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**The Tests of General Educational Development as predictors of
student performance in five programs at Asheville-Buncombe
Technical Community College for the years 1982-1988**

Banner, Doris Vance, Ed.D.

The University of North Carolina at Greensboro, 1989

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THE TESTS OF GENERAL EDUCATIONAL DEVELOPMENT AS PREDICTORS
OF STUDENT PERFORMANCE IN FIVE PROGRAMS AT
ASHEVILLE-BUNCOMBE TECHNICAL COMMUNITY COLLEGE
FOR THE YEARS 1982-1988

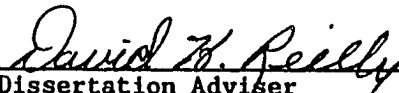
BY

DORIS VANCE BANNER

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the Faculty of the Graduate School at
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Doctor of Education

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Approved by


Dissertation Adviser

APPROVAL PAGE

This dissertation has been approved by the following committee of the Faculty of the Graduate School at the University of North Carolina at Greensboro.

Dissertation Adviser David W. Feilley

Committee Members Cliff Ambaker
Joseph E. Buggan
Harold D. Impey

MARCH 28, 1989
Date of Acceptance by Committee

MARCH 28, 1989
Date of Final Oral Examination

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The Tests of General Educational Development (GED) provide adults who did not graduate from high school with opportunities to attend and graduate from postsecondary institutions. This study investigated the academic achievement of GED recipients as determined by grade point average and total hours earned to determine if the scores made on the subtests of the GED could serve as predictors of performance in various programs at Asheville-Buncombe Technical Community College (A-BTCC).

Each of the 232 GED recipients was enrolled in courses at A-BTCC at some time between the fall of 1982 and the summer of 1988. Pearson product-moment correlation coefficients were calculated to test for significant relationships. Coefficients were statistically significant for the total sample between the subtests of writing, social studies and the overall total and grade point average; for the subjects in Business Education between the subtests of writing and reading and grade point average; for the subjects in Engineering Technology between the subtests of writing, social studies and overall total and grade point average; and for subjects in Vocational-Industrial Education between the subtest of mathematics and grade point average.

Coefficients were not statistically significant for subjects in program areas of Allied Medical Education and General Education. Pearson product-moment correlation coefficients were not statistically significant in any of the program areas for total hours earned.

The mean grade point average for GED recipients was 2.5; the mean hours earned was 25. The GED proved to be a valid predictor of academic achievement as measured by grade point average. It is projected that GED recipients who have high GED scores may expect to experience success in a two-year college.

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CHAPTER I

Introduction

The General Educational Development (GED) testing program offers millions of adults a "second chance" to earn high school equivalency credentials. The testing program was developed "... in 1942 to measure the major outcomes and concepts generally associated with four years of high school education" (GED Examiner's Manual, 1988, p. 2-1). The original tests were administered only to military personnel to assist World War II veterans in pursuing educational, vocational and personal goals. During the 1950s it became apparent that civilians could also benefit from the program. The American Council on Education (ACE) undertook the task of filling this need. (GED Examiner's Manual, 1988, p. 2-1) Some colleges and universities require special academic advisement and certain introductory courses for equivalency students while others, such as Asheville-Buncombe Technical Community College (A-BTCC) in Asheville, North Carolina, classify recipients of a high school equivalency certificate as "regular" students and allow them to experience the regular instructional process.

Since its beginning as an aid to "... returning service men and women in their transition back into the educational and occupational mainstream following the conclusion of World War II" (GED Examiner's Manual, 1984, p. i), the testing program has undergone two revisions, the 1978 edition and the 1988 edition. In a quest to maintain

continued validity and credibility of the GED program, the GED Testing Service in conjunction with the American Council on Education (ACE) adopted a review process for the GED. Begun in 1982 and continuing through 1987, the review process involved a comprehensive study of (a) what needs should be served by the testing program, (b) what the tests should measure and (c) how the tests should be organized and administered (GED Examiner's Manual, 1984, pp. i-iii). The GED testing program is now a joint program of the GED Testing Service (GEDTS) and each state department of education. (1986 GED Statistical Report, p.1)

Individuals make considerable educational progress through a variety of experiences encountered in everyday life. The purpose of the GED Testing Service is "... to provide a means by which learning acquired from such educational experiences can be evaluated and recognized" (GED Examiner's Manual, 1984, p. 5). The 1986 GED Statistical Report indicates an enrollment of 739,683 persons in GED testing programs in the United States during the previous year; approximately 73 percent of this number qualified for high school equivalency credentials. (p. 3) If interpreted correctly and explained properly to the GED holders, the scores in the different areas of the GED Test could serve as indicators of performance in various programs.

The GED is a norm-referenced test; required scores are derived from a selected sample. In this case, sampling is from the scores of a group of nationwide graduating high school seniors. This permits checking for the level of difficulty of all test items and written material on the tests. Tests are based on skills rather than on a

sampling of subject matter facts. Important long-term objectives, including major generalizations, concepts and ideas test learning and skill improvement that occur from living, reading, working and other experiences in life. (GED Examiner's Manual, 1984, p. 2)

Each state education agency providing opportunities for adults to obtain certificates through the high school equivalency programs issues certificates based on the adult's ability to pass a comprehensive examination. Each state sets its own policies and procedures for administering the GED tests. The guidelines for the design of the tests are developed by the General Educational Development Testing Service under the direction and supervision of the Commission on Accreditation of the American Council on Education. (GED Examiner's Manual, 1984, p. 2)

Asheville-Buncombe Technical Community College, established in 1959, offers programs designed to meet the various educational needs of the adult population in the college service area of Buncombe and Madison counties of North Carolina. One of the most important functions of the college is to provide an educational program for non-high school graduate adults. (Handbook for A-BTCC, 1987-1988, p. 11) The Learning Laboratory (Lab), the center for GED testing on campus, is designed to provide the opportunity for study on an individualized basis. The coordinator of the Lab helps adults who enter the program to plan study or learning schedules according to their individual needs. The students are given placement tests designed to assist the coordinator in placing students at appropriate

levels in the subject areas of writing, social studies, science, reading and mathematics. No specific number of hours of work in the laboratory is required to complete the program. Students obtaining a satisfactory score on the placement tests are encouraged to proceed with the Tests of General Educational Development (GED).

Purpose of the Study

The purpose of this study was to develop a validated base for predicting performance of students in various programs at Asheville-Buncombe Technical Community College, based on performance of GED certificate holders who enrolled at A-BTCC between the years of 1982 and 1988. Scores made by students on each of the sections of the GED considered, along with their performances in the different areas of study, were used to determine if either the scores on any of the five areas of the test or the total score can be used effectively as predictors of performance for GED students in chosen programs of study.

Academic advisement is one of the major concerns of people who work with students who have taken the GED. If a relationship exists between achievement on the five sections of the GED and performance in an area of study, the scores on the sections would be useful information for advising students. This study determined if a relationship existed between achievement on the five sections of the GED and performance in the various areas of study. In addition the study examined other statistical information that may be useful in making predictions.

Definitions

1. Academic advisement

The consultation between a student and a trained adult to discuss course selection and decision-making strategies in choosing a program of studies.

2. Equivalency student

The equivalency student is one who has taken and passed the GED; this person is also referred to as the GED certificate holder or the GED testee.

3. Grade point average (GPA)

Based on the quarter system, Asheville-Buncombe Technical Community College uses the quality point system: 4 quality points are awarded per credit hour for an A; 3 quality points are awarded per credit hour for a B; 2 quality points are awarded per credit hour for a C; and 1 quality point is awarded per credit hour for a D. The sum of these quality points is divided by the total number of hours taken to obtain the GPA.

4. Tests of General Educational Development (GED)

A nationally standardized series of five high school equivalency tests (writing, social studies, science, reading and mathematics). In North Carolina a total of 225 points is required for passing with a score of at least 35 on each test.

Importance of the Study

There is no longer a reason to expect that only people with high school diplomas can achieve academic success at institutions of higher

education. With the growing popularity of the Tests of General Educational Development, more non-high school diploma graduates are entering and achieving success at institutions of higher learning. The GED tests, "... as one alternative access route, can be expected to play an increasing role in the future of education" (Colert, 1984, p. 102). Studies such as this one at Asheville-Buncombe Technical Community College will contribute to further understanding of the academic potential of high school equivalency students.

It is important to understand some of the needs of the GED student. Since the average GED student is about ten years older than the average college freshman, the motivation to succeed needs to be considered. GED students are generally atypical or nontraditional. Factors other than lack of adjustment have been discovered among high school dropouts. The reasons for students leaving secondary schools without diplomas include boredom and disinterest, domestic problems, joining the military, frustration by the school system, lack of motivation and lack of enough credits to graduate. (GED Examiner's Manual, 1984, p. 1)

Passing the GED cannot be equated with completing a full four years of high school, and many GED holders with academic skills necessary for college may not succeed. Many factors contribute to success in college. Some GED holders, particularly those with poor reading skills, are academically unprepared for college. Poor study habits and lack of perseverance may make it difficult to handle college courses. Pressures of family responsibilities, work and social

problems may limit the time and energy that can be devoted to studies. Since the GED candidate, ranging in age from 16 to 90, frequently acquired skills in a less formal manner than the average high school student, many of the test questions are designed to measure the general abilities to evaluate, analyze, and draw conclusions. (GED Examiner's Manual 1984, p. 1)

Growing concerns among institutions of higher learning include aspects of admission, performance and retention of equivalency students. One reason for concern is the increasing number of equivalency students attending such institutions. (Swarm, 1981, p. 5) At one time the number of equivalency students was small; however, more and more students are taking the GED with the goal of attending some institution of higher learning. (Colert, 1984, p. 2) A second concern is the academic potential of the equivalency student. Because of the nontraditional credentials for acceptance, the equivalency student has become known as an "academically high risk student" (Swarm 1981, p. 7).

GED students are considered high risk, remedial and/or marginal because they dropped out of high school; however, they are found to be more serious about academic work than the majority of non-GED students. (GED Examiner's Manual, 1984, p. 1) Older students tend to have a high level of scholastic achievement. (p. 1)

Millions of Americans have left public school prior to completion of grade 12. Under-educated adults are unable to take advantage of vocational and technical college programs designed to upgrade their skills. Professional publications in the field of education stress the

need for community college programs for nontraditional students. John E. Roueche (1972) emphasizes the need to widen (open) the door for student admission. Roueche states that the demand for "... increased educational opportunities for all has become a social demand" (p. 2). Many studies on the GED certificate holder emphasize the need to serve the segment of the population comprised of non-high school graduates. (Ayers, 1980, p. 10) The significance of this research is to gain insight for advisement of GED certificate holders at Asheville-Buncombe Technical Community College based on their scores on the five areas of the Tests of General Educational Development.

A data base for properly advising students who demonstrate certain GED test profiles will be developed and assessed. A base for prediction will be beneficial because high school equivalency students admitted to A-BTCC are assigned regular student status. They are neither restricted to a limited number of courses nor required to participate in special courses. They are regarded as identical to high school diploma students who have obtained a diploma by completing a regular high school program. GED graduates may need to be encouraged to enroll in supervised study. During the time of contact with a GED instructor, the student's goals for further training and opportunities should be analyzed. Possibilities such as enrolling in a course at A-BTCC could be presented. Some statistical basis is needed for this type of advisement. It is important to have predictors to use in presenting the possibilities to the students.

Research Question

This study was concerned with examining which GED test profile configurations best predict performance in selected programs at Asheville-Buncombe Technical Community College. For this purpose, the following specific question was addressed:

Does student performance on specific sections of the Tests of General Educational Development predict student performance in various programs of study at Asheville-Buncombe Technical Community College?

CHAPTER 2

Review of Related Literature

The last forty years have produced much research on the Tests of General Educational Development (GED). A review of related literature reveals significant studies dealing with GED graduates. This chapter contains a broad survey of literature which deals with studies involving GED recipients compared with high school diploma graduates and Adult High School Diploma recipients, achievement and attrition, potential for employment, reading skills, advisement and learning skills assistance, age, gender and degree program.

Research related to prediction of a college grade point average is extensive as far as using such factors as interest patterns, high school rank, high school academic performance, aptitude and achievement test results. This research is designed to provide an overview of the potential of high school academic skills of persons for whom these factors are not available, GED recipients who have enrolled in institutions of higher education.

Related Literature

Among the few attempts to study GED programs from a national perspective, Cervero's (1983) study is probably most notable. He randomly sampled 3,412 GED test candidates, from a total of 12,646, to determine if successful completion made any difference in their lives. His first major conclusions were these:

1. the GED test tends to measure long-term outcomes in contrast to grades obtained in school; 2. most students enter into a GED preparatory program with relatively high expectations of "moving up" as a result of completing the test; 3. the majority of successful test completers meet their immediate expectations, i.e., different or better job or enrolling in some educational program; and 4. about 25% of the candidates take the test for personal reasons apart from utilitarian purposes. (p. 4)

The importance of having a high school diploma has long been recognized by both employers and institutions of higher academic and vocational training. McLawhorn (1981) conducted an investigation comparing educational performances and personal goal attainments of Adult High School Diploma graduates and GED equivalency recipients in a two-year institution, Southeastern Community College in Whiteville, North Carolina, from the 1977 through 1979 classes. The purpose was to "... determine which high school completion program best prepares the individual for further training and satisfies his personal needs" (p. 1). The conclusion was that both types of graduates were average students. (p.17) McLawhorn related the increasing popularity of the GED tests to various social factors such as low income, unemployment and pressures to succeed immediately. The GED does not require a specific period of preparation time. (p. 16)

Another investigation of success by GED recipients was conducted in a two-year institution by Wolf (1983). Three groups of first-year students at South Plains College in Levelland, Texas, were studied to determine the predictive value of GED tests for two-year college academic success. A comparison was made between the first term GPA of 100 GED students, 100 high school graduates, and 100 high school non-graduates who had not earned GED credentials. "A significant

relationship was found to exist between the standard score of GED subtests and first-semester GPA of both transfer and terminal degree GED students" (p. 8). No significant differences in first-semester mean GPA between the three groups existed. (p. 10) "Verbal skills seem to be quite important to the success of GED students in transfer degree programs and to a lesser degree in terminal degree programs" (p. 11). Even though follow-up studies were not conducted, the predictions for success were listed as being "good" (p. 12).

Age has been a variable in many studies which have examined students and their attrition rate and/or achievement levels. Wolf's study indicated that age is "... important in predicting two-year college academic performance ... when used in conjunction with GED scores" (p. 2). The study found "... high school nongraduates having the GED were equally as likely to succeed in two-year college work as were the high school graduates in the study" (p. 10).

A study (Rogers, 1977) conducted on first semester GED testees enrolled at a small, midwestern college, revealed a high degree of success after the completion of a remedial reading course. These students simultaneously enrolled in courses and developmental mathematics laboratories. Only 170 out of 200 actually completed a full semester of work, defined as 12 to 18 semester hours. The mean age of the 170 GED recipients was 30 years with a range of 17 to 60 years. This was a rather mature age group as compared with the typical 18 year old college freshman. According to Rogers, the sample of students used in this study "... obviously did not perform very well

during the first semester of college, a most important semester for many students" (p. 5). The grades for the GED freshmen on the average were much poorer than typical freshmen who had graduated from high school. Consensus fostered by these results might be that GED recipients "... can be expected to experience academic difficulties during their first semester of college regardless of age" (p. 5). Conclusions were that total GED test scores or averages could not be used readily to predict academic success and "... just being an older adult does not necessarily promote academic maturity" (p. 5).

In reviewing performances of 2,896 GED certificate holders who entered the 13 components of the University of Wisconsin from the fall of 1979 through the fall of 1984, Quinn (1986) found that in all schools there were GED holders who performed well; however, only four percent reached junior year status (54 credits). Thirty-five percent left college without earning any credits; eighty-five percent did not reach their sophomore year (25 credits). While other studies had been conducted comparing the GED holders with high school graduates, this was simply a statistical study. In all schools surveyed by Quinn, there were GED holders who were listed as honor students, and many remained in good standing during the period of enrollment. Retention was a serious problem for GED holders at all 13 schools. Only four percent of 394 new freshmen enrolled in 1979-1980 earned college degrees by the end of 1985; eleven percent were still enrolled in school, one percent had transferred to other schools and eighty-four percent had left school without graduating. The mean GED score of the

students was 275. Quinn concluded that total GED scores were not helpful predictors of success in university settings. Only five percent of the GED holder's first semester grades could be predicted from the student's GED score. (p. 75)

In studying academic achievement and attrition of GED students attending a small undergraduate Canadian university, Brandon University, Colert (1984) considered eight independent variables (age, sex, degree program, total GED score, career maturity scores, use of academic testing, academic advisement and learning skills assistance). (p. 5) For 94 equivalency students who attended the university for at least one term between 1972 and 1984, profiles were developed that covered the eight independent variables. Based on the findings, Colert projected that high school equivalency students who have high GED scores, are female, are over age 26, and are taking nondegree courses will be likely to be academically successful. (p. 96) Colert analyzed the relationship between the eight independent variables and the two dependent variables of academic achievement and attrition. These two dependent variables are, according to Colert, the overall indicators of student success, goal accomplishment and are "... factors which determine who remains in college and who eventually graduates" (p. 96).

In conducting a survey for the study, Colert reported that Brandon University accepted the Tests of General Educational Development as criterion for admission in 1972 and

Since the GED Tests were accepted at Brandon University, 100 equivalency students have attended the institution for at least one term These students were assigned regular student status. They were neither restricted to a limited

number of courses nor required to participate in skill assessment and academic support from the university's Learning Assistance Center or the Mature Student Center. (pp. 21-22)

Swarm (1981) conducted three studies on the success of GED certificate holders in a university setting. One study examined all campuses of the Indiana University system in 1973, a second study examined students from Chicago State and Northeastern Illinois Universities in 1977-78 and a third considered high school equivalency students in colleges in California, Florida, Illinois, Indiana and Pennsylvania in 1980-81. Statistics concerning high school equivalency students attending institutions of post-secondary education were considered to determine if these factors had any influence on their ability to succeed in college without the traditional high school education. Swarm concluded that many factors contributed to success in college. Some GED holders, particularly those with poor reading skills, are academically unprepared for college. These studies were carried out during 1971 through 1981. Swarm found that the average GED student was about ten years older than the average entering college freshman and had dropped out of high school without earning a high school diploma. Older students were found to perform better scholastically than younger students. GED students had shown that they had "... tried harder to achieve academically while in college" (p. 7).

"Based on research findings the GED student has achieved as well scholastically as the average college student from his respective college or university" (p. 8). Findings were that the average GED student was an older student between the ages of 26 and 35, the

majority of whom were married with an average of 2.4 dependents. These students found attending college a financial problem and in many areas experienced academic problems. Even though they kept positive attitudes toward their collegial success and were career oriented, they were achieving at lower levels academically. (p. 14) Swarm found that the "... higher test scores achieved on the GED test battery indicated those students tended to achieve better in college ..." (p. 21). Swarm suggested that the older age of high school equivalency students plus their strong desire to succeed, may have a bearing on the conclusion which was that "... GED students overall do not appear to be educationally disadvantaged as is evidenced by their grade point averages" (p. 21). Swarm concluded that the GED test was and will probably remain the primary source of obtaining a much needed high school diploma and that the test scores "... should not be used wholly as a predictor of success in college situations" (p. 22).

Swarm made reference to one of the variables chosen for analysis, that of study skills or learning assistance. Throughout interviews and in written comments, equivalency students made constant reference to the need for special services. Problems were identified in reading and study skills; students expressed regrets that they had not been referred for help in those areas. Swarm also found that an overdemanding load of college courses was one reason students gave for withdrawing and that higher total "... GED test scores indicated students who tended to achieve better in college" (p. 21).

Sharon (1972) conducted a study for the Educational Testing Service comparing grades of GED graduates with grades of public high school graduates enrolled in selected two-year and four-year institutions. Sharon examined high school equivalency students at 40 American institutions, 12 junior colleges and 28 senior colleges. Sharon found that "... high school dropouts who score satisfactorily on the GED examinations are likely to earn college grades comparable to those earned by high school graduates who enroll in college" (p. 12). Results were that "... 55 percent of the GED students had a lower average than that of all students at their college, while 45 percent had grades equal to or higher than those of the traditional students" (p. 8). According to Sharon, the real significance of the GED tests lies in their extensive use in the admission of non-high school graduate adults to college. (p. 2) Validity coefficients indicated that GED scores could be used as indicators of college academic success, especially for junior colleges. (p. 43)

Fay Byrd and others (1973) compared the educational success of GED recipients with traditional high school graduates at Wilkes Community College in North Carolina. The study was designed to reveal differences in reading placement scores or in grade point averages in freshman English and mathematics. The study involved 30 adult GED graduates and 50 randomly selected high school graduates enrolled at Wilkes Community College. The conclusion was that there was no significant difference in the areas tested. (p. 42)

Even though research has been done which compares the academic success of the GED test graduate with the traditional high school graduate in college programs, the need for more research in this area, according to Ayers (1978), has grown in importance as the number of GED test graduates enrolled in institutions of higher learning increased. (p. 3) At Surry Community College in North Carolina, Ayers determined the percentage of 1977-78 GED graduates enrolled in post high school studies. In the study involving 37 GED graduates and the same number of high school graduates enrolled at Surry Community College, Ayers found that 25 percent of the GED respondents were enrolled in post-high school studies at Surry Community College. One-third of the graduates who were not enrolled in post-high school studies reported that they had plans to enroll at Surry Community College in the future. (p. 7) Ayers concluded that Surry Community College can expect 50 percent of the GED graduates who take the GED tests at Surry Community College to enroll there for post-high school studies. (p. 7) The social studies test was found to be one of the best predictors of college success (as measured by the total overall average of the students). (p. 7) Ayers found that "GED test graduates were not significantly different in grade point average from the regular high school graduates" (p. 10).

Ayers (1980) also conducted a study of educational and employment growth of GED certificate holders at Surry Community College. Results were based on responses of 36 GED recipients and how they felt about themselves. They felt more qualified for their jobs and their earnings

were considerably higher than before they obtained the GED certificates. The study addressed three research questions pertaining to the value of the GED program in helping graduates gain employment, receive job promotions and receive salary increases. Ayers reported that the GED program of the college was valued because the resulting credential could help students gain employment, job promotions, and salary increases. Of the 64% reporting that they were employed, 35% reported that the GED helped them gain employment, 15%, that the GED helped them get a promotion, and 19%, that the GED helped them gain an increase in pay. (p. 70)

At the request of the State Superintendent of Public Instruction of Wisconsin in 1984, the Employment and Training Institute of the University of Wisconsin in Milwaukee embarked on a two-year study of the GED and its use in Wisconsin. The study explored the use of the GED credentials by employers and post-secondary institutions in the state, level of skills attained by GED holders and performance of GED holders in post-secondary education in the state. A comparison (Pawasarat and Quinn, 1986) of student records for GED holders and high school graduates who first enrolled between the fall of 1978 and the fall of 1982 revealed that GED holders as a group performed worse than high school graduates, even those from the lowest 20 percent of their high school classes. Respondents to an employer survey indicated that "... the GED credential is well received by employers and considered by most to be equivalent to a high school diploma" (p. 16). The U.S. Department of Labor "... promotes the use of the GED as a measure of

positive termination for job training programs, and adult basic education dollars are linked in part to GED completion rates" (p. 9).

Many new programs are being instituted to help adults get back into school. One newsletter of the GED Testing Service (March/April, 1988) reports that one such new program is getting grandparents back in class. (p. 2) One candidate, age 64, states, "It's pretty hard 'cause when you get away from it for 40-some years, your brain doesn't function like it did when you were 18 years old" (p. 2).

Roueche and others (1968) emphasized the need to widen the door for student admission to community college programs, insure better teaching and retain students after admission. According to Roueche,

The Open Door policy of the community junior college implies acceptance of the concept of universal higher education. In accepting this idea the community college thus becomes committed to provide an education for all high school graduates and others who can profit from instruction (p. vii).

Roueche indicated that public junior colleges should become more involved in instructing more groups of people. Roueche contributed to opening the doors of community colleges to non-high school graduates.

Summary

This chapter has covered various studies conducted involving the GED test and other aspects in higher education. The survey of literature reveals the importance of having a high school diploma as is indicated by employers and institutions of higher academic and vocational learning. Literature surveyed relates to specific concerns of this research and includes topics such as comparisons between the Adult High School Diploma program and the GED program, age and

performance on the GED, remedial reading and learning assistance for GED graduates, GPA and the GED, use of the GED as a part of the criteria for admission to college, comparison of grades made by GED students and high school graduates and employment growth of the GED certificate holders.

Very little research has been done on comparing performance in college with scores on the five sections of the GED. Few statistics could be found on performance of GED certificate holders in institutions of higher education as compared with their scores on the five sections of the GED tests. Goal VI of the May 1988 published report by the North Carolina Department of Community Colleges is "To increase literacy levels significantly in North Carolina" (p. 3). One of the ways listed is "To increase the number of adult high school and GED graduates to surpass the number of annual dropouts from high school" (p. 3). The GED testing program directly addresses meeting this goal.

This chapter has covered variables researched as they pertain to the Tests of General Educational Development. Postsecondary education and employment opportunities have been shown to be primary motivators of adults earning the GED certificate. Ayers (1980), Swarm (1981) and Quinn (1986) indicated that GED recipients perceived the GED certificate as a means toward new employment and promotions. McLawhorn related increasing popularity of the GED tests to various social factors as adults chose GED certificates over Adult High School Diplomas. The predictive value of the GED test for two year college

academic success was studied by Wolf (1983) who found that age was more important and that GED recipients were as equally likely to succeed as high school graduates. Remedial reading and learning assistance were important factors in studies by Rogers (1977) and Swarm (1981). In a study by Colert (1984), projection was made that female GED recipients were more likely to be academically successful. Swarm (1981) also found that older students who made higher test scores on the GED were more likely to achieve better in college.

Research has shown that GED recipients seek the credential for employment and educational purposes. Although several studies have shown that GED students experience academic difficulties, the tests have been shown to be valid predictors of freshmen grade point average. Community colleges were seen to be the higher education choice of the majority of GED students studied.

CHAPTER 3

Methodology

Review of related literature and statistical analysis of scores on the Tests of General Educational Development (GED), along with the academic performance of students taking those tests, were relied upon heavily for this study. Carefully scrutinized historical data determined relevance and significance to the problem. Organized and analyzed data were used to formulate answers to the study question, draw conclusions and make recommendations.

Subjects

Subjects for this study were GED certificate holders who enrolled in five programs at Asheville-Buncombe Technical Community College (A-BTCC) during any quarter of the school year from the fall of 1982 through the summer of 1988 and who took the GED at the same institution. Subjects were identified by a computer analysis of data through student services, listing social security number, name, major, grade point average, hours earned, hours attempted and quarter started in school at A-BTCC. GED scores for those obtaining GED certificates at A-BTCC were obtained from the files of the Learning Lab. From these records, sex, age when the GED was taken and highest grade completed was incorporated into the study. GED scores of students enrolling in any one of the five major programs of study were considered. These programs, chosen because they had the highest number of GED recipients

enrolled, were Business Education, Engineering Technology, Allied Health Education, Vocational-Industrial Education and General Education (students planning to transfer or who had not declared a major). Names were excluded from the study. The 232 GED graduates who achieved a grade point average greater than zero constituted the final statistical information. Sixty of the equivalency students admitted during this period either did not attend or did not pass any subjects.

Instruments

A brief description of the GED tests follows: (GED Teacher's Manual, 1979, pp. 7-15)

1. Writing Skills. The questions are intended to measure a person's ability to use standard written English clearly and effectively. The candidate must identify errors in spelling, capitalization, punctuation, diction, and usage style, recognize preferred ways of writing sentences, and analyze the organization and logic of sentences within a passage. 80 questions; 75 minutes.

2. Social Studies. The test contains materials drawn from United States and world history, global issues, economics, geography, political science, and the behavioral sciences. The questions require the candidate to demonstrate an understanding of basic principles and concepts in each area by understanding the meaning and intent of information (written and graphic), applying information and ideas, distinguishing fact from opinion, drawing conclusions, identifying cause and effect relationships, and making judgments about information and methods. 60 questions; 90 minutes.

3. Science. The questions are drawn from the areas of biology, chemistry, earth science, and physics. Reading passages and individual questions test a candidate's understanding of basic principles and ideas. As in the Social Studies, most questions require using the information presented in the reading passages or questions to analyze and solve problems, explain results, or interpret given information. 60 questions; 90 minutes.

4. Reading Skills. The questions are based on excerpts taken from newspapers, magazines, literature, poetry, and drama. The questions require a candidate to demonstrate an understanding of what is read, interpret the meaning of the passage and draw conclusions implied but not directly stated by the author. 40 questions; 60 minutes.

5. Mathematics. The questions cover arithmetic, algebra, and geometry. Most questions involve some computation and most use a real-life situation for the problem or ask the candidate to interpret information presented in graphs, charts, tables, or diagrams. 50 questions; 90 minutes.

The GED is reviewed periodically and updated. New forms are developed on a regular basis. The described series of tests, revised in 1978, had changes made in the length of the examination and in the types of questions used. In 1988 a written composition was added to the writing test; the title of test 4, Reading Skills, was changed to Literature and the Arts. If an individual does not reach the required number of points on each part, that part must be rescheduled after an appropriate and required period of study time. In North Carolina, as

is true in most states, a passing score for each part of the examination is 35. A passing standard score for all five parts must total 225, with no single score below 35. An individual must average scoring 45 on each part to reach the required 225.

Procedure

Students who indicated on their applications to Asheville-Buncombe Technical Community College (A-BTCC) that they took and passed the GED test at A-BTCC were considered in this study. Prior to collecting data for this study, permission was obtained from the proper authorities at Asheville-Buncombe Technical Community College. Forms for record keeping were developed. A comparison of scores on the five areas of the GED test and grades made in classes at the institution was charted.

Academic progress was analyzed, along with the scores on each of the five sections of the GED. All the information on each student was computerized using the program described by Rio and others (1975), Statistical Program for the Social Sciences (SPSS and a recently introduced program which provides some new capabilities, the SPSS-X), (p.3) for performing the statistical analyses. Totals, means, standard deviations and frequencies were calculated. The Pearson product-moment correlation coefficients were determined, and predictive quality was analyzed by means of multiple correlation coefficients. Independent variables of the GED were the five tests of the battery and the total score, which were used to predict academic performance in the various programs. The five tests measure the major skills considered to be the product of a high school education. Profiles developed included other

independent variables scrutinized (age when GED was taken, sex, highest grade completed, semester started). Relationships among the independent variables and the dependent variables of academic performance were analyzed. Summarized information, obtained percentages and appropriate tables were charted and interpreted.

Data Analysis

Computerized data calculations and comparisons were made, using tables designed for this purpose. Pearson correlation coefficients were used to test for relationships. The following computer processes were utilized.

1. Pearson correlations between grade point average, hours earned and total score and scores on each section of the GED.
2. Multiple correlation between grade point average, hours earned, and total score and scores on each section of the GED.
3. Multiple correlation as in number 2, including age and highest grade completed into analysis.
4. A rerun of analysis 1, 2, and 3 for each of the five programs of study. The correlations were computed to determine if relationships were significant enough to predict performance based on scores on the GED.
5. Frequency counts on year started program, hours earned, highest grade completed, sex and age for each division to determine if

any of these factors could be considered in making predictions about performance in any specific programs of study.

Information was organized into tables showing all related information before reaching conclusions about predictive quality and making recommendations. In the study, educational performances of the GED students were analyzed to gain insight for program improvement in the areas of study requirements and course content after passing the Tests of General Educational Development.

CHAPTER 4

Results of Data Analyses

A computer search, PRIME (trademark name from PRIME Computer Company), revealed 556 GED graduates had enrolled in the program areas of Business Education, Engineering Technology, Allied Health Education, Vocational-Industrial Education and General Education at Asheville-Buncombe Technical Community College (A-BTCC) from the fall quarter of 1982 through the summer quarter of 1988. Only two GED recipients enrolled in the program area of Hospitality Education during that period. Two steps comprised the initial data gathering phase. The first step involved obtaining the following statistical information from records in the Admissions Office at A-BTCC: social security number, name, program of study, grade point average, hours earned, hours attempted and quarter started for the 556 GED graduates. Scores were then positively identified for 232 subjects, by names and social security numbers, as students who obtained the GED certificates through testing at A-BTCC. The GED scores were obtained manually from the files of the Learning Lab.

Analyses of Variables

This study involved analyzing the relationships between the independent variables of scores on the five subtests of the Tests of General Educational Development (GED) and the dependent variables of academic achievement as measured by grade point average and hours

earned. The study addressed the research question: Does student performance on specific sections of the Tests of General Educational Development predict performance of students in various programs of study at Asheville-Buncombe Technical Community College?

The number of students by gender, age and program study area is indicated on Table 1.

Table 1

Gender, Age and Degree Program
for the Total Sample (N = 232)

Category	Number	Percentage
Gender		
Male	89	38.4
Female	143	61.6
Age		
24 and Under	150	64.7
Over 24	82	35.3
Program Area		
Business Education	64	27.6
Engineering Technology	22	9.5
Allied Health Education	12	5.2
Vocational-Industrial Education	29	12.5
General Education	105	45.2

In analyzing the dependent and independent variables, data were gathered on the 232 GED graduates who had completed at least three quarter hours at A-BTCC. The distribution of students by number was 64 (27.6%) in Business Education, 22 (9.5%) in Engineering Technology, 12 (5.2%) in Allied Health Education, 29 (12.5%) in Vocational-Industrial Education and 105 (45.2%) in General Education.

The program area of General Education had the highest percentage of GED recipients enrolled; it is not, however, considered a degree program since it is composed of students who either have not declared a major or who plan to transfer (with the exception of the major in Criminal Justice). Other related variables included are gender and age. Ages of subjects ranged from 16 years to 59 years with a mean near 24 (23.931). Over one-third were between the ages of 16 and 24. Nearly two-thirds of the subjects were female.

Table 2 shows the distribution of GED recipients among the program study areas of Business Education, Engineering Technology, Allied Health Education, Vocational-Industrial (Voc.-Ind.) Education and General Education by the year enrolled. Almost one-half (46.9%) of the GED students enrolled in Business Education began in 1986; over half (54.5) of the GED students enrolled in Engineering Technology began in 1986; the entire population of GED students enrolled in Allied Health Education began between 1985 and 1987; over one third of the GED students in Vocational-Industrial Education began in 1986; over one third of the GED students in General Education began in 1987.

A definite increase in students in all areas was indicated since 1985. One possible reason for this is the availability of admissions materials in the Learning Lab.

Table 2

Frequency by Year Enrolled

Year	Business Education		Engineering Technology		Allied Health Education		Voc.-Ind. Education		General Education		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1982	0	0.0	1	4.5	0	0.0	1	3.5	3	2.9	5	2.2
1983	0	0.0	0	0.0	0	0.0	0	0.0	4	3.8	4	1.7
1984	2	3.1	0	0.0	0	0.0	1	3.4	1	1.0	4	1.7
1985	19	29.7	4	18.2	4	33.3	7	24.1	31	29.5	65	28.0
1986	30	46.9	12	54.5	4	33.3	12	41.4	28	26.7	86	37.1
1987	13	20.3	5	22.7	4	33.3	8	27.6	38	36.2	68	29.3
Total	64	100.0	22	100.0	12	100.0*	29	100.0	105	100.0	232	100.0

*Does not add up to 100.0% due to rounding.

The mean, standard deviation, minimum score and maximum score were calculated for the GED recipients in each of the program study areas by subtests and overall totals of the GED. The mean (M), standard deviation (SD) and number of cases are presented in Table 3. The mean

(arithmetic average), one of the most commonly employed measures of central tendency, was used because it is more stable than the mode and the median and thus, statistically, provides a more sensitive index of central tendency. (Popkin, 1973, p. 66)

Table 3

Statistical Information

	Business Education		Engineering Technology		Allied Health Education		Voc.-Ind. Education		General Education		Total	
Number	64		22		12		29		105		232	
Subtest	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
Writing	52.0	6.4	47.9	6.5	51.6	7.4	49.7	7.0	50.2	6.7	50.5	6.7
Soc.St.	53.3	6.1	51.5	5.5	50.2	5.1	51.9	6.6	51.8	5.8	52.1	5.9
Science	53.0	6.5	56.7	5.1	52.6	5.2	54.8	6.5	52.9	5.7	53.5	6.0
Reading	55.0	7.2	53.5	5.8	54.8	8.7	53.3	5.4	53.1	6.2	53.8	6.5
Math.	50.3	5.2	50.9	6.3	46.5	6.8	49.0	5.6	48.6	6.0	49.3	5.9
Total	264.1	25.5	260.7	25.5	255.6	29.1	259.4	25.1	256.2	23.1	259.1	24.6

The achievement level of the student sample can be noted by comparing their scores on the subtests of the GED with those earned by the national norming sample, which consisted of graduating high school seniors who were tested with the GED in 1967. The norming sample had a mean of 50 and a standard deviation of 10 on each of the subtests. (GED Examiner's Manual, 1972, p. iv) Comparisons of different GED scores

can be legitimately made even though the scores were obtained on different test forms. This is done through a process of "equating," thus making the same scores on different forms of the GED essentially equivalent. (p. iv) The study sample performed significantly higher than the normative sample on all tests except writing and mathematics.

The highest mean scores on writing, social studies (soc.st.), reading and overall total were in Business Education while the highest mean scores on science and mathematics (math.) were in Engineering Technology. The lowest scores on writing were made by students enrolled in Engineering Technology; the lowest scores on social studies, science, mathematics and total overall were made by students enrolled in Allied Health Education; and the lowest scores on reading were made by students in General Education. Overall achievement by students was highest in writing, social studies, and reading, lower in science and lowest in mathematics. The mean GED score for the 232 subjects was 259.147 with a standard deviation of 24.575. Scores ranged from 225 (minimum passing) to 343. Only 25 (10.8%) of the GED holders studied had total scores of 300 or above.

Since this was a study of GED recipients who were enrolled in college, the group was expected to be more homogeneous than an unselected group of candidates such as all GED recipients. This was confirmed by the relatively small (as compared with 10 for the norming sample) standard deviations (SDs) shown in Table 3.

Table 4 presents the minimum and maximum scores of the GED recipients for each of the subtests by division. The minimum passing score on any subtest is 35. As indicated on the table, most GED

recipients who enrolled in college made above the minimum on the subtests. This was also confirmed by the average (M) shown on Table 3.

Table 4

Minimum (Mi) and Maximum (Ma) Scores on Subtests
of the GED by Division

	Business Education		Engineering Technology		Allied Health Education		Ind.-Voc. Education		General Education		Total	
Number	64		22		12		29		105		232	
Subtest	Mi	Ma	Mi	Ma	Mi	Ma	Mi	Ma	Mi	Ma	Mi	Ma
Writing	41	67	39	61	43	68	39	63	36	75	36	75
Soc.St.	41	68	42	63	44	61	40	66	41	65	40	68
Science	43	71	48	66	47	61	44	68	42	65	42	71
Reading	44	73	45	65	45	75	42	63	36	68	36	75
Math.	40	63	40	63	35	57	42	64	35	66	35	66
Total	226	320	225	311	225	313	226	324	225	319	225	324

The lowest scores (below 40) were made on the Tests of General Educational Development (GED) by students in mathematics in the program areas of Allied Health Education and General Education; in reading by subjects in General Education; in writing by subjects in Engineering Technology, Vocational-Industrial Education and General Education. The highest scores (above 70) were made in science and in reading by subjects in the program area of Business Education; in reading by

students in Allied Health Education; and in writing by subjects in General Education.

To test for a relationship between the independent variables of scores made on the Tests of General Educational Development (GED) and the dependent variables of grade point average and hours earned, bivariate and multiple correlation coefficients were calculated (Table 5). The Pearson product-moment correlation coefficient, the most widely employed measure of statistical correlation (Popham, 1973, p. 75) was calculated for the total sample ($N = 232$). All variables (writing, social studies, science, reading, mathematics and overall total) had positive correlation coefficients with grade point average while all had negative coefficients with total hours earned. Negative coefficients mean that a person with high scores on independent variables has a low score on the dependent variables and vice versa. (Gay, 1987, p. 243) This could indicate that GED recipients who take fewer hours perform better.

A statistically significant ($p < .05$) Pearson product-moment correlation coefficient of .13 was obtained between the total GED score and the grade point average for the entire correlation analysis sample. The correlation coefficients obtained between writing (.13), social studies (.15) and reading (.13) and grade point average were also significant. The coefficient between writing and hours completed (-.14) was also significant.

Multiple Correlations

After correlation coefficients were calculated for the 232 subjects, multiple correlation coefficients (Rs) were calculated to determine the extent of the relationship between one variable (first the dependent variable of grade point average, and next, the dependent variable of hours completed) and a combination of two or more variables (the scores on the subtests and overall total) considered simultaneously. The stepwise multiple regression program isolates first the one independent variable that explains the greatest amount of variance, then, sequentially, the variable that explains the greatest amount of variance in conjunction with the first until all variables making a difference in the coefficient are isolated.

Table 5

Results of Correlation Analyses Between Academic
Performance and the GED Test Results
for the Total Sample (N = 232)

Academic Performance	GED Subtests						R
	Writing	Social Studies	Science	Reading	Math.	Total	
Grade Point Average	.13*	.15*	.09	.13*	.00	.13*	.20
Hours Completed	-.14*	-.08	-.07	-.07	-.05	-.10	.14

*p < .05

Based on intercorrelations between variables, the highest possible relationship (R) was found. The multiple correlation provided an index of the relationship between two variables, one variable (grade point average, hours earned) and a weighted combination of more than one (the independent variables). (Popham, 1973, p. 75) The last column of Table 5 shows the multiple correlation coefficients (Rs) for the total sample (N = 232). These were not statistically significant (.20 for grade point average and .14 for hours completed) for the total sample.

Analyses by Division

Tables 6-10 indicate the results of a correlation analyses by division for the five subtests and overall total of the GED and the dependent variables of grade point average and hours earned. The writing subtest was the first variable to enter in prediction of grade point average in Business Education (Table 6) producing a correlation of 0.26 (0.25540). The other variables were entered in the order of mathematics, social studies, reading, science and total score producing a multiple correlation coefficient of 0.35 (0.354546).

The independent variables for hours earned were entered in the order of total, mathematics, social studies, writing and reading for a correlation coefficient of 0.27 (0.26626). The multiple correlation coefficients (Rs) shown in the last column were not statistically significant (.35 for grade point average and .27 for hours completed).

Table 6

Results of Correlation Analyses Between Academic
Performance and the GED Test Results
for Business Education (N = 64)

Academic Performance	GED Subtests						
	Writing	Social Studies	Science	Reading	Math.	Total	R
Grade Point Average	.26*	.12	.06	.25*	.00	.19	.35
Hours Completed	-.22*	-.04	.11	-.05	-.13	-.14	.27

*p < .05

In the program study area of Business Education, the correlation coefficients obtained between writing skills (.26) and reading (.25) and grade point average were statistically significant. All the variables had positive correlation coefficients with grade point average while all but science had negative coefficients with hours earned. The coefficient between writing skills and hours completed (-.22) was significant.

Social studies was the first variable to enter in prediction of grade point average in Engineering Technology (Table 7) producing a prediction of 0.51 (0.50694). The other variables were entered in the order of mathematics, writing, reading, science and total score producing a correlation of 0.63 (0.63482). The mathematics test was the first variable to be entered in the prediction of hours earned

producing a correlation coefficient of -0.42 (-0.42359). The other variables were entered in the order of reading, science, writing, social studies and overall total for a coefficient of 0.59 (0.59485).

Table 7

Results of Correlation Analyses Between Academic Performance and the GED Test Results for Engineering Technology (N = 22)

Academic Performance	GED Subtests						Total R
	Writing	Social Studies	Science	Reading	Math.		
Grade Point Average	.37*	.51*	.31	.33	.15	.37*	.63
Hours Completed	-.21	-.10	-.13	-.26	-.42*	-.27	.59

*p < .05

All variables in the program area of Engineering Technology had positive correlation coefficients with grade point average while all had negative correlation coefficients with hours completed. The coefficients between writing (.37), social studies (.50) and the overall total (.37) and grade point average were statistically significant. The only subtest results producing a coefficient of significance at the .05 level with hours completed was mathematics (-.42). The multiple correlation coefficients (.63 for grade point average and .59 for hours completed) were not statistically significant.

The variables were entered for Allied Health Education (Table 8) in the prediction of grade point average in the order of total score, social studies, writing, science and mathematics producing a correlation of 0.52 (0.52335). Reading was omitted since the statistical program used eliminates any variables not affecting a correlation. Social studies was the first variable to enter in prediction of hours earned producing a correlation coefficient of -0.60 (-0.60393). The other variables were entered in the order of writing, reading, science and mathematics producing a coefficient of 0.78 (0.77978). The total score was omitted from prediction.

Table 8

Results of Correlation Analyses Between Academic

Performance and the GED Test Results for

Allied Health Education (N = 12)

Academic Performance	GED Subtests						R
	Writing	Social Studies	Science	Reading	Math.	Total	
Grade Point Average	.06	-.34	-.04	-.14	-.09	-.11	.52
Hours Completed	.41	-.60*	-.39	-.40	-.37	-.40	.78

*p < .05

The only positive correlation coefficients with both grade point average and hours completed for the program area of Allied Health

Education were writing skills (.06 and .41 respectively). The only statistically significant correlation coefficient was between social studies and hours completed (-.60). The multiple correlation coefficients, .52 for grade point average and .78 for hours completed, were not statistically significant.

The variables were entered in the order of total score, mathematics, writing, science, reading and social studies in the prediction of grade point average for Vocational-Industrial Education (Table 9) for a coefficient of 0.81 (0.81039). The variables were entered in the order of total score, mathematics, writing, science, reading and social studies in the prediction of hours earned for a correlation coefficient of 0.36 (0.35909).

All the variables had positive correlations with grade point average except science (-.04). The coefficients between mathematics (.36) and overall total (.12) and grade point average were statistically significant. All the variables had negative correlations with hours completed. The multiple correlations of grade point average (.81) and hours completed (.36) were not statistically significant.

Table 9

Results of Correlation Analyses Between Academic
Performance and the GED Test Results for
Vocational-Industrial Education (N = 29)

Academic Performance	GED Subtests						Total R
	Writing	Social Studies	Science	Reading	Math.		
Grade Point Average	.11	.20	-.04	.04	.36*	.12*	.81
Hours Completed	-.26	-.21	-.20	-.23	-.01	-.24	.36

*p < .05

For General Education (Table 10) the variables were entered in the order of total score, mathematics, writing, science, social studies and reading for both grade point average and hours earned for a correlation coefficient of 0.29 (0.29022) in the prediction of grade point average and 0.17 (0.16861) in the prediction of hours earned.

Positive correlations were shown between grade point average and all independent variables except mathematics (-.07). None of the coefficients were significant for either grade point average or hours completed. The only positive correlation shown with hours completed was mathematics (.03). The multiple correlation coefficients, .29 for grade point average and .17 for hours completed, were not statistically significant.

Table 10
Results of Correlations Analyses Between
Academic Performance and the GED Results
for General Education (N = 105)

Academic Performance	GED Subtests						R
	Writing	Social Science Studies	Reading	Math.	Total		
Grade Point Average	.04	.14	.13	.12	-.07	.12	.29
Hours Completed	-.08	-.06	-.12	-.08	.03	-.08	.17

*p < .05

Dependent Variable: Grade Point Average

The two dependent variables were grade point average and total quarter hours earned. Academic achievement in college has been most often measured by grade point average. It is used by college administrators to determine whether a student should remain in school, take advanced courses, or receive special honors. It is readily available in student files. According to Sharon (1972), no other single index of college success which is clearly more relevant or acceptable than grade point average has yet been developed. (p. 8) A review of academic performance was possible for the 232 subjects.

Table 11 cites cumulative grade point averages for the 232 subjects by program area. The table indicates that 29.7% of the

students enrolled in Business Education had a GPA of 2.000-2.999; 29.7% had a GPA of 3.000-3.999. The mean GPA of this division was 2.342. The highest percentage (50.0%) of students in Engineering Technology had a GPA of 2.000-2.999, with a mean of 2.285. The highest percentage (58.4%) of students in Allied Health Education had a GPA of 2.000-2.999 with a mean of 1.982. In the program area of Vocational-Industrial Education, 44.9% of the GED recipients had a GPA of 3.000-3.999 with a mean of 2.647. The highest percentage (33.3%) of students in General Education had a GPA of 3.000-3.999 with a mean of 2.630. Of the total GED graduate population studied, the highest percentages are in the 2.000-2.999 and 3.000-3.999 range, 32.8% and 31.9%, respectively. The high percentage of GED recipients making above average grades (C and above) is an indication of academic success.

The range of grade point averages was from 0.001 to 4.000 with a mean for the total sample (N = 232) of 2.487, a solid "C" letter or "average" grade. Even though the study revealed definite differences in the mean of each program area of study (from 1.982 for Allied Health Education to 2.630 for General Education), the differences are not statistically significant (.075). The grade point average criterion employed was based on grades received in all courses taken in a single quarter for some students; for others, it was based on grades received over as many as seven quarters. The number of courses taken in a quarter varied widely because of the large number of part-time students in the sample.

Table 11

Grade Point Average(Frequency by Program Areas)

GPA	Business Education		Engineering Technology		Allied Health Education		Voc.-Ind. Education		General Education		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
0.001-0.999	9	14.1	3	13.6	3	25.0	2	6.9	5	4.8	22	9.5
1.000-1.999	15	23.4	2	9.1	1	8.3	3	10.3	19	18.1	40	17.2
2.000-2.999	19	29.7	11	50.0	7	58.4	10	34.5	29	27.6	76	32.8
3.000-3.999	19	29.7	6	27.3	1	8.3	13	44.9	35	33.3	74	31.9
4.000	2	3.1	0	0.0	0	0.0	1	3.4	17	16.2	20	8.6
Total	64	100.0	22	100.0	12	100.0	29	100.0	105	100.0	232	100.0
Mean	2.342		2.285		1.982		2.647		2.630		2.487	

Dependent Variable: Hours Earned

The information supplied by Table 12 indicates the frequency distribution of students according to the number of quarter hours earned between the fall of 1982 and the summer of 1988. The highest percentage (23.5%) of those students in Business Education completed 14-25 hours with a mean of 23.516; 36.4% in Engineering Technology completed 26-54 hours with a mean of 50.045; 33.3% of those in Allied Health Education completed 26-54 hours with a mean of 35.833; 31.0% of those in Vocational-Industrial Education completed 4-13 hours with a

mean of 13.381; 29.3% of the total number of subjects completed 4-13 hours with a mean of 25.078.

Table 12

Hours Earned(Frequency by Program Areas)

Hours*	Business Education		Engineering Technology		Allied Health Education		Voc.-Ind. Education		General Education		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
0 - 3	9	14.1	1	4.5	1	8.5	3	10.3	32	30.5	46	19.8
4 - 13	12	18.7	1	4.5	3	25.0	8	27.6	44	41.9	68	29.3
14 - 25	15	23.5	3	13.6	1	8.4	7	24.2	15	14.3	41	17.7
26 - 54	14	21.8	8	36.4	4	33.3	9	31.0	9	8.5	44	18.9
55 -84	6	9.4	3	13.6	3	25.0	2	6.9	4	3.8	18	7.8
Over 84	8	12.5	6	27.3	0	0.0	0	0.0	1	1.0	15	6.5
Total	64	100.0	22	100.0	12	100.0	29	100.0	105	100.0	232	100.0
Mean	33.516		50.045		35.833		25.414		13.381		25.078	

*Quarter hours

The GED recipients in the program area of Business Education had an average of 33.516 quarter hours of credit; those in Engineering Technology had an average of 50.045 quarter hours of credit; those in Allied Health Education had 35.833; those in Vocational-Industrial Education had 25.414; and those in General Education had an average of 13.381 quarter hours. This would seem significant; however, some of the program areas such as Engineering Technology require between 121 and 128 quarter hours of credit for some majors, whereas others such as Allied Health Education require only 70 hours of credit for a major in Dental Assisting and 143 credit hours in Radiologic Technology. The only actual degree program in General Education, Law Enforcement, requires 107 quarter hours of credit. Therefore, it would have been difficult to draw any conclusions from the mean number of quarter hours earned. Table 12 does, however, give an indication that most of the GED recipients included in this study had not completed their courses of study at A-BTCC at the time of the study.

Related Variables

One of the three related variables considered in this study was the age of the GED recipients at the time of their testing. The ages of the GED holders varied, at the time of their testing, from 16 to 59. The mean age was 23.931. Table 13 shows a frequency distribution of the students by program study area according to age ranges.

The highest percentage of GED recipients was in the 16-19 range for the total number and for each program study area; 53.1 % in Business Education with a mean of 23.266; 77.3% in Engineering Technology with a mean of 20.409; 41.7% in Allied Health Education with a mean of 27.333; 44.8% in Vocational-Industrial Education with a mean of 21.897; 44.0% in General Education with a mean of 25.248; and 47.8% overall with an average age of 23.941. The average age for examinees nationwide, according to the 1986 Statistical Report, was 26.5 years.

(p. 3)

Table 13

Age Distribution

(Frequency by Program Areas)

Age	Business Education		Engineering Technology		Allied Health Education		Voc.-Ind. Education		General Education		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
16 - 19	34	53.1	17	77.3	5	41.7	13	44.8	44	44.0	111	47.8
20 - 24	8	12.5	1	4.5	2	16.6	9	31.1	19	18.1	39	16.9
25 - 29	11	17.2	3	13.7	1	8.4	4	13.8	13	12.4	32	13.7
30 - 39	7	11.0	0	0.0	2	16.6	2	6.9	24	22.8	34	15.1
40 - 49	4	6.2	1	4.5	1	8.4	1	3.4	5	4.8	12	5.2
50 and over	0	0.0	0	0.0	1	8.4	0	0.0	2	1.9	3	1.3
Total	64	100.0	22	100.0	12	100.0	29	100.0	105	100.0	232	100.0
Mean	23.266		20.409		27.333		21.897		25.248		23.941	

Table 13 indicates that GED recipients who took the tests at younger ages (averages 20, 21, 23) were in the areas of Engineering Technology, Vocational-Industrial Education and Business Education respectively. Those who took the tests at average ages 25 and 27 were enrolled in the areas of Allied Medical Education and General Education.

Age appeared to be a significant positive factor in success of GED recipients as measured by their grade point averages. When age was entered as an independent variable in the multiple regression for grade point average, the multiple correlation coefficient for grade point average in Engineering Technology was raised from .63 to .79 and was thus statistically significant at the .05 level (.0266) for Engineering Technology. In the area of General Education, the multiple correlation coefficient for grade point average was raised from .29 to .87 and was statistically significant at the .05 level (.0006). Adding age as a variable in the multiple regression for hours earned did not increase the correlation coefficients to significant levels for any of the program areas.

Subgrouping the GED recipients by gender offered the possibility of raising the predictive validity of the subtests and overall total. Females had a higher average GPA than did males, 2.576 compared to 2.343. This was not statistically significant. The GED scores ranged from 225 to 343 with a mean of 259.147. Males had a slightly higher mean than did females, 260.438 compared to 258.343, This difference was not statistically significant. Table 14 indicates the means on the subtests and the overall totals for the GED by gender.

Table 14

Mean by Gender(GED Scores)

Subjects	Writing	Social Studies	Science	Reading	Mathematics	Total
Male	48.820	52.562	55.719	53.247	50.472	260.438
Female	51.538	51.874	52.182	54.098	48.490	258.343
Total	50.496	52.138	53.539	53.772	49.250	259.147

The number of females (143) and males (89) is indicated on Table 1. Of the program study areas, more males were enrolled in Engineering Technology (68.2%) and Vocational-Industrial Education (82.8%), while more females were enrolled in Business Education (75.0%), Allied Health Education (83.3%), General Education (69.5%) and overall total (61.6%). The average age for females was 24.867; the average age for males was 22.427. The number of hours earned for females was 24 (24.420), 26 (26.135) for males. The highest grade completed before withdrawing from school for females was 9.818 and was 9.989 for males. None of these differences was statistically significant.

The third related variable to be considered was the highest grade completed before taking the GED. The range was from grade 6 through grade 11. Table 15 indicates the frequency of the GED recipients by grade level.

Table 15

Highest Grade Completed(Frequency by Program Areas)

Grade	Business Education		Engineering Technology		Allied Health Education		Voc.-Ind. Education		General Education		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
6	0	0.0	0	0.0	0	0.0	0	0.0	1	1.0	1	0.0
7	1	1.6	0	0.0	1	8.3	2	6.9	8	7.6	4	1.7
8	2	3.1	1	4.5	2	16.7	1	3.4	8	7.6	14	6.0
9	19	29.7	3	13.6	1	8.3	7	24.1	25	23.8	55	23.7
10	22	34.4	12	54.5	4	33.3	8	27.6	40	38.1	86	37.1
11	20	31.3	6	27.3	4	33.3	11	37.9	31	29.5	72	31.0
Total	64	100.0	22	100.0	12	100.0	29	100.0	105	100.0	232	100.0

The highest percentage (34.4%) of those students in Business Education completed grade 10 (with an average of grade 9.906); the highest percentage (54.4%) in Engineering Technology was grade 10 (with an average of grade 10.045); 33.3% of those students in Allied Health Education completed grades 10 and 11 (with an average of grade 9.667); 37.9% of those students in Vocational-Industrial Education completed grade 11 (with an average of grade 9.862); 38.1% of the students in General Education completed grade 10 (with an average of grade 9.867); and 37.1% of the overall total completed grade 10 (with an average of grade 9.884).

These findings are in line with the 1986 Statistical Report (p. 3) that the average grade completed for GED examinees nationwide was 9.9 years. (p. 3) The highest grade completed was entered into the stepwise multiple regression analyses along with the other variables; however, the multiple correlation coefficient was not increased enough to be statistically significant for either grade point average or hours earned.

This chapter has presented the results of the study. The interpretation of the results, the conclusions arising from the findings and the recommendations are contained in Chapter 5.

CHAPTER 5

Results, Interpretations, Conclusions,
and RecommendationsResults

Results of this study were generated from records of 232 students at Asheville-Buncombe Technical Community College (A-BTCC) who enrolled between the fall of 1982 and the summer of 1988. The 232 students were recipients of high school equivalency certificates based on their scores on the Tests of General Educational Development (GED) taken at A-BTCC.

The sample was made up of 143 (61.6%) females, and 89 (38.4%) males. Ages of the recipients in this study ranged from 16 to 59 years with a mean of 24. The study analyzes the relationship between independent variables of scores on five GED subtests and the overall total and the dependent variables of academic achievement, as measured by grade point average and total hours earned in five program areas of study.

The study addressed the research question: Does student performance on specific sections of the Tests of General Educational Development predict performance of students in various programs of study at Asheville-Buncombe Technical Community College? The number of high school equivalency students attending A-BTCC has increased since the initial admission of GED students. The rate of increase is expected to continue in the future. Distribution of recipients by year

from 1982 through 1988 revealed that 88.8 percent of the subjects enrolled after 1984.

The average overall achievement level of the recipients in this study was higher than the norming sample which consisted of graduating school seniors who were tested with the GED in 1967. (GED Examiner's Manual, 1984, p. 3) The norming sample had a mean of 50 whereas the mean for this study was 51.8. The standard deviation for scores in the study was relatively small (4.9) as compared with 10 for the norming sample, (p. 3) indicating that the group for this study was more homogeneous than an unselected group of candidates such as all GED recipients. The GED recipients in this study averaged well above the minimum passing score of 35 on each of the GED subtests.

The mean GED total score of the 232 subjects was 259.1 compared to a passing score of 225. Scores ranged from 225 to 324. GED recipients scored slightly lower on writing (50.5) and mathematics (49.3) than on social studies (52.1), science (53.5) and reading (53.8). The lowest mathematics scores were made by GED recipients in the program areas of Allied Health Education and General Education; in reading by recipients in General Education; in writing by recipients in Engineering Technology, Vocational-Industrial Education and General Education. Highest scores were made in science and reading by subjects in the program area of Business Education; in reading by subjects in Allied Health Education; and in writing by subjects in General Education.

A statistically significant Pearson product-moment correlation coefficient of .13 was obtained between the mean GED score and grade point average for the total sample. There was a positive relationship

between scores on subtests of writing (.13), social studies (.15), science (.09) and reading (.13) and grade point average for the total sample. The correlation coefficient was statistically significant between grade point average and the writing, social studies and reading scores. Using stepwise multiple-regression correlation analysis, a positive relationship (R) was found (.20) to exist between average scores made by the total sample on subtests of the GED and grade point average. This analysis of data indicates that the GED has some value as a predictor of grade point average. Social studies was the single most effective GED subtest in predicting this criterion. However, since all scores combined could only account for about four percent of the variance, this study supports a study by Quinn (1986) that total GED scores were not helpful predictors of success in college. Correlations between total GED test scores and student performance as measured by grade point average, while statistically significant, were small.

There was a Pearson product-moment correlation coefficient of 0.19 between the mean GED scores and grade point average for the program area of Business Education. The correlation coefficient was statistically significant between writing (0.26) and grade point average and between reading (0.25) and grade point average. Using stepwise multiple-regression correlation analysis, a positive relationship (R) was found (0.35) to exist between the subtests of the GED and grade point average for those students in Business Education. Twelve percent of the student's GPA overlapped with the GED scores in this area (common variance = .1225).

The Pearson product-moment correlation coefficient of 0.37 was significant between the mean GED scores and grade point average for the program area of Engineering Technology with a coefficient of 0.37 for writing and grade point average and 0.50 for social studies and grade point average. The multiple correlation coefficient (R) was 0.63 between all subtests and grade point average. Over one third of the variance could be predicted in the area of Engineering Technology (common variance = .3969).

In the area of Vocational-Industrial Education, the Pearson product-moment correlation coefficients between mathematics and grade point average (0.36) and between the total GED score and grade point average (0.12) were both statistically significant. The multiple correlation coefficient (R) was 0.81 between all subtests and grade point average. Almost two-thirds of the variance could be predicted in the area (common variance = .6561).

Even though there were differences, the Pearson product-moment correlation coefficients between the subtests and grade point average were not significant at the .05 level for either Allied Health Education or General Education.

From the data presented, the subjects of this study proved to be solid C-average students. The mean GPA of the 232 students was 2.487 on a 4.000-point scale. Of this group, 73.3 percent performed at or above the C-average (2.000) level. With no available average GPA for the entire student body of the institution, there exists no data to compare these previous high school dropouts with the rest of the student body. Sharon (1972) concluded that many GED test graduates had

done as well as their high school graduate counterparts; Ayers (1978) concluded that there was no significant difference between either grade point averages or academic success of traditional high school graduates and GED graduates; and results of a study done by Clark (1987) indicated that no significant difference was found to exist between academic achievement by GED graduates and high school diploma graduates. According to McLawhorn (1981), Adult High School Diploma graduates showed slightly higher academic achievement as compared with the GED graduates because GED students chose the GED program for short-term convenience and because no study time is required.

The Pearson product-moment correlation coefficients between the subtests and hours earned were not significant at the .05 level for any of the program study areas included. The average number of quarter hours completed by the total sample was 25.078; however, since the programs vary in the number of hours required for completion, it is not appropriate to draw any conclusions from the number of quarter hours completed.

Interpretations

Results of this study support the hypothesis that the GED is a valid predictor of two-year college performance in some program areas of study. It is recommended that performance on the GED be used as a major tool in advising the high school nongraduate who expresses a desire to return to formal training at the two-year college level and that performance on various subtests be considered along with the area of study into which the prospective student wishes to enter. A transcript of GED scores, rather than merely a copy of the equivalency

certificate, should be required. This would permit access to scores on the five subtests and allow the adviser a greater information base from which to draw conclusions.

The use of the total sample (232) of GED recipients who received the certificate through testing at Asheville-Buncombe Technical Community College and enrolled in courses there lends validity to the calculated coefficients representing true relationships. The relationships would be of little value for most prediction purposes since they are low. According to Gay (1987), a correlation coefficient much below 0.50 is generally useless for either group prediction or individual prediction. Coefficients in the 0.60s and 0.70s are usually considered adequate for group prediction purposes, and coefficients in the .80s and above for individual prediction purposes. (p. 234)

The magnitude of the validities found for the GED test in predicting grades, while not always statistically significant, indicates that the tests are useful and appropriate for the selection and guidance of nontraditional students in higher education. Subgrouping on the basis of age as a moderator variable directly raised the predictive accuracy of the tests in the area of Engineering Technology for grade point average from 0.63 to 0.79, and in General Education, it was raised from 0.29 to 0.87.

Results of this study suggest that the GED test is useful for admission and advisement of college candidates who have not formally completed high school. The primary effect of having taken the GED for the nontraditional student sample could eliminate a barrier to enrollment in formal higher education. The tests could also affect

some of the candidates by influencing their choice of major fields and careers.

More detailed research is warranted to extend basic findings of this study, but the use of GED scores as an advisement aid seems promising. In addition, this study offers evidence that GED recipients were successful students in a two-year college. More research is warranted, too, by the fact that one new aspect, that of writing a composition, has been added to the GED. During 1988 GED testing centers began using new forms of the Tests of General Educational Development. Statistics could easily be kept from the beginning on results from these new forms.

Conclusions

This study will provide GED training and testing centers across North America with new and useful information about the GED recipient and academic success.

Findings of this study support those of Colert (1984) and Rogers (1979). The study by Rogers determined the mean age of high school equivalency students attending a small college to be just over 30, four years more than the 26-year mean age for the Colert study. The mean age found in this study for GED recipients enrolled in A-BTCC was 24. The mean grade point average in this study was higher (2.49) than that found either in the study by Colert (1.89) or Rogers (1.17).

This study met the goals of providing descriptive and analytical data about GED recipients attending Asheville-Buncombe Technical Community College. The study was important to A-BTCC and the education community because GED recipients have been allowed admission into

college since 1972, and no data had been reported on their performance at A-BTCC until this study.

The Learning Lab at A-BTCC is a GED testing and training center. As this study indicated, GED test scores have a positive correlation with academic success. The number of high school equivalency applicants, concerned about their chances for success in college programs, has increased annually at A-BTCC. Results of this study should provide the admissions office with current statistics on expected levels of success for purposes of advising applicants who are GED recipients.

Conclusions can be drawn from this study about the academic achievement of GED recipients attending A-BTCC. Results of the correlation coefficients and stepwise multiple-regression analyses conducted indicated that significant relationships existed between four independent variables (writing, social studies, reading and total score) and the dependent variable of grade point average in overall total GED score; between two independent variables (writing and reading) and the dependent variable of grade point average in Business Education; between three independent variables (writing, social studies, and total score) and the dependent variable of grade point average in Engineering Technology; and between two independent variables (mathematics and total score) and the dependent variable of grade point average in Vocational-Industrial Education.

This study's findings support earlier studies by Ayers (1978), Byrd (1973), Wolf (1980) and other researchers who found that GED graduates compare well in academic success with traditional high school

graduates. A study by Sharon (1972) showed a modest relationship between GED scores and persistence in college. This study found similar results to those of Sharon (1972) and Swarm (1981) that a relationship exists between GED test scores and college achievement.

Based on these conclusions, the GED program at A-BTCC holds significance for area non-high school graduate adults who want to improve their educational status. Further, results of this study indicate that the GED graduate is a worthy prospect for recruitment into college level programs. Results of this study could prove particularly important to the fulfillment of A-BTCC's commitment as a community college to help meet the individual needs of the neglected species ... the adult learner.

For many adults, completing the GED program may provide the motivation to continue their education, particularly in technical schools and/or colleges. (Sabino, 1988) Sabino analyzed eight studies each including data about education and training in which the respondents enrolled after the GED test. No less than eight percent in one study and as many as 46 percent of the participants in another were engaged in some kind of new training or education after acquiring the GED certificate.

This study supports recent reports indicating that college and university reforms are ignoring that huge portion of the population that will never earn a bachelor's degree ... the "neglected majority". According to Dale Parnell (1988), President of the American Association of Community and Junior Colleges, the national high-school dropout rate is 27 percent, and three out of four of those ordinary students who

either graduate or receive the GED certificate will enroll in higher education but will not go on for a bachelor's degree. Parnell reports that to keep those students in school and train them for the growing number of new technology-based jobs, community college educators must actively coordinate their curricula with the high schools. (pp. 138-139). In recommending a return to the basics, the reports overlook the ordinary student and put forth a definition of excellence that may be too narrow.

Based on data presented, students performing well on the writing, social studies, and reading sections of the GED performed better academically (C-level) in a two-year community college. Students who performed well on writing and reading and entered the program area of Business Education were more likely to be in the C- and B-level ranges. Students in the Engineering Technology program scored higher in writing and social studies with 50 percent falling in the C-level grade point average. Students in Vocational-Industrial Education scored higher in mathematics with 45 percent making B-average grades. The Pearson product-moment coefficients were not statistically significant between the subtests of the GED and grade point averages in the areas of Allied Health Education and General Education.

Recommendations

Based on the results of this study, the following recommendations are offered:

Programmatic

1. Administrators, instructors, counselors and learning laboratory coordinators in college should emphasize through speeches, news media,

and college publications the potential worth of the GED program on the educational growth of non-high school graduates. Educators should publish information on the success of GED test graduates in college.

2. College administrators should continue to improve the instructional program and the educational services available for adult non-high school graduates at A-BTCC through both annual program evaluation and financial support.

3. Admissions counselors should enroll GED test graduates on the same basis as traditional high school graduates, requiring them to furnish official copies of their GED test scores. High school equivalency students, applying to A-BTCC who are young and/or have low GED test scores should be advised of the possibility of poor scholastic achievement and should be provided with guidance and assistance to improve their chances of success. Remedial courses should be recommended. Orientation efforts should be expanded to provide GED recipients with more concrete information and help when getting started in a program at A-BTCC.

4. Learning laboratories for GED completion should be located in as many different locations in the college service area as needs require. A learning skills specialist and/or counselor should be in the Learning Lab and should be visible on the A-BTCC campus so that GED recipients could become more aware of the sources of help available to them for academic assistance. Applicants should be referred to counselors in the Learning Lab.

5. A-BTCC should implement an active and continuing program for recruitment of both adult non-high school graduates for the GED program

and GED graduates for college-level work. GED graduates should be encouraged to attend college. A-BTCC should undertake ongoing follow-up studies of the GED recipients admitted to and attending the institution to further expand this study and provide new and useful information.

6. If adequate support is provided, GED graduates should be utilized more in recruiting efforts. They are examples of program successes and, as advocates, they are likely to be in contact with others who need to be participating in a GED program. This is particularly recommended to reach those young adults who have left formal school programs before graduating from high school. GED graduates showing increased feelings of self-confidence and self-worth should be able to express the benefits to those who have withdrawn from basic educational pursuits.

7. The certificates awarded GED recipients should be accompanied by studies such as this one (in brief form) in order to encourage candidates to continue their formal education.

Further Study

8. More detailed research is needed to follow up on this study and to include the 1988 edition. Ongoing research is needed at Asheville-Buncombe Technical Community College to keep up with the increase of GED recipients enrolling in college level courses. This isolated study may not generalize everywhere, and individual institutions and GED Administration Centers should conduct similar research on their own.

There is no longer a reason to expect that only people with high school diplomas achieve success at institutions of higher education. With the growing popularity of the GED tests, the adult high school diploma program and other alternative entrance systems for adults at universities throughout the world, more nongraduates of traditional high schools will be entering and achieving success at institutions of higher education. The Tests of General Educational Development, as one alternative access route, can be expected to play an increasing role in the future of higher education, and studies such as this one at Asheville-Buncombe Technical Community College will contribute to the further understanding of the academic potential of non-high school graduates. The results of this study demonstrated that high school nongraduates may expect to experience success in two-year college training. The study shows that GED completion status in itself should not be viewed as a screening device for admission, but rather as an advisement tool during admission. In an era of open admission for the two-year college, such usage has obvious benefits.

BIBLIOGRAPHY

- American Council on Education. (1978). The Tests of General Educational Development. Washington, DC.
- American Council on Education. (1988). The 1988 Tests of General Educational Development. Washington, DC.
- American Psychological Association. (1988). Publication Manual of the American Psychological Association (3rd. ed.). Washington, DC: American Psychological Association.
- Atwood, S. (1988, March/April). GED success story. GED Items Washington, DC: American Council on Education.
- Ayers, C.V. (1980). An educational and employment growth study of general educational development (GED) graduates of Surry Community College. Ft. Lauderdale, FL: Nova University (ERIC Document Reproductive Service No. ED 196 472).
- Ayers, C.V. (1978). A study to compare the academic success of the general educational developmental test graduates and the high school graduates at Surry community college for the 1977-78 academic year. Ft. Lauderdale, FL: Nova University (ERIC Document Reproductive Service No. ED 184 650).
- Asheville-Buncombe Technical Community College. (1988). Handbook. Asheville, N.C.: Available from A-BTCC Campus.
- Byrd, F., Hayes, E., Hendrix, J. & Simpson, D. (1973). A comparison of the educational success of GED recipients and traditional high school graduates in selected areas at Wilkes Community College (North Carolina). Wilkesboro, NC: Wilkes Community College. (ERIC Document Reproductive Service No. ED 100 439)
- Cervero, R. M. (1983, April). A national survey of GED test candidates: preparation, performance, and 18-month outcomes. Adult Literacy and Basic Education, 7, 13-29.
- Clark, Renee Smith (1987). Academic achievement of GED graduates of the community college of Allegheny County. PA: Community College of Allegheny County. (Report). (ERIC Document Reproductive Service No. ED 284 050).

- Colert, Sherril (1984). A study of the academic achievement , attrition and group reactions of high school equivalency students attending Brandon University. Ft. Lauderdale, FL: Nova University. (Applied Research). (ERIC Document Reproductive Service No. ED 256 191).
- GED Testing Service. (1968). GED Manual for testing Washington, D.C.: American Council on Education.
- GED Testing Service. (1984). GED Teacher's Manual. Washington, DC: American Council on Education.
- GED Testing Service. (1988). Examiner's Manual for the Tests of General Educational Development. Washington, DC: American Council on Education.
- GED Testing Service. (1987). The 1986 Statistical Report. Washington, D.C.: American Council on Education.
- McLawhorn, Kay B. (1981). Investigation of the post-secondary performance of high school diploma graduates in a two-year institution. Whiteville, NC: Southeastern Community College (ERIC Document Reproductive Service No. ED 203 042).
- Parnell, D. (1986). The neglected majority. Washington, DC: American Association of Community and Junior Colleges.
- Pawasarat, J., Quinn, L. & Bouman, J. (1986). Research of the GED credential and its use in Wisconsin. Wisconsin Department of Public Instruction. (Study). (ERIC Document Reproductive Service No. ED 274 811).
- Popham, W. J. & Sirotnik, K.A. (1973). Educational statistics: use and interpretation (2nd ed.). New York: Harper & Row.
- Quinn, L. M. (1986). Performance of GED holders enrolled at the University of Wisconsin's thirteen campuses: 1979-1985. Madison, WI: Wisconsin State Department of Public Instruction. (ERIC Document Reproductive Service No. ED 274 813).
- Rio, N.H., Hull, C.H., Jenkins, J.G., Steinbrenner, K, & Bent, D.H. (1975). Statistical package for the social sciences (2nd ed.). New York: McGraw-Hill.

- Rogers, G. W., Jr. (1977). First semester college performance of GED testees. KY: Northern Kentucky University. (ERIC Document Reproductive Service No. ED 146 857).
- Roueche, J. E. (1968). Salvage, redirection, or custody. Washington, DC: American Association of Junior Colleges.
- Roueche, J.E. (1972). A modest proposal: students can learn. San Francisco: Jossey-Bass, Inc.
- Sharon, A.T. (1972). Predicting the college success of non-high school graduates with the tests of general education development. Educational and psychological measurement, 32, 1055-1058.
- Sharon, A.T. (1972). The non-high-school-graduate adult in college and his success as predicted by the Tests of General Educational Development. Princeton, NJ: Educational Testing Service. (ERIC Document Reproductive Service No. ED 109 168).
- Swarm, Christine C. (1981). Three studies of general educational development. US: Educational Resources Information Center. (ERIC Document Reproductive Service No. ED 211 696).
- Whitney, D. R. & Patience, W.M. (1981). Reliability and validity of the GED tests. Educational psychology measures, 46, 689-98.
- Wolf, J.C. (1980, Fall). Predictive Validity of the GED Tests for two-year college study South Plains College, Texas. Office on Educational Credit and Credentials News. Washington, DC: American Council on Education.
- Wolf, John C. (1983). Tests of general educational development as a predictor of 2-year college academic performance. Measurement and evaluation in guidance, 16, 4-12.