Specifically, I would like for you to be a part of the pilot test which will enable me to establish its reliability. Because most of the items on the instrument are designed to collect ordinal and nominal data, you only need to complete three selected items. Those items will be mailed to you in a couple of days. When you receive them, please take the time to complete them immediately, and if possible, FAX them to me at (614) 292-9021, or mail them to me at the address listed above.

You were selected to be a part of the pilot test because of your past administrative responsibilities for technology education. Your name will not be placed on the questionnaire or reported in any of the study reports.

The survey in its entirety has been developed to describe the recruitment and retention of African American students in baccalaureate technology teacher education programs. The final version of the instrument will be sent to administrations in technology teacher education at various colleges and universities.

If you have any questions, please call me at (614) 268-7026 or (614) 292-2493. Thank you very much for your assistance. Your input on this project is greatly appreciated.

Sincerely,

Keith V. Johnson
Ph.D. Candidate

Dr. Michael L. Scott, Ph.D.
Graduate Adviser
APPENDIX H

REQUESTED PERMISSION TO MODIFY INSTRUMENT
June 3, 1992

Dr. Fanny May July
7311 Middlebury Place
Charlotte, North Carolina 28214

Dear Dr. July:

The purpose of this letter is to request permission to modify and adapt your instrument that you developed for your dissertation titled, Recruitment and Retention of Black Students in Baccalaureate Nursing Programs.

The revised instrument will be used to describe the recruitment and retention of African American students in baccalaureate technology teacher education programs. If this proposal is acceptable to you, please place your signature on the approval line below. Thank you for your assistance.

I ________________, give Keith V. Johnson permission to reuse my instrumentation.

Sincerely,

Keith V. Johnson
APPENDIX I

LETTER TO PILOT TEST PARTICIPANTS
(Date)

Dear __________:

The purpose of this letter is to solicit your assistance in a dissertation research study in the field of technology teacher education. Specifically, I would like for you to be a part of a pilot test for the enclosed instrument, which will enable me to establish its reliability. You were selected to be a part of the pilot test because of your past administrative responsibilities for technology education. Because most of the items on the instrument are designed to collect ordinal and nominal data, you only need to complete items 21 through 25.

The enclosed instrument is a survey that has been developed to describe the recruitment and retention of African American students in baccalaureate technology teacher education programs. The final version of the instrument will be sent to administrators in technology teacher education at various colleges and universities.

After completing the items, please fold the instrument so that my address appears on one side and the instrument's cover appears on the appropriate side. Then, staple and return to me by (date). Please use the enclosed complimentary pen as a small token of my appreciation to you for your time. Your name will not be placed on the questionnaire or reported in any of the study reports.

If you have any questions, please call me at (614) 268-7026 or (614) 292-2493. Thank you for your assistance. Your input to this project is greatly appreciated.

Sincerely,

Keith V. Johnson
Graduate Candidate

Dr. Michael L. Scott
Graduate Adviser
APPENDIX J

APPLICATION FOR EXEMPTION FROM
HUMAN SUBJECTS COMMITTEE REVIEW
APPLICATION FOR EXEMPTION FROM HUMAN SUBJECTS COMMITTEE REVIEW

RETURN TYPED APPLICATION AND ONE COPY TO: Office of Research Risks, Room 100, Research Foundation Building, 1960 Kenny Road, Campus. (ATTACH A BRIEF ABSTRACT DESCRIBING THE RESEARCH ACTIVITY IN EASY TERMS; ALSO, ANY QUESTIONNAIRES OR SURVEY INSTRUMENTS.)

Principal Investigator: Dr. Michael Scott  
(Must be OSU Faculty)  
(Typed Name)  
(Signature)

Academic Title: Associate Professor  
Phone No. 292-7471

Department: Educational Studies (Industrial Technology) Department No. 1240

Campus Address: 200 - Welding Engineering Room Number - Building 190 W. 19th Avenue

Co-Investigator(s): Keith V. Johnson  
(Typed Name)  
(Signature)

Protocol Title: Recruitment and Retention of African American Students in Baccalaureate Technology Teacher Education Programs.

Yes No

X A. The ONLY involvement of human subjects in the proposed research activity will be in one or more of the exemption categories as described in the appendix of "Human Subjects Program Guidelines."

Category(ies) A.  

X B. The proposed research activity will involve minors (under the age of 18.)

X C. The proposed research activity will involve pregnant women, mentally retarded, mentally disabled, and/or prisoners.

X D. The proposed research activity will involve human in vitro fertilization.

X E. The proposed research activity will involve an element of deception.

X F. The proposed research activity will expose subjects to discomfort or harassment beyond levels encountered in daily life.

Source of Funding for Proposed Research: (Check A or B.)

A. OSURF: Sponsor  
RT Proposal/Project No.

B. Other (Identify)  
Keith V. Johnson

EXEMPTION STATUS: ___ APPROVED ___ DISAPPROVED

Date  
Chairperson

** Principal Investigator must submit a protocol to the appropriate Human Subjects Review Committee.
APPENDIX K

FACTORS HELPFUL FOR ACHIEVING DESIRED GOALS IN RECRUITING AND RETAINING AFRICAN AMERICAN STUDENTS IN TECHNOLOGY TEACHER EDUCATION
1. **Funding**
   a. athletic scholarships
   b. funding
   c. Landcaster Partnership - funding for minority students
   d. university tuition grants

2. **Atmosphere**
   a. African American faculty
   b. small classes
   c. cultural center
   d. future job market
   e. teacher demand
   f. career assurance
   g. diverse programs
   h. understanding African American culture
   i. make African Americans feel "home away from home"
   j. a sense of community
   k. friends
   l. multicultural awareness
   m. peer support

3. **Counseling and Advising**
   a. administrators' support
   b. individual advising
   c. cultural sensitivity
   d. admissions officer
   e. African American students assist in recruiting
   f. recruiting devices
   g. international student committee
   h. other graduates teaching in high schools
   i. visit high school teachers and counselors
   j. early contact- personal counseling
   k. early preparation
   l. other majors
   m. recommendations and encouragement from practicing teachers
   n. support groups

4. **Special Programs**
   a. support programs
   b. PACE programs
   c. African American student organizations
   d. workshops to build relationships between faculty and prospective students
   e. college bound programs
   f. good local area program
   g. mentorship programs
   h. "special academic care" program
   i. summer programs
5. Program Structure
   a. standards set fourth for all students
   b. program reputation
   c. courses which reflect African American contributions
APPENDIX L

FACTORS THAT INHIBIT THE ABILITY TO ATTRACT AND RETAIN AFRICAN AMERICAN STUDENTS IN TECHNOLOGY TEACHER EDUCATION
1. Lack of Financial Assistance

2. Poor Race Relations
   a. lack of a minority community
   b. predominantly European culture on and off campus
   c. lack of African American faculty
   d. Black sister institution with programs in the same city
   e. lack of understanding African American culture
   f. lack of role models

3. Program Structure
   a. lack of special programs
   b. small programs
   c. other areas are more attractive than technology teacher education
   d. lack of special program incentives
   e. lack of time

4. University Structure
   a. size of institution
   b. location of institution
   c. insensitivity
   d. predominantly white institution
   e. high academic requirement for admissions

5. African Americans Deterrence or Disinterest
   a. lack of knowledge about technology teacher education
   b. African Americans' attitude about technology teacher education
   c. lack of success of prior African American students in technology teacher education
   d. poor high school technology education programs
   e. attitudes that has filtered from W.E.B. DuBois
   f. lack of high salary
APPENDIX M

SURVEY QUESTIONNAIRE

RECRUITMENT AND RETENTION OF AFRICAN AMERICAN STUDENTS IN BACCALAUREATE TECHNOLOGY TEACHER EDUCATION PROGRAMS
Recruitment and Retention of African American Students in Baccalaureate Technology Teacher Education Programs

Directions: Please respond to each of the questions below by checking the response selected or fill in the blank as indicated.

1. What are the main markets for recruiting African American baccalaureate technology teacher education students?
   (1) ___ high school
   (2) ___ vocational education programs
   (3) ___ community college
   (4) ___ other
   (please specify)

2. Do you have an affirmative action goal?
   (1) ___ No
   (2) ___ Yes

3. How many African American students will graduate from your technology teacher education program during 1992-93 academic school year?
   (1) 0-4
   (2) 4-9
   (3) 10-14
   (4) 15-19
   (5) 20 or more

4. If any African American students were denied admission to your program within the last year, please indicate the primary reason by placing a “1” on the blank next to the number; place the number “2” by the secondary reason.
   (1) ___ less than required grade point average
   (2) ___ insufficient prerequisite coursework
   (3) ___ incomplete application
   (4) ___ did not meet stipulated deadline
   (5) ___ less than satisfactory SAT scores
   (6) ___ other
   (please specify)

5. How many full-time faculty members does your technology teacher education program employ? ___
   Of this number, how many are African American? ___

6. How many African American students are enrolled in your technology teacher education program graduated within the last five years? (1988-1993)
   (1) ___ 0-5
   (2) ___ 6-10
   (3) ___ 11-15
   (4) ___ 16-20
   (5) ___ 21-25
   (6) ___ 26-30
   (7) ___ more than 30
7. What factors inhibit your ability to attract and retain African American students?

8. Do you have special retention funds to just for African American students in technology teacher education?
   (1) ___ No
   (2) ___ Yes
   If yes, please list the source(s) ________________________________________________

9. Does the technology teacher education program include funding for the recruitment of African American students?
   (1) ___ No
   (2) ___ Yes
   If yes, how much? __________

10. What approaches does your technology teacher education program utilize in order to recruit African American students and how successful are they? (check all that apply and also rate each one by circling the desired number.)

   5 = Very Successful  VS
   4 = Successful       S
   3 = Limited Success  LS
   2 = Not Very Successful NS
   1 = Unsuccessful    U

   (1) ___ African American faculty or students speaking to high school students interested in technology teacher education

   (2) ___ recruiters speaking in schools with a large African American population

   (3) ___ recruiters holding conferences with high school guidance counselors

   (4) ___ African American recruiters going into African American communities

   (5) ___ minority student technology teachers' day

   VS  S  LS  NS  U
1. **Is there a specific faculty member designated to recruit African American students?**

   (1) No
   (2) Yes

   If yes, how much release time does this person receive for this activity? __________________

2. **What approaches does your technology teacher education program use in order to retain African American students and how successful are these approaches?** (check all that apply and circle the number according to how you rate each approach.)

   - 5 = Very Successful
   - 4 = Successful
   - 3 = Limited successful
   - 2 = Not Very Successful
   - 1 = Unsuccessful

   (1) academic advising  
   (2) financial aid packages  
   (3) early warning and prediction  
   (4) exit interviews  
   (5) ethnic-oriented, extracurricular and cultural activities  
   (6) faculty, staff, and curricular development  

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13. Does your technology teacher education curriculum take into account contributions of African Americans and other minorities?
   (1) ___ No
   (2) ___ Yes

14. What approaches have been used to increase the faculty sensitivity to and support of African American students? (Place a "1" by the primary approach and a "2" by the secondary approach.)
   (1) ___ sensitivity training sessions
   (2) ___ faculty development workshops
   (3) ___ affirmative action committees
   (4) ___ released time for special projects
   (5) ___ grant writing for minority programs
   (6) ___ no special programs

15. How many students are enrolled in your technology teacher education program? ___
    Of this number how many are African Americans?
    (male) ___
    (female) ___

16. How many African students reported in the previous question are receiving financial aid? _____

17. To factors are especially helpful in helping achieve desired goals in recruiting and retaining African American students?
   ___________________________________________________________
   ___________________________________________________________
18. Does your school have a marketing plan for recruitment of African American students?
   (1) ____ No
   (2) ____ Yes
   If yes, please describe.

19. What are your opinions of technology teacher education toward policies and practices that impact the number of African Americans entering the university faculty profession? (circle the appropriate number)

   5 = Strongly Disagree  SD
   4 = Disagree            D
   3 = Neutral             N
   2 = Agree               A
   1 = Strongly Agree      SA

(1) The United States teaching force should include racial and ethnic groups at a level consistent with their demographic percentage in the population.
   SD  D  N  A  SA
   5  4  3  2  1

(2) African Americans are highly underrepresented in teacher education.
   SD  D  N  A  SA
   5  4  3  2  1

(3) Teacher education reform groups have called for eliminating undergraduate degrees in teacher education. Adoption of this recommendation may further restrict access of African Americans who wish to enter the teaching profession.
   SD  D  N  A  SA
   5  4  3  2  1

(4) There is no need to implement programs to encourage African Americans to enter technology teacher education.
   SD  D  N  A  SA
   5  4  3  2  1

(4) African American faculty are needed as role models to attract more African American students into Technology teacher education.
   SD  D  N  A  SA
   5  4  3  2  1
20. Please indicate your type of institution by selecting one of the following categories.
   (1) __ Public Historically Black College or University
   (2) __ Private Historically Black College or University
   (3) __ Public Predominantly White College or University
   (4) __ Private Predominantly White College or University

21. Please use the space below for any additional comments that you would like to make or for elaboration on any of your responses. (Please attach additional sheets if necessary.)

(THANKS FOR YOUR COOPERATION)

Name of school__________________________
LIST OF REFERENCES


Anderson, B. (1989, October). *The academic progression of students in the university system*. Presented at the Southern Association for Institutional Research, University System of Georgia, Board of Regents, Durham, NC.


