

AN ABSTRACT OF THE  
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Title: Community College Attrition of GED Certificate Holders and Regular High School Graduates: A Comparative Study Using National BPS Data.

Abstract approved:

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Larry D. Roper

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Abstract:

This study was purposed to extract, collate, and statistically format data contained in the national Beginning Postsecondary Students (BPS) Longitudinal Study: 1996-2001 database that pertained to persistence and attainment rates of GED recipients who began their postsecondary education at a community college during the 1995-96 academic year. The primary objective was to reckon the attrition rate of GED recipients during their first year of enrollment (FY 1995-96), and to measure degree or certificate attainment rates of that particular cohort of GED enrollees at the end of a 6-year study period (FY 2000-01).

Several significant findings related to the academic prowess and characteristics of a cohort of GED students who enrolled in public 2-year educational institutions during the BPS:1995-96 study period are presented in this study. One of those findings is that the attrition rates of the GED recipients and the high school graduates who concurrently enrolled full-time at community colleges during the 1995-96 academic year were closely proximate

by the end of their first year of enrollment (52.6% HS dropout rate versus 54.8% GED dropout rate). Another interesting finding is that accumulated GPAs of GED recipients who participated in the BPS:1996/2001 and who persisted through their first academic year as full-time enrollees in community colleges were slightly higher than their counterpart BPS:1996/2001 cohort of high school graduates who concurrently enrolled at community colleges.

The statistical data reported in this study were garnered from a database administered by the US Department of Education; however, because this study presents its findings in the form of raw, unweighted data, it does not statistically reflect national representativeness.

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Community College Attrition of GED Certificate Holders and Regular High School  
Graduates: A Comparative Study Using National BPS Data.

by  
Angela C. Long

A DISSERTATION

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APPROVED:        **Redacted for privacy**

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Dean of the Graduate ~~School~~

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Angela C. Long, Author *o*

## TABLE OF CONTENTS

	<u>Page</u>
1. Introduction to the Study.....	1
1.1 General Introduction .....	1
1.2 Inception of the Study.....	3
1.3 Significance of Study.....	5
1.4 Purpose of Research.....	8
1.5 Research Questions.....	9
1.6 Conceptual Framework.....	10
1.8 Limitations of the Study.....	12
1.9 Definitions.....	14
Overview Summary.....	15
2. Review of Relevant Literature.....	17
2.1 General Introduction.....	17
2.2 Statement of the Problem: Nontraditional Student Attrition at Community Colleges.....	20
2.3 Models Used To Explain Student Attrition.....	22
2.4 Deficiencies In Current Research.....	24
2.5 Drawing Distinctions Between Categorical Groups.....	27
Summary.....	29
3. Overview of Research Methodology.....	33
3.1 General Introduction.....	33
3.2 Student Universe of the BPS: 1996/2001 Study.....	34
3.3 Institutional Universe of the BPS: 1996/2001 Study.....	37
3.4 BPS: 1996/2001 Tracking Methodologies.....	39
3.5 Management of the BPS: 1996/2001 Data.....	40
3.6 BPS: 1996/2001 Data Analysis System.....	41
3.7 Dependent and Independent Variables.....	42
3.8 Data Analysis and Limitations.....	43
3.9 Statement of Strategy for Protection of Human Subjects.....	47
Summary.....	48
4. Presentation of Data and Data Analysis.....	49
4.1 General Introduction.....	49
4.2 Overall Student Universe by Institution Level: BPS: 1996/2001.....	51

## TABLE OF CONTENTS (Continued)

	<u>Page</u>
4.3 Student Populations at Public 2-Year Colleges.....	53
4.4 Summary of Student Characteristics.....	54
4.41 Age.....	55
4.42 Gender.....	57
4.43 Race/Ethnicity.....	58
4.44 Marital Status.....	61
4.5 Seeking Answers to the Research Questions.....	63
4.51 Research Question #1.....	63
4.52 Research Question #2.....	68
4.53 Research Question #3.....	71
4.54 Research Question #4.....	75
4.55 Research Question #5.....	78
4.6 Caveats Concerning the Findings.....	81
Recapitulation and Synopsis of the Findings.....	83
5. Conclusions, Recommendations, and Implications.....	85
5.1 Measuring Student Outcomes: An Analysis of the Problem .....	89
5.2 Recommendations.....	91
5.3 Five Factors for Improving Student Retention.....	96
Dissertation Conclusion.....	101
Appendices.....	103
A. Description of BPS Data Extraction Process .....	103
B. Glossary of Variables.....	104
References .....	106

## LIST OF FIGURES

<u>Figure</u>		<u>Page</u>
1.	First Institution Type Enrollment by Degree.....	51
2.	Age.....	55
3.	Gender.....	57
4.	Race By Degree Type.....	59
5.	Marital Status By Degree Type.....	61
6.	Attrition By Degree Type: 5 and 10 Months.....	67
7.	Total Credit Hours by Degree Type.....	69
8.	GPA by Degree Type After 5 Months of Initial Enrollment.....	72
9.	Public 2-year Enrollment Outcome - 2001.....	76
10.	Enrollment Outcomes - 1995-96.....	78
11.	Transfer Status.....	80



## LIST OF TABLES

<u>Table</u>	<u>Page</u>
1. Institutional Universe of the BPS: 1996/2001 Study.....	38
2. Overall BPS: 1996/2001 Study Response Rates By Type Of Institution.....	46
3. Level of Enrollment by Degree Type at First Institution: 1995-96.....	52
4. Student Universe at Public Community Colleges: 1995-96.....	54
5. Age: Community Colleges - 1995-96.....	56
6. Gender: Community Colleges - 1995-96.....	58
7. Race - Community Colleges - 1995-96.....	60
8. Marital Status: Community Colleges - 1995-96.....	62
9. Attendance Pattern: Community Colleges - 1995-96.....	64
10. Months Enrolled Full-Time: Community Colleges - 95/96.....	66
11. Credit Hours Earned By Degree Type - 95/96.....	70
12. GPA Earned By Degree Type - 95/96.....	74
13. 2001 Degree Attainment - Community Colleges.....	77
14. Enrollment Outcome: Community Colleges - 1995-96.....	79

## Chapter 1

### AN INTRODUCTION TO THE STUDY

---

*“Embarrassment, disappointment, and desolation can be felt by a student who has failed to meet the academic requirements of his or her institution. Imagine experiencing all of these emotions and not knowing how to get back on track.”*

- Christie Cruise, University of Illinois at Urbana-Champaign -

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In a recent publication entitled *Who Took the GED? 2001 Statistical Report*, it was stated that 25,316,152 people completed at least one of the five batteries of the General Educational Development (GED) tests between the years 1949 and 2002 (Table 3). This same report further noted that 15,393,652 of those test-takers successfully passed all five exams (Table 3). In other words, the number of people who earned a GED diploma during the past 50 years is roughly equal to the combined populations of 17 American states.

Produced and administered by a division of the American Council on Education (ACE), these tests have come to be commonly known as a “high school equivalency” diploma. Indeed, statistical data produced by federal and state agencies have historically lumped together the GED graduates with traditional high school graduates.

It was recently reported by the GED Testing Service (2002) that one out of every seven Americans who earns a high school credential does so through the General Educational Development program. In light of that statistic, it should not surprise any college educator that more than 6 million GED test-takers have received a certificate of completion since 1990 (Digest of Education Statistics, 2003). Additionally, given the fact that roughly two out of every three of the GED test-takers were successful in passing this

battery of exams (ACE 2001 Statistical Report, Table 2), such a total means that nearly 10 million people had been engaged in one or more aspects of the GED testing process during this same time period.

But despite the magnitude of this group of GED students, a dearth of national data nonetheless exists concerning the persistence and attrition of GED graduates at the postsecondary education level. To underscore this point, it is noteworthy that out of the hundreds of articles published in the *Community College Journal of Research and Practice* between January 1992 and December 2002, only one article dealt with GED completers who began their postsecondary education at community colleges (i.e. Soltz, D.F., "The achievements of community college students with GED certificate", *CCJRP*, 20, 269-276). Without question, most research on student attrition has historically been conducted on traditional college students, that is, "those students who are between 18 and 21 years of age, financially dependent on parents, and have graduated with a traditional, four-year high school diploma" (Osei, p. 12).

Perhaps due to this barren landscape of research on post-GED student attrition, counseling personnel at 2-year colleges have essentially been left to draw their own suppositions regarding why GED graduates often experience greater academic difficulty while navigating through the postsecondary education process than do their traditional high school counterparts (Boesel, 2002). Due to the fact that research on nontraditional student attrition is still notably absent in the bulk of literature (Bean & Metzner, 1985; Terenzini & Pascarella, 1991), a reliable national study must first be undertaken that concretely and credibly establishes the attrition rates of GED completers at the postsecondary education level.

## **The Inception of this Study**

### Experience at Two Community Colleges

While working as a part-time employee at a rural Oregon community college during the 2001-02 academic year, I was assigned the job of collating data that pertained to the number of students who had been administered the General Educational Development Tests at this particular testing center during the preceding 5-year period. As the numbers taken from the students' files were being tallied, I was surprised to discover that the overwhelming bulk of this particular GED population became "dropouts" after having been enrolled for two terms or less.

More specifically, I found that out of the 1,186 students who had successfully passed the GED's battery of tests between June 1996 and June 2001, a total of 375 students subsequently were matriculated at the community college where I was employed. Out of that reduced number, I counted only 17 GED completers who persisted to obtain an associate's degree. I was amazed to find that 163 people out of the original 375 matriculated students had dropped out either during or at the end of their first term of college studies. Nearly 44 percent of the GED completers made a volitional decision to leave college less than 3 months after having first been enrolled.

This finding that four out of every ten GED completers left college either during or immediately following their first term served to kindle my curiosity. As a consequence, I wondered: Was this figure of 44 percent an anomaly, being entirely atypical of what was happening at other community colleges?

In order to answer this question, I made a telephone call to another Oregon community college to request information as to what the institution had encountered in

this regard. Two days later, I received my answer: 56.6 percent of GED completers who began their postsecondary education at this other community college did not register for a second term of courses. Out of 534 GED completers who had been matriculated at this other college during the same 5-year period, 302 of them became “college dropouts” in one term or less—a retention problem more statistically significant than what had occurred at my own community college. Thus, the findings from these two Oregon colleges ultimately served as both the fountainhead and the springboard for my doctoral research.

### National Experience

Thereafter, I traveled to Washington D.C. to meet with strategic employees of the National Center for Education Statistics (NCES) and the American Council on Education (ACE)—trained researchers who could offer me advice and guidance regarding the most practical methodologies for collecting GED persistence data on a nationwide basis. During those meetings, I learned that the quantitative data needed for my doctoral dissertation research were likely contained within the dataset of the completed BPS: 1996/2001 longitudinal study.

Through its unique and comprehensive design, the National Center for Education Statistics (NCES) Beginning Postsecondary Students Longitudinal Study: 1996-2001 (BPS: 1996/1998/2001) tracked the academic progress and persistence of a cohort of 12,083 randomly selected students who entered postsecondary institutions for the first time during the 1996 academic year through the end of the 2001 academic year. This cohort was a scientific sampling that statistically represented nearly 3 million other students who concurrently enrolled in 4-, 2-, and 1-year institutions of higher education.

An earlier longitudinal study of similar national importance also conducted by the NCES—specifically, the National Education Longitudinal Study of 1988 (NELS: 88)—monitored the progress of a cohort of 1988 high school graduates over a time span of 5 years. But the BPS: 1996/2001 study differed from the NELS:1988 study in two important respects: (a) the BPS: 1996-2001 yielded a national database which, for the very first time, distinguished GED completers as a categorical group that were separate and distinct from high school graduates; and, (b) data on GED student persistence, attrition, and attendance patterns (which subsequently tracked students from institution to institution) were recorded for the first time. Thus, it is this latter study that opened up new windows of insight and paths of understanding regarding the persistence rates of a cohort of GED completers who were matriculated in either 1-, 2- or 4-year postsecondary institutions of learning during the 1995-96 academic year.

### **Significance of Study**

According to recent research, two out of every three candidates enrolled in a GED program plan on pursuing further education (Black Issues in Higher Education, 2002). Coupled with this finding is the report of approximately 70 percent of all GED test-takers saying they took the GED battery of exams because of a desire to continue their education (Manzo, et.al., 2002). This finding suggests that educational betterment—a resounding theme among college recruiters—is a matter of paramount concern to the bulk of GED completers.

In a recent survey published in Education Week (Gehring, 2002), it was reported that one out of every seven Americans who earns a high school credential does so through the General Educational Development program. During the 2001 calendar year,

slightly more than 1,016,000 residents of the United States and its territorial protectorates took the GED battery of exams (ACE Website, Table 106). The GED Testing Service now estimates that approximately 1 in 20 students enrolled in their first year of college is a GED diploma holder (GED Testing Service, 2002).

In alignment with these statistics is the finding that GED completers who set their sights on associate degrees are only half as likely as high school graduates to attain that goal (Boesel, 1998). Furthermore, it has been reported that of the GED earners who go on to community colleges, as many as 75 percent, drop out of school during the first year of classes (Manzo, et.al., 2002). Certainly numbers of these magnitudes are worthy of the attention of college admissions officers and student support personnel.

Without question, 2-year institutions of higher education are one of the primary sources of GED test preparation. Virtually all community colleges have policies to admit GED graduates, with the majority having earned reputations as providing quality GED testing services. Collectively, they comprise a large proportion of the approximately 3,400 GED testing centers throughout the nation (Community College Week, 2002).

For the majority of GED graduates, community colleges serve as the primary point of access into the postsecondary education process. Students are generally trained for GED preparatory classes in a designated off-campus site and are then required to step foot on a community college campus in order to be tested for GED certification. Due to such contact, many GED students become partially familiarized with the college campus environment and campus staff. Community colleges, in this regard, have the opportunity to attract and matriculate potential GED students interested in pursuing postsecondary education opportunities.

As noted earlier in this chapter, the institutional study that I conducted at one Oregon community college in 2001 reported that roughly 32 percent of the GED certificate holders who were tested between 1996 and 2000 thereafter commenced their postsecondary educations at this same community college (i.e. 375 out of 1186). Furthermore, out of that number, 163 (43.5%) did not register for a second term, having chosen to either “dropout” or “stop-out.” If this particular phenomenon happened to be typical of what occurs at the national level, then it follows that out of the 1,016,000 GED test-takers in 2001, approximately 325,000 of them would have enrolled in public 2-year colleges (i.e. 32% of 1,016,000). However, within a few months after having been first matriculated, roughly 145,000 of that particular cohort of enrollees (i.e. 44.5% of 325,000) would have decided to leave college, thus permanently abandoning their postsecondary education aspirations.

If the scenario described above were in fact happening at the national level, then out of the more than 3 million GED completers expected to enroll in community colleges between the years 2000 and 2010, about half of them will drop out of college shortly after being matriculated. Attrition of this magnitude would, of course, result in the loss of hundreds of millions of dollars in tuition revenues.

Interestingly, only a handful of studies in the past have examined the persistence of GED completers enrolled in 4-year educational institutions. But at the community college level--the public institution where the vast majority of GED graduates launch their postsecondary educations--not a single national longitudinal study has been published so far that deals explicitly with the attrition rates of GED graduates who enrolled in community colleges.



This study will not endeavor to investigate whether or not mentoring services might significantly improve the persistence rates of GED completers who enroll in public 2-year institutions. Nor will it attempt to discuss the ramifications, if any, that financial assistance might have on bolstering retention rates among GED completers enrolled in community colleges. Although issues of such kind are important, a reliable national study must first be undertaken—specifically, a longitudinal survey that concretely and credibly establishes whether substantial numbers of GED completers are, in comparison to their high school counterparts, “falling through the cracks,” both during and at the completion of their first term of college.

### **Purpose of Research**

The primary intent of this research project is to use national data to compare the dropout rates of a cohort of GED certificate holders and a cohort of high school graduates during their beginning two terms of enrollment at community colleges. A secondary objective is to compare the rates of certificate or degree attainment that were experienced by both cohorts during their postsecondary experience at community colleges.

To better understand if the academic performance of GED completers enrolled in community colleges is similar to the prowess of high school graduates, certain demographic characteristics cannot be ignored. For example, many of the GED graduates who enroll in community colleges are several years older than their high school counterparts; and, perhaps due to greater maturity, this population of GED completers are, generally speaking, more motivated to learn than newly graduated high school seniors (Osei, p. 21). On the other hand, older GED students are often less willing to ask an instructor for assistance, simply because of their reticence to confess openly that they

are experiencing difficulties in understanding the assigned coursework (Kerka, 1989).

However, because this particular research project is quantitative in both its scope and design, no effort was made to either collate or analyze qualitative information provided by the BPS: 1996-2001 survey participants that might explain why GED certificate holders prematurely drop out of college. Simply put, this study is geared toward exploring the question of *how many* of our nation's GED completers dropped out of 2-year public institutions during their first and second terms of postsecondary studies, and not on the myriad of *why* or *what* factors that motivated them suddenly to end their college educations.

### Research Questions

In keeping with the primary objective of this study, my focus question was to determine the following: *Is there a significant difference in the rates of attrition between GED completers and high school graduates who began their postsecondary educations at community colleges?* Beyond this main focus question, there are five related subset questions I sought to answer using national data extracted from the BPS: 1996-2001 Data Analysis Systems (DAS), specifically:

1. When measured at the end of 5 months after initial enrollment at community colleges, are the *attrition rates* of GED diploma holders who drop out before completing their first term significantly different from their counterpart cohort of high school graduates?
2. When measured at the end of 5 months after initial enrollment at community colleges, are the numbers of *credit hours* completed by GED diploma holders and high school graduates significantly different?

3. When measured at the end of 5 months after initial enrollment at community colleges, are the *grade point averages (GPA)* of GED diploma holders and high school graduates significantly different?
4. When measured 6 years after beginning postsecondary education at a community college, are the *rates of attainment* of associate's degrees or certificates for GED diploma holders significantly different from their counterpart cohort of high school graduates?
5. When measured 6 years after beginning postsecondary education at a community college, do some GED dropouts subsequently enroll in other postsecondary institutions to continue their formal educations?

#### Conceptual Framework

Although many GED certificate holders begin their postsecondary educations at either 4-year institutions or 1-year trade schools, the list of research questions given above nonetheless focused on the BPS: 1996/2001 cohort of GED completers who enrolled in community colleges during the 1995-96 academic year.

According to a study sponsored by the US Department of Education, 42 percent of all undergraduates were enrolled in public 2-year institutions during the 1999-2000 academic year (Horn, Peter, and Rooney, 2002). Many GED completers begin their postsecondary education at community colleges, simply because of the open access policies found at community colleges. But even though access to community colleges is easily attained, research has also found that a significant number of community college students do not complete a formal credential (Berkner, Horn, and Clune, 2000)

In contrast to public 2-year institutions and 1-year trade schools, the mass of 4-year private and public universities and colleges have admissions policies that require applicants to exceed a certain SAT or ACT score in order to be eligible for matriculation. As a general rule, the more prestigious the school, the higher the SAT or ACT scores required. For example, in order for a GED completer to be favorably considered for admission to any one of the Ivy League's colleges and universities, he or she would need to register a very high score on either the SAT or ACT. This screening process employed by 4-year private and public universities usually establishes a fairly high predictor of retention success for its applicants. For that reason, it could be easily conjectured that a GED completer who begins his or her postsecondary education at Harvard University will, more likely than not, neither "drop out" nor "flunk out" during the first term of enrollment. Olga Ebert's (2002) study at the University of Tennessee provides some corroboration for this supposition, based on her statement that, "During the first semester, 14% of GED graduates and 10.1% of HS graduates dropped out of the university" (p. 53).

Situated at the other end of the postsecondary educational spectrum are the 1-year (or less) for-profit trade schools. Examples of these kinds of institutions would be schools that provide vocational training in heavy equipment operation, or salon hair styling, or long-haul truck driving. As such, a student's overall success in one of these trade schools depends less on his or her ability to perform well on written tests and more on his or her deftness of eye and hand skills, physical strength, and a general ability to use "common sense." Because these types of for-profit schools depend heavily on tuition revenues to stay in business, it would be easy to suppose that many of them would be reluctant to "dismiss" a student who performs only in a marginal manner.

At the center of these two extremes are the 2-year public, not-for-profit, and degree granting institutions, otherwise commonly known as "community colleges." Differing from 4-year private and public institutions that require ACT or SAT scores as one of their several criteria for admission, community colleges have *open admissions* standards. And also differing from the for-profit trade schools, the bulk of payroll costs and other General Fund expenditures at community colleges are commonly paid with tax dollars, not tuition revenues (AACC Fast Facts, 2003). Therefore, due to the low tuition rates and open enrollment policies found at community colleges, it is not surprising that the preponderance of GED completers who seek a postsecondary degree consider these 2-year public institutions to be the most practical and affordable alternative for advancing their higher education objectives.

### **Limitations of the Study**

Research designed to ascertain the persistence or attainment rates (or both) of GED graduates who enroll in 2-year institutions has been limited by a number of factors. One limitation involves the pool of survey participants. That is, most persistence and attainment studies on GED graduates have dealt with a statistically small sampling (i.e., survey universe), usually having been drawn from a single college or university. As such, the longitudinal studies concerned with the aforesaid topics were mostly limited to the academic records of the institutions in which the sample or survey populations were taken. In other words, the researchers did not track the history of their studies' participants from one institution to another. Hence, a study participant classified at one institution as a "dropout" might have subsequently enrolled at another institution years later, of which the researcher would have had no knowledge if only the student records of

one institution were utilized for that researcher's study. Inasmuch as the data analyzed in this study were extracted from the database of the Beginning Postsecondary Students Longitudinal Study: 1996-2001, sponsored by the US Department of Education, National Center for Education Statistics, limitations of the type described above are not germane to this study.

Moreover, this study will not venture to analyze nor take into account the myriad of multiple intelligences that may be associated with individual GED students; that is, to analyze their linguistic, mathematical-logistical, interpersonal, intrapersonal, bodily-kinesthetic, spatial, musical, and/or environmental "intelligences." Rather, this study will focus solely upon persistence and attainment rates of GED students enrolled at 2-year public colleges as compared to their high school counterparts--a juxtaposition which may or may not describe the "whole" picture when considering the overall academic prowess of GED student enrollees.

As noted before, the data collated and analyzed in this study were garnered from the database of the Beginning Postsecondary Student Longitudinal Study: 1996-2001. The National Center for Education Statistics constructed a complex set of statistical analysis weights for analyzing participant responses to BPS: 1996/2001 surveys, including both cross-sectional and longitudinal weights that were used to produce design-unbiased estimates of sampling variances. A limitation of this study is that indeterminate responses and non-responses by the BPS: 1996/2001 survey participants were not adjusted by statistical analysis weights, but rather reported in the form of raw unweighted data; thus, the findings of this research project ought not be deemed as reflecting national representation.

## Definitions

In order to establish clarity of conceptual meaning and avoid undue confusion, several key terms frequently used in this research study are herein defined:

***Attainment*** - A college student's achievement of academic goals that pertain to earning an institutional award of a certificate of vocational or technical achievement, or an associate's degree.

***Attrition*** - When a student drops-out or stops-out of college.

***Credit hours earned*** - The total number of hours earned by a student who has satisfactorily completed all required course work.

***Dropout*** - The action of a student leaving postsecondary education and not returning.

***Educational performance*** - A measure of the academic performance of students that is indicated by the number of credit hours earned, grade point average (GPA), and completion of a program of study.

***General Educational Development (GED) test*** - A battery of five tests, consisting of writing, reading, mathematics, science, and social studies, that are designed to measure the basic skills considered to be the equivalent outcomes of graduating from high school.

***GED graduate or completer*** - A person who obtained a diploma issued upon the successful completion of the GED battery of tests.

***Grade point average (GPA)*** - A measure of academic performance consisting of a performance ratio of earned points to the number of attempted credit hours.

***High school graduate*** - A person who attained a high school diploma upon successful completion of specific units of instruction determined by state Departments of Education and local school boards, and substantiated by means of passing required examinations.

***Nontraditional student*** - A college student described as possessing at least one of seven risk factors that negatively affect persistence, specifically: delayed enrollment; having dependent children; being a single parent; being financially independent; being a GED graduate; part-time attendance in college; working full-time while enrolled.

***Persistence*** - The successful completion of the credit hours required by an institution for the awarding of a certificate, or an associate's degree, or a bachelor's degree.

***Retention*** - Refers to institutional policies and programs designed to keep at-risk and nontraditional students from voluntarily choosing to dropout or stop-out of college.

***Stop-out*** - The action of a student leaving postsecondary education prior to completing his or her 2nd year, then subsequently re-enrolling back into the same institution or into a separate transfer institution.

***Traditional student*** - A college student described as possessing the following characteristics: financially dependent on parents; entered college shortly after graduation from high school; and between 18 and 21 years of age.

### **Overview Summary**

Chapter 1 has briefly identified the purpose of this study and the reasons that led to its inception. In addition, this chapter provided an overview of the study's conceptual framework, its significance, and its limitations and definitions. The next chapter presents a review of literature relevant to this study. Chapter 3 outlines the methodologies used to garner and analyze the data set forth in this study. Thereafter, Chapter 4 presents the findings of this study in a quantitative format. Finally, Chapter 5 concludes this study with a brief recapitulation of any findings that reflect significant differences between the respondents who participated in the BPS: 1996/2001 longitudinal survey, as well as this



author's thoughts regarding any implications of the findings that may warrant further research.

## Chapter 2

### REVIEW OF RELEVANT LITERATURE

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*"There is nothing so stupid as the educated man  
if you get him off the thing he was educated in."*

- Will Rogers-

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#### General Introduction

Soon after his inauguration as President of the United States, George W. Bush pressed Congress for passage of a proposed legislative bill he entitled "No Child Left Behind Act"--a national plan designed to enhance the reading, writing, and math skills of all elementary-aged children. Perhaps a statistic issued in 2001 by the GED Testing Service partially served as an impetus for his action, which stated: "In 2000, there were reportedly more than 50 million adults in the United States and Canada who had dropped out of school and did not have a high school diploma or General Educational Development (GED) certificate" (GED Testing Service, 2002). Given the fact that politicians annually appropriate huge sums of tax dollars to support public education, this statistic becomes noteworthy because of its magnitude.

While it might be easy to suppose that all of these 50 million individuals dropped out of high school because they felt incapable of handling the intellectual rigor of formal instruction, such a presumption lacks merit. Indeed, the Digest of Education Statistics (2003) reported that for each year during the decade of the 1990s, approximately three-quarters of a million high school dropouts took the General Educational Development (GED) series of tests. Even more significant, this same publication also reported that more than 25 million people have taken the GED examination since 1949.

Commonly known as the High School Equivalency Diploma, the GED certificate is awarded to students who are successful in passing proficiency tests in five subject areas: (a) Mathematics - 56 questions, (b) Science - 66 questions, (c) Social Studies - 64 questions, (d) Interpreting Literature and the Arts - 45 questions, and (e) Writing Skills - Part I, 55 questions and Part II, an essay. Since the GED examination process entails a total duration of 7-1/2 hours, students do not take all five exams during a one-day session, but rather undertake only one or two elements at a time over a three-day period.

In 2002, the American Council on Education (ACE) published a document, entitled *Who Took the GED: 2001 Statistical Report*, which detailed the general characteristics and performance of GED candidates. This document utilized data collected at over 3,300 GED Testing Centers located throughout North America, the Caribbean, and the South Pacific. Listed below are some relevant findings contained in that publication:

- Of those who took the GED examinations during 2001, about one-fourth of them (26.0 percent) were between 20 and 24 years of age, and another quarter (25.2 percent) ranged in age from 25 years to 39 years. The average age of GED test-takers (38.4 percent) was between 16 and 19 years of age.
- Two out of every three adults tested in 2001 (66.5 percent) reported completing the 10th grade or higher prior to leaving high school. One of every three adults (37.2 percent) reported completing the 11th or 12th grade prior to leaving high school.
- Between the 1988 and 2001 GED test series, the number of GED candidates who expressed their interest to enroll in postsecondary institutions after completing the

test battery increased by nearly 20 percentage points during that 14-year span (from 47.5 percent in 1988 to 65.5 percent in 2001).

Aside from these findings published in the ACE sponsored report, other recent research also found that two out of every three candidates enrolled in a GED program had expressed to their instructors a firm intent to pursue a postsecondary education of some kind (Black Issues in Higher Education, 2002). Yet because GED completers often experience great difficulty while navigating through the postsecondary process, many prematurely leave college during their freshman year. As a consequence, GED graduates who aspire to earn an associate's degree are only half as likely as high school graduates to achieve their professed educational goal (Boesel, 1998).

Educators have long been cognizant of the problem of student attrition. Perhaps because most educators were themselves high school graduates--i.e., pure traditional students in every definitive sense--the bulk of research on student attrition at the postsecondary level has tended to be biased toward traditional students who attend 4-year institutions. In particular, research dealing with nontraditional student attrition is still notably absent in the bulk of literature (Bean & Metzner, 1985; Terenzini & Pascarella, 1991), not to mention a dearth of literature that examines in-depth the attrition and persistence rates of GED graduates attending community colleges.

Nonetheless, given the limited availability of literature on GED student attrition and retention at community colleges, this researcher endeavored to focus this literature review around six key areas of study. The first section in this chapter addresses nontraditional student attrition at community colleges. The second section reviews the current models used to explain student attrition. Section Three reports on deficiencies in

current research. Section Four discusses the need to draw distinctions between categorical groups. And, finally, Section Five concludes with a summarization of Chapter 2 and prepares the reader for Chapter 3, which discusses this study's research methodologies.

### **Statement of the Problem: Non-Traditional Student**

#### **Attrition at Community Colleges**

One of the fundamental missions of public 2-year institutions is to provide nontraditional students, such as high school dropouts, with a "second chance" to further their formal educations. In the year 2003, the American Association of Community Colleges counted a total of 1,171 community colleges operating in the United States and its protectorates and territories. Of that total number, 992 were public institutions, 148 were private institutions, and 31 were tribal institutions (AACC Fast Facts, 2003). The ERIC Clearinghouse for Community Colleges reported that 49 percent of *first-time* freshman began their postsecondary education at a community college, with the average age of students being 29, and the median age being 25 (ERIC ED 379 036). Given this figure, it seems clear that community colleges matriculate a far higher percentage of nontraditional students than do 4-year institutions (Horn, Peter, and Rooney, 2002; NCES Descriptive Study).

The majority of studies reveal that overall student retention is critical to the community college environment (Manzo, et.al., 2002, p. 503). However, the way in which student retention and attrition is defined and measured is a problem for community colleges. Due to the fact that community colleges are less homogeneous than any other type of college or university, it has become difficult to generalize the definitions and measures developed for student retention in 4-year institutions.

Traditionally, college and university administrators have perceived student attrition as being a problem that warranted their attention and concern (Hunter, 1992). Indeed, when students voluntarily leave a college or university before earning a degree or certificate, the negative consequences are considerable, especially for small private colleges that depend greatly on tuition dollars as a prime source of revenue needed to pay for their staffing and overhead costs. Not only does the loss of tuition and fees present budgetary problems for private college administrators, but the resultant decrease in the number of students enrolled also serves to negatively impact recruiting costs and graduation rates--an outcome which in turn brings about a loss of public and government confidence in the affected college (Gill, 1993a).

Differing from 4-year colleges and universities, public 2-year institutions essentially have been the product of their local communities (Community College Policy Center, 2002). Because these uniquely American institutions reflect the priorities and resources of the vast array of cities and counties that created them, it should be expected that community colleges would likewise mirror widely diverse patterns of public governance and support. Consequently, researchers have faced an arduous task when attempting to track and report on how these public 2-year institutions are funded (Community College Policy Center, 2002).

One could reasonably imagine that the overwhelming bulk of community college administrators adjudge the revenue collected from tuition fees as essential for sustaining the budgetary well-being of their respective institutions. From a financial standpoint, therefore, if half of all GED graduates who enroll in community colleges were to leave without return after their first term of studies, the total loss of tuition revenues over a

2-year period (assuming an average tuition fee of \$50 per credit hour) would amount to about \$630,000,000 [i.e.,  $.50 \times 300,000$  total GED students  $\times$  84 credits  $\times$  \$50 per credit = \$630,000,000]. Surely a revenue loss of this magnitude for community colleges cannot be regarded as inconsequential to their operational budgets.

As a parenthetical aside, the negative impacts that result from student attrition extend far beyond the institutional level. Students also suffer various kinds of losses when they choose to drop out of college before earning a degree. Beyond sustaining a loss of financial resources already invested, many dropouts are also adversely impacted by counterproductive psychological phenomena, such as anger, low self-esteem, depression, and frustration (Gill, 1993b).

### **Models Used To Explain Student Attrition**

As early as the 1950s, educators began to formulate new and varied theories for explaining the complex phenomenon of student attrition (Pantages & Creedon, 1978). When record numbers of nontraditional students began to enroll in postsecondary institutions three decades later, a few researchers shifted their focus away from traditional college students and towards nontraditional postsecondary students, including GED graduates and adult learners (Bean & Metzner, 1985, Villella & Hu, 1991).

The theories developed by William Spady (1970) and Vincent Tinto (1975) became paradigms for explaining the causal factors of student attrition. One of the basic concepts in Tinto's theoretical model, which gained wide acceptance in the educational community shortly after its introduction, was simply this: Students who experience socialization problems while on campus are at greater risk of becoming college dropouts than students who easily adapt to the campus environment.

During the latter part of the 1970s and first half of the 1980s, models similar to Tinto's were proposed and tested by other theorists. As one example, Pascarella and Terenzini (1979) asserted that the absence of social integration and interactions with other college members is the single leading predictor of student attrition.

But by the mid-1980s, it became increasingly evident that Tinto's attrition model was more applicable to traditional students than nontraditional students. Bean and Metzner (1987) surmised that the issue of campus social integration was less impacting as an attrition risk factor for nontraditional students than were off-campus environmental issues such as family responsibilities, household finances, and hours of outside employment. With that view, they sought to compare the persistence rates of two groups of nontraditional students, specifically: (a) those who were earning good grades, yet struggling at the same time with environmental problems such as lack of family support, lack of adequate finances, lack of adequate child care, and lack of employer support, versus (b) those who were struggling academically, but were receiving good support from their family members and employers, and who also were relatively free of any child care and household financial problems. Their findings led them to opine that the best predictors of dropout were intent to leave and GPA, followed by one or more of the off-campus environmental variables.

Bean and Metzner's hypothesis--the notion that negative environmental factors can significantly interfere with nontraditional students' persistence and attainment of college degrees--was affirmed several years later during the analysis of data collected in a national study sponsored by the federal government (Berkner, Cuccaro-Alamin, & McCormick, 1996). Indeed, the National Center for Education Statistics, a division of the



US Department of Education, now defines nontraditional college students as those who possess one or more of the following seven factors of predictive risk: (a) delayed enrollment; (b) having children at home; (c) being a single parent; (d) attending college part-time; (e) being financially independent; (f) working full-time while enrolled in a postsecondary institution; and (g) being a GED graduate (NCES Fast Facts, 2001).

It is especially noteworthy that six of the seven criteria used by government officials to define nontraditional students at risk of prematurely dropping out of college consist of *environmental factors*. Only one of the seven risk factors described by the National Center for Education Statistics pertains to an *academic trait*--namely, the possession of a GED certificate. Certainly it is likely that many (if not most) of the GED students enrolled in community colleges would describe themselves as being impacted by one or more of the six environmental risk factors used by the US Department of Education to define "nontraditional" students. But if educators have accurately assessed the GED certificate as reflecting the educational equivalency of a high school diploma, then another question is raised that requires an answer, specifically this: Why should the possession of a GED certificate be a risk factor used to predict student persistence and degree attainment if it is indeed the equivalent of a high school diploma?

### **Deficiencies in Current Research**

Of the scant number of researchers who did investigate the topic of GED student attrition, nearly all underscored the need for further research. For example, Olga Ebert (2002) endeavored to answer the question of whether or not the academic performance and attrition rates of GED diploma graduates who enrolled at the University of Tennessee were similar to their counterpart high school graduates. She summarized her own

experience in finding relevant outside research with this single sentence contained in the summary element of her dissertation paper's literature review section: "Only one study found examined GED diploma students' academic performance and persistence and attrition rates in more than one institution, that is a state-wide system" (p. 51).

Another example is the research project undertaken by Monica Osei (2002), a doctoral candidate who sought to measure and compare the academic performances of both GED diploma students and traditional high school graduates who began their respective postsecondary education at various 4-year institutions within the state of Virginia. In the second chapter of her dissertation paper, she reflected the essence of her literature review findings with these two sentences: "...Most of the studies reviewed usually compared younger HS graduates to older GED recipients. Very little, in fact, is known about comparability of performance of GED and HS graduates of similar age, particularly in 4-year institutions" (p. 36).

Nearly a decade earlier, Bonnie Kroll (1993), author of a research paper entitled, "Does the Key Fit the Lock? A Review of Research on GED Recipients in Community Colleges" sought to piece together several small studies that compared the academic performance of GED completers and high school graduates who began their postsecondary education experiences at public 2-year institutions. After collating data on this topic that had been published over the course of the preceding two decades, she arrived at five major conclusions, specifically: (a) GED students had not achieved the same level of academic success as their high school counterparts; (b) GED students were more likely to be older and female; (c) GED students enrolled full-time at community colleges had lower grade point averages than high school graduates; (d) GED students

enrolled full-time at community colleges had completed fewer academic credits than their high school counterparts; and (e) the persistence rate of GED enrollees at community colleges was not significantly different from that of high school graduates. These five conclusions persuaded her to draw a sixth determination--the GED is a valid and reliable student entrance certificate.

As mentioned earlier in this chapter, nearly half of first-time college freshmen begin their postsecondary education at community colleges (NELS88 postsecondary file; ERIC ED 379 036). However, relatively little research has been conducted on the national level which dealt with student persistence at these 2-year institutions. Between 1966 and 2000, numerous studies were published on the topic of student persistence; yet, only about 10 percent of those research projects included information that pertained to community colleges (Langrehr, 2003).

Only a small number of isolated studies have been conducted that focused on GED completers enrolled in 4-year colleges and universities (Osei, 2002). On the other hand, several research papers were published that examined the attrition and persistence rates of GED graduates enrolled in community colleges. But the researchers' point of concentration in nearly all of those studies was exclusively local in its scope. In other words, each of the aforesaid researchers utilized data garnered from one (or two, at the most) community colleges located in a single state.

Given the fact that community colleges are less homogeneous than any other type of college or university, it therefore becomes a difficult feat to derive statistics that allow for any kind of national generalization of these researchers' local findings. Simply stated, the data necessary for formulating credible hypotheses as to what is happening nationally

in respect to attrition and persistence rates of GED completers enrolled in community colleges is at grave risk of being unreliable if its fountainhead consists of information collected at just a single postsecondary institution. As such, all of the longitudinal studies that examined the rates of persistence and attrition of GED graduates enrolled in community colleges were similarly flawed in this single respect: None of these several localized studies engaged in follow-up "tracking" of GED dropouts to find out if any of them subsequently enrolled at another postsecondary institution.

It may be said that small studies have value on a large scale if there is found to be consistency within the researcher's findings. This is not to say that small studies do not have value within their own particular institution. However, due to the fact that each of the above studies presented on pages 25-26 provided differing reports and varying patterns of consistency, it becomes apparent that a large national study must be conducted in order to ascertain appropriately GED student performance from a consistent "macro" point of view.

### **Drawing Distinctions Between Categorical Groups**

Prior to the publication of the Beginning Postsecondary Student Longitudinal Study: 1996-2001 by the National Center for Education Statistics (July, 2002), no distinction was made between high school graduates and GED graduates in respect to statistical categorization. Briefly stated, national attrition studies on postsecondary students lumped nontraditional students who earned General Educational Development certificates together with traditional high school graduates into the same categorical bin. Hence, in order to measure accurately the attrition rates of GED graduates who enrolled in postsecondary institutions, they must necessarily be categorized as a separate and

distinct group from high school graduates--a classification first done on a national level by the BPS: 1996/2001 longitudinal study.

Interestingly, one of the background markers given in the National Education Longitudinal Study of 1988 (NELS: 88/2000) is that 47 percent of those who began their postsecondary education in community colleges ultimately attended more than one institution. When the data variables for the NELS survey were constructed, no distinction was made between high school graduates and GED graduates. As such, both groups were categorized as a single variable. Hence, if nearly half of all community college students are matriculated in at least two institutions during the postsecondary education experience, and given the fact that the NELS88 study did not distinguish high school graduates from GED graduates, then this question arises: Were there any GED graduates contained within that 47 percentage figure? If the answer to that question happens to be "yes," then corroboration exists for doubting the veracity of research that failed to ascertain whether GED graduates who prematurely left college might have subsequently enrolled in another institution.

Additionally, as part of its data collection practices, the US Department of Education incorporates figures codified in the *Current Population Survey* of the US Census Bureau. Known by the acronym CPS, this survey seeks to collect information by telephoning a representative sampling of households to ask numerous questions, including a query that seeks to find out how many of the households' members over the age of 18 have earned a high school diploma. Some educators argue that this survey methodology may inflate the graduation-rate estimate for young African-Americans and Hispanics, principally because an unknown percentage of these interviewees may be

inclined to overstate their educational achievement to compensate for workforce discrimination (Greene, 2002). Indisputably, the reliability of research data collected by means of personal surveys--a common methodology employed by researchers who undertake qualitative studies that seek to discover reasons *why* something happened--depends greatly on the truthfulness of its survey respondents.

### Summary

This literature review concludes with two primary reasons as to why traditional theories developed in the university system regarding retention studies are not well suited for nontraditional students at community colleges. The first reason is that demographic and socio-economic factors correlative to nontraditional community college students are somewhat different from those relating to students attending 4-year colleges. The second reason is that external forces, particularly those germane to community forces in the immediate geographical environment of the college's service area, affect student goals and outcomes (Mohammadi, 1996).

While it is certainly true that the acquisition of a GED certificate enables a high school dropout to gain admittance into postsecondary institutions, there are those college admissions officers who hold the opinion that a sufficient body of research evidence presently exists to conclude that GED graduates persist in postsecondary institutions at a significantly lower rate than their high school counterparts, most notably during the first two terms of their freshman year.

On the other hand, the American Council on Education (ACE), a private organization that represents regional education associations as well as institutions of higher education, seeks to foster the notion among education and government leaders that

GED graduates are the academic equals of high school graduates. This campaign has achieved some degree of success over the past several decades. For instance, the US Census Bureau and the US Department of Labor, two federal agencies that collect statistical data for the US Department of Education's consumption through a joint endeavor known as the Current Population Survey (CPS), have joined ACE in proclaiming these two types of high school certifications as reflecting academic equivalence.

But Stephen Cameron and James Heckman (1993), professors of economics at the University of Chicago, take issue with that view, contending instead that "exam-certified high school equivalents are not identical to traditional high school graduates in terms of their ability as measured by a standard psychometric test (Armed Forces Qualifying Test), in terms of their wages and hours of work or in terms of their post-certification education and training decisions." Heckman, a Nobel prize winner in Economic Sciences, asserts that "GED-certified persons are closer to high school dropouts than traditional graduates in their measured ability and in their market status" (p.2). The conclusion to their research, which was jointly sponsored by the National Science Foundation and the Bureau of Labor Statistics, US Department of Labor, was that about the only benefit to be realized from GED reciprocity came from "its value in opening postsecondary schooling and training opportunities" (p. 44).

It could be expected that officials employed by the American Council on Education (a private organization that oversees the GED Testing Service) would likely disagree with the aforesaid statement contained in Cameron and Heckman's study. Certainly they likely would underwrite Heckman's notion concerning the value of the

GED certificate in opening access to 4-year institutions for GED completers. However, it is perhaps equally probable that they would stand in opposition to the inference that GED certificate holders have characteristics that align much more closely with high school dropouts than with high school graduates. Indeed, during my quest for unpublished data which were pertinent to the number of GED recipients who were first-time freshmen in community colleges during the 1995-96 academic year, I contacted Dr. Sen Qi, Policy and Research Analyst at the American Council on Education. He responded to my inquiry with the following statement:

"We have never collected the data you requested. There are no statistics elsewhere as far as I know, because that requires a random survey of GED graduates of all ages, which is impossible. But I did some quick estimates of the numbers of GED graduates in the 18-24 age category who attended college in the 1995-96 [and calculated] that the enrollment of GED's was much higher than other dropouts...

There were approximately 30 percent of GED college students who were less than 25 years old (NCES: NPSAS 93). That's about 223,080. So, the enrollment rate of GED graduates between 18 and 24 was 14.4 percent (223,080/1.55 million)."

(Conversation via e-mail: received April 20, 2004).

With regard to the varying opinions and findings from each of the aforementioned studies on GED student attrition and performance, it is evident that the overwhelming bulk of research on this topic has been conducted only at the "micro" (i.e. local) level. Given the wide diversity of traits witnessed in community colleges, such an array of findings cannot be fully trusted to yield an accurate statistical representation of what may



in fact be occurring at the national (i.e. "macro") level. For a needed "macro" study to be conducted, however, an enormous amount of personnel staffing and financial resources are needed in order to track adequately the whereabouts of a statistically significant national sample of survey participants for the duration of several years. Practically speaking, a federal agency of considerable size and wherewithal is far better suited to undertake a project of this magnitude than independent researchers of limited resources (e.g., doctoral candidates).

And, serendipitous for this researcher, that is precisely the kind of project undertaken by the US Department of Education's National Center for Education Statistics. Needing only to be retrieved and extrapolated, all of the raw data required to answer the six questions set forth in Chapter 1 of this study are contained within a dataset of information derived from a 6-year project entitled The 1996 Beginning Postsecondary Students Longitudinal Study: (BPS: 1996/1998/2001). The methodology utilized to collate and format that data for the design objectives of this study is discussed in the following chapter.

## Chapter 3

### OVERVIEW OF RESEARCH METHODOLOGY

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*"The great thing in this world is not so much where we are,  
but in which direction we are moving."  
- Oliver Wendall Holmes-*

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#### General Introduction

Research is a collection of methods people use in a systematic manner to produce new knowledge (Newman, 2000). Discovery of information derived from research usually comes through the process that entails three separate and distinctly different phases: (a) collection of data, (b) collation of data, and (c) extrapolation of data. The first phase of this researcher's project--acquisition of the needed raw data--was completed by NCES as a result of its BPS: 1996-2001 longitudinal study.

In essence, this study was designed to extract, collate, and format raw data collected during the national 1996 Beginning Postsecondary Students Longitudinal Survey (BPS: 1996/2001) that pertained to the rates of both persistence and degree attainment of a specific cohort of GED graduates who enrolled in postsecondary institutions during the 1995-96 academic year. After the needed data contained in the National Center for Education Statistics' Data Analysis System database were extracted, the remaining two phases of research--namely, the collation and extrapolation of that data--were implemented, which yielded new information regarding the generalized academic and behavioral traits of GED graduates who had enrolled in 2-year public institutions. But before discussing the research design of this project, it is necessary to first overview the data collection procedures utilized in the BPS: 1996/2001 longitudinal

study--methodologies that ensured the new information produced in this study would be reliable and in-depth.

### **Student Universe of the BPS:1996/2001 Study**

The Digest of Education Statistics is a source of statistical data published by the National Center for Education Statistics, a division of the US Department of Education. The following information is contained in its latest edition (<http://nces.ed.gov/pubsearch/getpublist>):

- A total of 14,261,781 students were enrolled in American postsecondary institutions during the 1995-96 academic year. Approximately 57 percent of this aggregate number were full-time students (8,128,802), whereas the remaining 6,132,979 students were enrolled on a part-time basis (Table 172).
- During that same academic year, a total of 5,277,829 students had been matriculated in public 2-year institutions, that is, community colleges (Table 173). Of that number, 2,994,592 (56.7%) were listed as having been enrolled on a full-time basis (Table 201), with the remaining 2,283,237 people (43.3%) being part-time students.
- Of the 5,277,029 students who attended community colleges during the 1995-96 academic year, approximately 955,000 were first-time freshmen (Table 182).
- In June 1995, approximately 2,599,000 seniors received their high school diplomas. Of that total number, roughly 1,610,000 of them (61.9%) enrolled in postsecondary institutions during the fall of that year (Table 185).

A recapitulation of these data finds that the 1995-96 national cohort of beginning postsecondary students consisted of about 1,610,000 traditional high school graduates who received their diplomas in June 1995 (NCES, Fast Facts, Table 185). However, the *Descriptive Summary of 1995-96 Beginning Postsecondary Students*, published as a statistical analysis report by the NCES in November 1998, stated in its introduction that "approximately 3 million first-time beginning students enrolled in postsecondary education institutions in 1995-96 academic year" ([www.nces.gov/pubs99/1999030.pdf](http://www.nces.gov/pubs99/1999030.pdf), p.15). Because many postsecondary institutions did not, at that time, distinguish between high school graduates and GED graduates when reporting data to the US Department of Education, it cannot be calculated with certainty as to what percent of the above estimated three million students were GED graduates. But supposing that about half of each year's cohort of GED recipients enrolled in postsecondary institutions shortly after receiving their diplomas, then at least 300,000 GED graduates (not counting high school equivalency certificate holders, e.g. home-schooled students) were part of that 1995-96 cohort of 3 million beginning postsecondary students.

National pollsters, such as the Gallup and Roper organizations, normally utilize a random sampling of 1,200 people to arrive at estimates of current popular opinion. Indeed, statisticians have calculated that a survey sample of merely 1,200 persons selected at random will reflect, within a marginal error of +/- 3 percent, the attitudes and opinions of a nation comprised of 250 million citizens. Scientific polling surveys of this kind can be likened to a sampling process used to identify blood type. In other words, a medical lab only needs a few drops of blood to determine its type, not several gallons.

Out of approximately 3 million students who began their postsecondary educations in the 1995-96 academic year, the NCES randomly selected 12,083 people from that particular cohort to participate in its 1996 Beginning Postsecondary Students Longitudinal Study (BPS: 1996/2001). All students who participated in the BPS longitudinal study were also part of the 1995-96 National Postsecondary Student Aid Study (NPSAS: 96), having first been interviewed during 1996 (BPS: 1996/2001 Technical Report, p. iii). Besides being eligible for NPSAS funding, other prerequisites established by NCES policy analysts for participation in the BPS: 1996/2001 longitudinal study included the following mandates on its student universe:

- Participants must be enrolled in a NPSAS-eligible institution for the first time.
- Participants must be enrolled in a term that began between May 1, 1995 and April 30, 1996.
- Participants must not be concurrently enrolled in high school completion program.
- Participants must: (a) be enrolled in an academic program; or, (b) be enrolled in at least one course for credit that could be applied toward fulfilling the requirements of an academic degree; or, (c) be enrolled in an occupational or vocational program requiring at least three months or 300 clock hours of instruction to receive a certificate or other award.

NCES policy analysts went on to define "pure" students as being those who had never been enrolled in a postsecondary institution after high school graduation or GED completion. Additionally, BPS: 1996/2001 participants who had been enrolled in one or more courses after obtaining a high school diploma or GED diploma, yet who also had

never completed a postsecondary course prior to the 1995-96 academic year, were deemed as "effective" FTB's (First Time Beginners). Inasmuch as both categories of students were first-time enrollees in postsecondary institutions, they were considered equally eligible by the NCES to participate in the BPS: 1996/2001 cohort study.

### **Institutional Universe of the BPS:1996/2001 Study**

During the 1995-96 school year, NCES staff identified a total of 9,468 postsecondary education institutions that met federal guidelines for eligibility to administer NPSAS funding. Of that total, approximately 13.4 percent (1,265) were public 2-year institutions (i.e., community colleges). Certain postsecondary institutions were excluded from participating in the institutional universe of NCES's 1996 BPS longitudinal study, including: (a) US Service Academies; (b) institutions offering only correspondence courses; and (c) institutions offering no programs which entailed at least 300 contact hours, or 6 semester or trimester hours, or 12 quarter hours AND for which the high level of offering was a certificate or diploma of less than 1 academic year (BPS: 1996/2001 Technical Report, p. 7).

Of the 9,468 postsecondary institutions eligible for participation in the 1996 BPS study, slightly more than 10 percent (10.28%) were selected as being statistically representative of the institutional universe. This resultant sampling of 973 institutions reflected the types of institutions and types of student populations that were proportional to the composite universe (see Table 1). Of these 973 institutions, the representative sampling for community colleges consisted of 165 institutions [17% of 973 or 1.74% of 9,468]. Thus, data collected at those 165 community colleges became the foundational cornerstone of information upon which this research project was built (see Table 1).

Table 1

*Beginning Postsecondary Students 1995-96 Study: Total Institution Universe by Institutional Stratum Type*

	<u>Size of Universe</u>	<u>Sampling Rate</u>
Total	9,468	973
INSTITUTIONAL STRATUM		
Public less than 2-year	273	39
Public 2-year	1,265	165
Public 4-year non-doctorate granting	376	125
Public 4-year doctorate granting	243	124
Private not-for-profit less than 4-year	902	56
Private not-for-profit non-doctorate	1,306	120
Private not-for-profit 4-year doctorate	681	143
Private for-profit 2-year or less	3,516	120
Private for-profit 2-year or more	906	81

### **BPS:1996/2001 Tracking Methodologies**

Whereas typical retention and attainment studies of first-time college freshmen report on data collected *at a site specific, single institution*, the BPS: 1996/2001 provides a base of information that enables researchers to study the persistence and attainment patterns of college students located *anywhere*. Generally speaking, young adults between the ages of 18 and 30 often change their residential addresses on a frequent basis, as well as relocate from city to city and region to region much more often than people over 50 years of age. Because the BPS:96/98 student universe consisted primarily of young, highly mobile adults, NCES policy-makers decided to subsample the BPS:96/98 study's nonrespondents in order to help contain costs for the full-scale study. In essence, the NCES policy analysts selected a sample of BPS:96/98 nonrespondents with probabilities proportional to their initial weights. Then, from this body of cases, a stratified random subsample was subsequently selected for inclusion at the beginning of the data collection process to compensate for survey non-responses.

In order to monitor the whereabouts of the 12,083 students who participated in the 1996 Postsecondary Students Longitudinal Study over a period of 6 years, the NCES staff devised a tracking system (essentially a "locating information" network) that included the participants' local and permanent addresses and telephone numbers, the addresses and telephone numbers of parents and friends, and Social Security Numbers. In the event those sources of information or incentives failed to locate a survey participant, the NCES staff (or their hired contractors) thereafter utilized other governmental programs that assisted them in locating the missing students, such as Department of Motor Vehicle searches and the US Postal Service National Change of Address (NCOA) system.



Additionally, incentives were offered to targeted sample members in order to encourage participation and help to compensate them for the time required to complete the interview, thereby serving to reduce the number of nonrespondents.

### **Management of the BPS:1996/2001**

Virtually all facets of the BPS:1996/2001 longitudinal study were regimented through a comprehensive set of desktop tools known as the Integrated Management System (IMS). The primary purpose of this management system was to enable NCES staff to easily access a complete and centralized repository of project data and documents. As such, three important modules were designed and made part of the IMS: (a) a management module; (b) a Receipt Control System (RCS) module; and (c) the CATI/CAPI module [an acronym for "Computer Assisted Telephone Interview/Computer Assisted Personal Interview"]. Other software developed by NCES to track and store documentation was briefly described as follows in the BPS: 1996/2001 Technical Report:

"The central mechanism for constructing input files for the electronic codebook (ECB) developed by NCES is a software application called the Variable Tracking System (VTS). The VTS tracks and stores documentation for both interview and derived variables required for the ECB and Data Analysis System (DAS). This includes weighted and unweighted variable distributions, variable labels and codes, value labels, and a text field describing the development of each variable and the programming code used to construct it. Input files for the ECB and DAS systems are automatically produced by the VTS according to NCES specifications." (Ch. 2: Design and Method, p. 25).

### **BPS:1996/2001 Data Analysis System**

In addition to the IMS and VTS software described above, the NCES personnel also designed and implemented a computer program entitled The BPS: 1996/2001 Data Analysis System (DAS). In essence, the DAS is a NCES microcomputer application that allows users to generate tables for many NCES surveys. Moreover, it is capable of producing design-adjusted standard errors, thereby enabling researchers to perform tests of statistical significance. Indeed, the DAS was the NCES software used by statisticians to produce the estimates set forth in the *BPS Longitudinal Study Statistical Analysis Report*.

There are two versions of the BPS: 1996/2001 dataset. One is the DAS software, which is a public-use version containing a myriad of derived variables and other extrapolated data on the BPS:96 cohort. The DAS dataset can be easily accessed as a Windows software application via the Internet (<http://nces.ed.gov>). The other NCES dataset consists of restricted-use files that contain the raw BPS:1996/2001 survey data. This second dataset is available only to researchers who require raw data not included in the DAS and who have gained approval and licensure from the NCES. This licensure process complies with the Privacy Act of 1974 and the National Education Statistics Act of 1994--two federal laws that prohibit government agencies from publicly disseminating certain information (e.g., names, social security numbers, home addresses, etc.) acquired through confidential interviews and surveys without having first obtained the written approval of the interviewees.

The public-version DAS software makes it possible for users to specify and generate their own tables. With this software users can replicate or expand upon the

tables presented in their reports. In addition to the table estimates, the DAS calculates proper standard errors and weighted sample sizes for these estimates. Beyond creating tables, the DAS will also produce a correlation matrix of selected variables to be used for linear regression models. Included in the output with the correlation matrix are the design effects (DEFTs) for each variable in the matrix. Since statistical procedures generally must compute regression coefficients based on simple random sample assumptions, the standard errors must be adjusted with the design effects to take into account the stratified sampling method used in the surveys.

### **Dependent and Independent Variables**

The BPS:1996-2001 dataset contained in NCES's Data Analysis System has a plethora of raw information, which has been classified into 2,277 "variable names." For the sake of simplicity, the parameters of this research will encompass only a small portion of the myriad of DAS variables, which are listed in Appendix B of this study. Primary among the examined variables were those which dealt with the following categorical groupings:

- *Age*: Measuring student academic performance, persistence, and attainment by categorical groupings of 16-17 years of age, 18-20 years of age, 21-24 years of age, and over 25 years of age.
- *Credit Hours*: Ratio of course completed/attempted term or semester credits that the student accumulates, with each course having an assigned value of 1, 2, 3 or 4 credits.
- *Degree attainment*: Successful completion of required curricula that results in the institutional awarding of a vocational certificate of achievement, and associate's

degree, or a bachelor's degree.

- *Gender*: Measuring student academic performance, persistence, and attainment by categorical groupings of male or female.
- *Grade Point Average (GPA)*: Measure of academic performance that calculates total points by total credits. Grade points are computed by assigning 4 points for each credit of A, 3 points for each credit of B, 2 points for each credit of C, 1 point for each credit of D, and 0 for each credit of F.
- *Race*: Measuring student academic performance, persistence, and attainment by categorical groupings of White, Black, Hispanic, Oriental, Native American, or Other.
- *Status*: Measuring high school curricular completion by categorical groupings of either GED recipient or high school graduate.
- *Intensity*: Measuring student attendance by full-time or part-time enrollment status during the 1995-96 academic year.

### **Data Analysis and Limitations**

To ensure comparability of the two study groups--that is, a cohort of GED recipients and a cohort of high school graduates who concurrently enrolled in community colleges during the 1995-96 academic year--Pearson's chi-square statistic was utilized for analyzing demographic characteristics, such as age and ethnicity. In addition, chi-square and z-tests were also performed to analyze data pertaining to rates of attrition, attainment, dropout, stop-out, GPA, and credit hours. The resultant output has been presented in both table and figure formats.

As previously noted, the public-use DAS software was designed to calculate for its users the statistical standard errors that otherwise would skew, to varying degrees, the survey data due to unweighted nonresponses. For a number of reasons, this researcher ultimately decided to utilize the restricted-use data for her research endeavor rather than to extract data from the public-use DAS. Although certainly not preferable from a statistician's point of view, it nevertheless would have been an extraordinarily arduous and time-consuming task for this researcher to similarly apply all of the same longitudinal and cross-sectional weights designed into the DAS software when reporting her findings. The Methodology Report for the BPS: 1996/2001 study contained 73 pages of explanatory text and charts that dealt solely with weighting and variance estimation procedures utilized in the DAS software. Excerpted and reprinted below are two paragraphs contained in those 73 pages of explanatory text that serve to illustrate the complexity and sophistication of the weighting techniques applied by NCES statisticians:

"Instead of continuing with jackknife weights, BRR weights were computed because of the superiority of BRR [Balanced Repeated Replication] variance estimation for medians and other quantiles, and estimates of quartiles and medians for amounts of student aid received are important survey estimates. The  $L=51$  pseudo-strata defined for undergraduate students were used to compute BRR weights based on the initial weights for the 2001 follow-up of the BPS cohort, namely B01\_100. Wölter (1985) explains that to achieve 'full orthogonal balance,'  $k$  half-sample replicates should be used where  $k > 1$  and  $k$  is a multiple of 4. Since  $13 \cdot 4 = 52$ ,  $k = 52$  was used. As Wölter further explains, any  $52 \times 52$  Hadamard matrix can be used to define the 52 balanced half-samples. In particular, 52 rows

(or columns) can be used to represent the 52 BRR replicates and any 51 columns (or rows) can be used to represent the 51 NPSAS: 96 pseudo-strata. The rationale for 51 pseudo-strata (instead of 52) is explained in the following paragraph.

"Although all  $k = 52$  balanced replicates are needed to achieve 'full orthogonal balance,' using the full set of 52 replicates results in 52 degrees of freedom for the error variance. Since a two-PSU-per-stratum design with 51 strata only has 51 degrees of freedom for error, using 52 replicates could result in spurious indications of statistical significance. Therefore,  $L = 51$  replicates were used, instead of 52 replicates. This results in a small positive bias in the variance estimate and, hence, conservative hypothesis test results." (BPS: 1996/2001 Methodology Report, pps. 76-77).

Not only did the NCES statisticians construct cross-sectional weights for analyzing the participants' responses to the three BPS:1996/2001 surveys, but they also devised two longitudinal weights for the purpose of analyzing responses of students who participated in each survey over the 6-year duration of this national study. Even beyond these particular techniques, they also utilized two additional analysis procedures that enabled them to produce design-unbiased estimates of sampling variances and variances of nonlinear statistics--specifically, the Taylor series variance estimation procedure and the Balanced Repeated Replication (BRR) technique. For nonrespondents who were located but refused to answer any of the BPS survey questions, a Chi-squared automatic interaction detection analysis (CHAID) was performed on the predictor variables as an adjustment. The following NCES table (Table 2) summarizes the BPS study's weighted response rates for respondents who attended public 2- and 4-year institutions:

Table 2

*Overall BPS: 1996/2001 Study Response Rates By Type Of Institution*

	Institutions	Students
	Response Rate	Response Rate
	Unweighted/Weighted	Unweighted/Weighted
All Sectors	92.9 / 91.1	88.3 / 83.6
INSTITUTIONAL SECTOR		
Public less-than-2-year	93.9 / 99.6	87.3 / 83.0
Public 2-year	96.4 / 97.2	86.4 / 84.6
Public 4-year non-doctorate	96.7 / 96.0	88.9 / 84.8
Public 4-year doctorate	98.4 / 98.0	90.1 / 86.0

Source: National Center for Education Statistics, Table 6.13. Beginning Postsecondary Students Longitudinal Study: 1996/2001 (BPS:1996/2001)

A total of 1,503 students who enrolled in community colleges during the 1995-96 academic year as first-time freshmen were selected to participate in the BPS: 1996/2001 longitudinal study. Of that number, approximately 84% of the high school graduates responded to the first survey (i.e., the NPSAS: 96 survey), compared to about 81% of the GED recipients. [Note: 52 other students who held high school equivalency certificates or no formal award slightly elevated the overall percentage of response for the BPS community college cohort]. As can be seen in Table 2 (NCES Table 6.13) reprinted above, the weighted response rate for all BPS community college enrollees *throughout the duration of the longitudinal study* was 84.6 percent, which closely approximates the unweighted *first-year response rate* reported by this researcher. However, inasmuch as

the findings of this research were not weighted to adjust for the cumulative effect of random errors that may occur in repeated samplings of the same size, the raw data and its accompanying percentage figures proffered in Chapter 4 almost certainly will differ what otherwise might have been reported had the DAS software been exclusively used for this research project. Therefore, the findings presented in Chapter 4 should be viewed by the reader as a non-generalized reflection of the academic histories of BPS survey respondents who enrolled in community colleges during the 1995-96 academic year.

### **Statement of Strategy for Protection of Human Subjects**

The Oregon State University protocol for the protection of human subjects was followed as required. This researcher has complete understanding and knowledge of the following six research criteria based on completion of the Institutional Review Board's training initiative, which are as follows: (a) History and Ethical Principles, (b) Regulations and Process, (c) Informed Consent, (d) Social/Behavior Research, (e) Records-Based Research, and (f) Research with Protected Populations and Vulnerable Subjects.

Furthermore, in keeping with the policies and procedures of the Institutional Review Board at Oregon State University, this researcher gained approval after having applied for exemption from Full Board review as stated in the Application for Research Involving Human Participants. An exemption from Full Board review is allowed when the proposed research: (a) presents a minimal risk to participants, and (b) involves research that is collected from existing data, documents, and records. Nonetheless, 100 percent of the survey data used for completing this study is contained within the BPS: 1996/2001 dataset.



Additionally, this researcher complied with the Education Sciences Reform Act of 2002 and the NCES Security Procedures. Prior to obtaining a CD-ROM for the BPS:1996/2001 data, an affidavit of non-disclosure was signed and submitted to the US Department of Education, Institute of Education Services. The aforesaid CD-ROM did not contain the names, residential addresses, telephone numbers, Social Security numbers, or any other form of identifying materials, but rather only an identification number that had been assigned to each student by the US Department of Education (with each student's assigned identity number being known only by certain licensed employees of the US Department of Education), thus providing an additional layer of protection for the BPS participants' privacy.

### **Summary**

This chapter outlined the research design of this study, as well as overviewed the BPS:1996/2001 dataset upon which this study was founded. For those readers who desire to view the findings contained in Chapter 4 to be expressed in a weighted rather than unweighted format, this researcher recommends that the DAS software be employed for further research. Being easily accessed through the Internet, the public-use DAS has the design-capability to enable interested users to perform certain statistical calculations (e.g., linear regression, models, weighted and stratified samples, correlation matrixes, etc.) on the BPS:1996/2001 data variables. However, individuals who lack training in statistics may think that the extraction of the survey data contained in the DAS software is a difficult task.

## Chapter 4

### PRESENTATION OF DATA AND DATA ANALYSIS

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*"Show me a man who never makes a mistake, and I'll show you a man who never does anything."*  
- President Theodore Roosevelt -

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#### General Introduction

The primary focus of this research project was spotlighted on answering the following question: *"Is there a significant difference in the rates of attrition between GED completers and high school graduates who began their respective postsecondary educations at community colleges?"* Given the fact that the US Department of Education has already adjudged the GED certificate as being a risk factor for student persistence in college, it would appear on its face that the answer to the aforesaid focus question is a matter of published and widespread knowledge.

Without question, numerous academic studies have jointly concluded that student persistence in postsecondary education institutions is negatively impacted by certain environmental factors. Indeed, research conducted during the 1970s and 1980s found that six environmental factors have the potential of significantly interfering with nontraditional students' persistence in college and attainment of degrees. Those factors were: (a) delayed enrollment, (b) having children at home, (c) being a single parent, (d) attending college part-time, (e) being financially independent, and (f) working full-time while enrolled in a postsecondary institution. In the mid-1990s, the US Department of Education expanded this list of six environmental risk factors to include one additional factor, which is non-environmental in nature--*the possession of a GED certificate.*

Inasmuch as both the US Department of Education and the American Council on Education have jointly deemed the GED certificate as having academic equivalence to a high school diploma, this recent amendment to the list of risk factors gives rise to an interesting question that needs to be indisputably answered: If high school diplomas and GED certificates are essentially the same in the sense of measuring the academic prowess of their respective recipients, then why has the US Department of Education deemed the GED certificate as being a risk factor for college persistence? With that question kept in mind, this chapter will report on raw data collected from the BPS:1996/2001 dataset that might shed light on why policy analysts in the US Department of Education have labeled the possession of a GED certificate as being a "risk factor," even though it is, supposedly, the academic equivalent of a high school diploma.

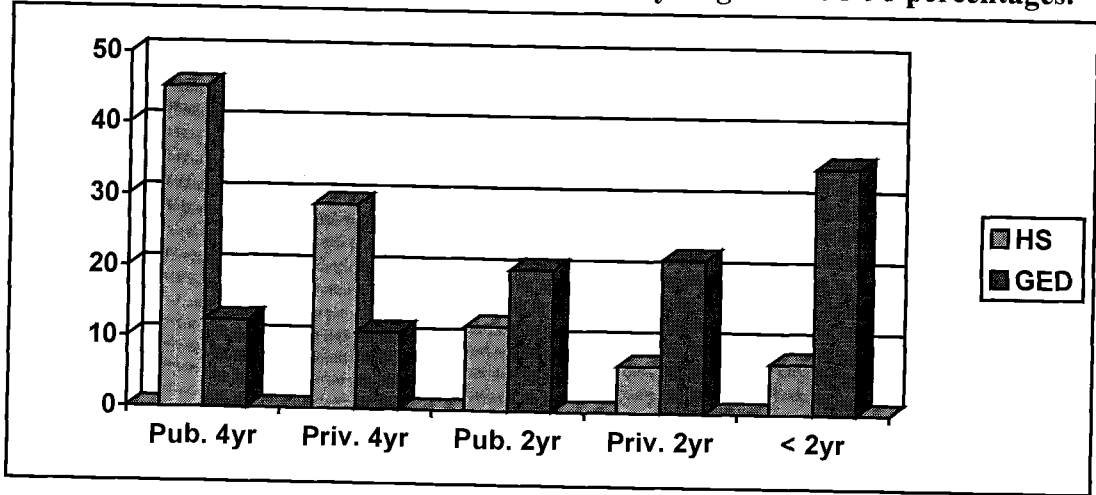
It seems clear that a significant percentage of GED recipients initiate their postsecondary educations at 2-year public and private colleges rather than 4-year colleges and universities. Due to this fact, the focal point of this chapter necessarily turned toward an investigation of data acquired from the BPS:1996/2001 database that pertains to BPS cohorts enrolled at public 2-year institutions during the 1995-96 academic year. Having established this research parameter, one of the main objectives of my research study--namely, the collation and measurement of national data that enables a conclusive and irrefutable answer for the focus question stated at the outset of this chapter--became far easier to attain and less cluttered with extraneous material. Needless-to-say, this study would have become unduly complex and confusing if its scope were otherwise broadened to include an in-depth exploration of similar data garnered from 4-year public institutions, 4-year private not-for-profit institutions, 4-year private for-profit institutions,

2-year private not-for-profit institutions, 2-year for-profit institutions, less than 2-year private for-profit institution, less than 2-year private not-for-profit institutions, and less than 2-year public institutions. But despite this narrowing of targeted parameters, it is nonetheless appropriate for this chapter to begin with a brief examination of the institutional universe of the BPS:1996/2001 study, including the enrollment patterns of the nine types of higher education institutions during the 1995-96 academic year.

**Overall Student Universe by Institution Level: BPS 1996/2001**

The BPS: 1996/2001 study both tracked and surveyed approximately 12,100 student respondents enrolled at nine various institution types over the course of a 6-year period. The following chart depicts the measured universe during the first year of BPS student enrollment at nine separate levels of postsecondary education institutions.

**Figure 1: First Institution Type Enrollment by Degree. 1995-96 percentages.**



The aggregate student sampling for the BPS: 1996/2001 study totaled 12,083 individuals. Of this sum, 11,172 were high school graduates, 547 had earned GED certificates, and 262 students had been awarded either a high school equivalency

certificate or lacked a formal award of any kind (see Table 3).

Table 3: *Level of Enrollment by Degree Type at First Institution: 1995-96 Total BPS Student Universe.*

	Degree Type			
	High School	GED	Other	Total (%)
Total	11,172	547	262	12,083 (100%)
INSTITUTION TYPE				
Public 4 - year	5,043	68	13	5,124 (42%)
Public 2-year	1,341	110	52	1,503 (12%)
Public less than 2-year	172	44	13	229 (2%)
Private not-for-profit 4-year	3,138	50	15	3,203 (27%)
Private not-for-profit 2-year	324	30	*	357 (3%)
Private not-for-profit less-than 2-year	24	*	*	34 (.28%)
Private for-profit 4-year	89	10	*	101 (.84%)
Private for-profit 2-year	429	89	28	546 (4.5%)
Private for-profit less-than 2-year	612	142	130	884 (7.3%)
Blank			102	102 (.84%)

N = 12,083 p-value = 6.919E-187 (scientific notation)

\* = Non-disclosed for confidentiality purposes. Cell size too small.

Note: Numbers based upon raw unweighted data.

Regarding the BPS sampling of 11,172 high school graduates, it was found that 5,043 of those students began their postsecondary educations at a public 4-year institution (45.1%), whereas 1,341 of them (12.0%) first enrolled at a community college. In comparison, 68 of the BPS sampling of 547 GED completers (12.4%) first enrolled in public 4-year institutions, whereas 110 of them (20.1%) began their postsecondary educations at a community college.

Of the total number of 5,111 high school and GED students who first enrolled in public 4-year institutions, 98.7% of them were high school graduates compared to 1.3% of GED completers. But of the total of 1,451 high school and GED graduates who chose to initially enroll at public 2-year institutions, it was found that 92.4% of them were high school graduates (1,341) compared to 7.58% of the GED certificate holders (110). When these respective numbers were subjected to a chi-square test, the resulting level of significance pointed to a strong relationship between the degree type earned (i.e., high school vs. GED) and the type of institution first attended. In other words, a student's earned degree type *is* dependent upon the type of institution first attended. Thus, this finding infers that GED students are more likely to matriculate in either a 2-year public or 2-year private institution than their high school counterparts. Conversely, high school graduates are more likely to enroll in a 4-year institution, regardless of whether it is public or private.

### **Student Populations at Public 2-year Colleges**

In light of the fact that sizeable numbers of GED students commence their postsecondary educations at 2-year institutions, an examination of the data pertaining to BPS student enrollment at community colleges becomes of paramount importance in

respect to the focus of this study. As previously mentioned, the BPS:1996/2001 survey sampling of community college students initially entailed 1,341 high school graduates and 110 GED recipients. In addition to those two groups, 7 students who obtained high school equivalency certificates and 45 students who had neither a high school diploma nor an equivalent certificate were also included in this sample. Talled together, the student universe of this particular BPS population encompassed 1,503 people (see Table 4).

Table 4: *Student Universe at Public Community Colleges: 1995-96.*

	Degree Type			
	High School	GED	Other	Total
	N	N	N	N
INSTITUTION TYPE				
Public 2 - year	1,341	110	52	1,503

Note: Numbers based upon raw unweighted data only.

### Summary of Student Characteristics

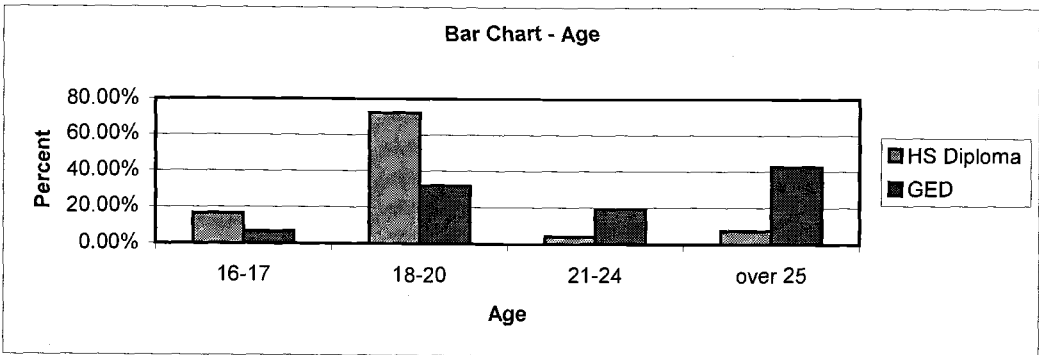
At the conclusion of Chapter 3, eight variables were identified as being necessary for the extraction and subsequent analysis of the relevant data. Those variables are: (a) age, (b) race, (c) gender, (d) degree attainment, (e) grade point average, (f) credit hours, (g) enrollment intensity, and, (h) degree status- GED or high school diploma holder [Note: A detailed description of the DAS variables used in this study is provided in Appendix B]. But in order to achieve meaningful information that adequately answers the focus questions set forth in Chapter 1, additional BPS variables were also ultimately employed that enabled this researcher to draw a clearer picture of the respective personal,

social, and academic traits of the high school and GED student populations who began their postsecondary education endeavors at public 2-year institutions during the 1995-96 academic year. Listed below are the relevant findings that were extracted from the DAS software.

Age Characteristics

Nearly all of the previous academic researchers, who examined institutional data that pertained to GED completers enrolled in postsecondary institutions, concluded that this particular group of students, when viewed as a collective body, tends to be older than its counterpart of high school graduates. Data collected by the BPS:1996/2001 study serve to corroborate that conclusion. With regard to the BPS community college sampling, 16.6% of high school graduates were 25 years of age or older. But the population of GED enrollees at community colleges during the 1995-96 academic year had 42.7% of its membership in the same age category. Indeed, the median age of high school graduates matriculated at community colleges is 18 years, with a statistical mean of 21.4 years. On the other hand, the median age of GED completers who enrolled in community colleges in the 1995-96 academic year was 22 years, with a statistical mean of 25.1 years of age.

**Figure 2: Age by Degree Type - 1995-96 percentages**





A "z-test" was performed on the two focus populations (i.e., high school graduates and GED recipients), which differentiated these two groups by age categorization. Listed below (Table 5) are the results of the respective z-tests.

Table 5: *Age by Degree Type at Public 2-Year Colleges - Fall 1995-96.*

	Degree Type					
	High School		GED		Total	
	N	(%)	N	(%)	N	(%)
Response Total	1,118	(100)	89	(100)	1,207	(100)
AGE						
No response	223	(n/a)	21	(n/a)	244	(n/a)
16-17	119	(10.64)	10	(11.24)	129	(10.7)
18-20	723	(64.67)	28	(31.46)	751	(62.2)
21-24	91	(8.14)	13	(14.61)	104	(8.6)
Over 25	185	(16.55)	38	(42.7)	223	(18.5)
Z-TEST: Two Sample for Means						
Mean	21.3568873		25.0898876			
Known Variance	54.8385		66.60558			
Observations	1,118		89			
Z	=		-4.180349354			
P(Z<=z) one-tail	=		1.45531E-05			

N = 1,207      p-value = 0      Note: Numbers based upon raw unweighted data only.

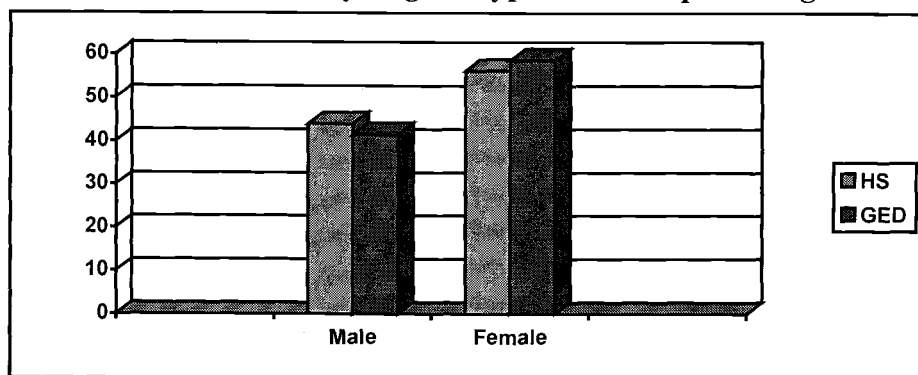
With regard to this particular z-test analysis, the null hypothesis proposed that the average of age of high school diploma holders is greater than or equal to the average age of GED certificate holders. With a p-value of 0, the null hypothesis was rejected. Therefore, the average age of GED certificate holders is greater than the average age of high school diploma holders at community colleges.

### Gender Characteristics

Out of the 11,172 high school students who participated in the BPS:1996/2001 longitudinal survey, 4,904 were males, thus comprising 43.9% of the high school survey population. In comparison, the female high school graduates in the BPS survey numbered 6,268 individuals, or 56.1% of all high school graduates.

As might be expected, the BPS survey sample of the students who initially enrolled at community colleges was not too differing. Out of a combined population of 1,451 students (which excludes those students who had no high school or equivalency diploma), 618 were male (45.8%) and 723 were female (54.2%).

**Figure 3: Gender by Degree Type - 1995-96 percentages**



After performing a chi-square analysis on these respective numbers, it can be concluded that gender has no bearing on the attainment of either a high school or GED degree (see Table 6).

Table 6: *Chi-square Analysis for Gender by Degree Type at Public 2-Year Colleges: 1995-96.*

	Degree Type							
	High School		GED		Other		Total	
	N	(%)	N	(%)	N	(%)	N	(%)
Response Total	1,341	(89.2)	110	(7.3)	52	(3.9)	1,503	(100)
GENDER								
Male	618	(46.1)	50	(45.5)	21	(4.0)	689	(45.8)
Female	723	(53.9)	60	(54.6)	31	(59.6)	814	(54.2)
CHI-SQUARE ANALYSIS								
Chi-square (test statistic)	=	0.016						
p-value	=	0.8985						

N = 1,451    p-value = 0.8985    Note: Numbers based upon raw unweighted data only.

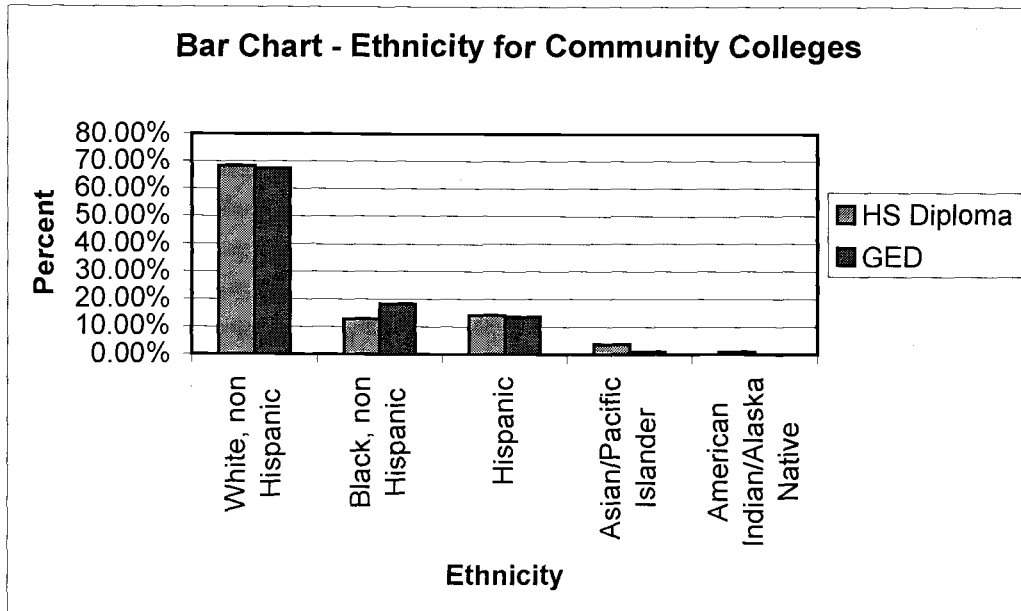
According to the chi-square test, gender is independent of type of degree; that is, there is no relationship between gender and college of enrollment.

#### Race/Ethnicity Characteristics

Of the total number of high school graduates who participated in the BPS: 1996/2001 longitudinal study, 7,756 students described themselves as "White," whereas 1,257 other males and female students classified themselves as "Black," followed by still another group of 1,377 students who tagged their ethnicity or race as "Hispanic." Two smaller groups of students described their race as being either "Asian/Pacific Islander" or

as "American Indian/Alaska Native." Comprising approximately 70% of survey participants, White students clearly were the dominant racial group.

**Figure 4: Race by Degree Type - 1995-96 percentages**



With regard to the BPS survey participants who began their postsecondary educations at a community college, it was found that 1,019 of them (67.8%) considered themselves as "White," 204 students (13.6%) classified their race as "Black," and 211 (14.0%) saw themselves as "Hispanic." The remaining 5.6% of this population, which consisted of 69 students, designated themselves as being either "Asian/Pacific Islander" (3.4%), Native American/Alaska Native (.08%), or as a foreign alien who didn't fall into any one of the other categories listed above.

A chi-square statistical test was performed on these numbers pertaining to race/ethnicity of the BPS student population who attended community colleges during the 1995-96 academic year. The statistical analysis shows that race is independent of type of

degree. That is, no relationship exists between ethnicity and the acquisition of either a high school diploma or a GED certificate (see Table 7).

Table 7: *Chi-square Analysis for Race by Degree Type at Public 2-Year Colleges: 1995-96.*

	Degree Type				
	High School	GED	Other	Total	
				N	%
Response Total	1,341	110	52	1,503	100%
RACE					
White	911	74	34	1019	68%
Black	172	20	12	204	14%
Hispanic	191	15	*	211	14%
Oriental	49	*	*	---	4%
Native American	12	0	0	12	0.8%
Other	*	0	0	---	0.4%
CHI-SQUARE ANALYSIS					
Chi-square (test statistic)	=	0.020			
p-value	=	0.8864			

N = 1,451      p-value = 0.8864

Note: Numbers based upon raw unweighted data only.

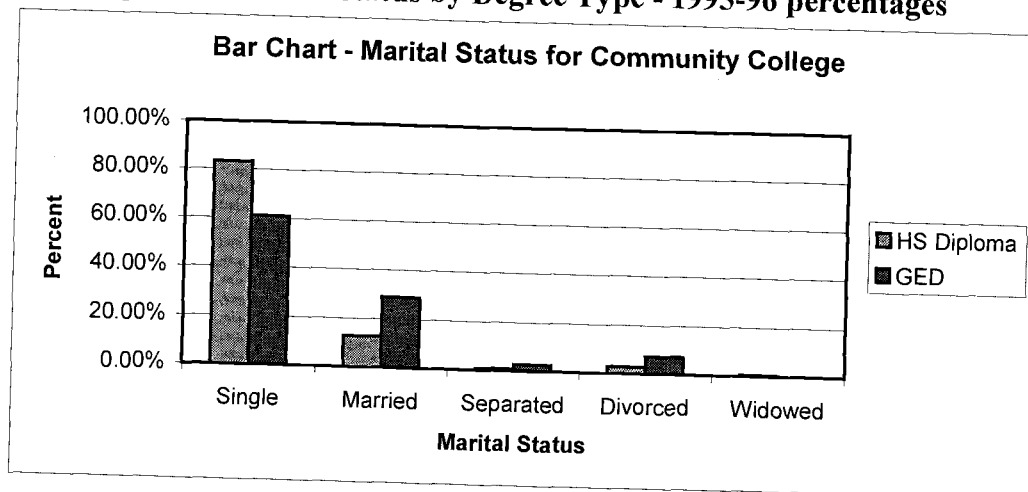
\* = Non-disclosed for confidentiality purposes. Cell sizes too small.

--- = Unreported due to confidentiality protection.

### Marital Characteristics

Of the total number of BPS participants who attended community colleges during the 1995-96 academic year, approximately 80.8 percent reported their marital status as "single" during the fall term. The remaining 19.9 percent of students said they were either "married" (14.8%), "separated" (1.1%), "divorced" (3.0%), or widowed (0.3%) at that time.

**Figure 5: Marital Status by Degree Type - 1995-96 percentages**



A significant difference existed between high school graduates and GED completers in respect to their marital status. Of the cohort of GED recipients, nearly 4 out of every 10 (39.1%) were, or had been, married at the time they began their first term of college studies. In comparison, about one out of every six (16.8%) of the cohort of high school graduates who first enrolled at community colleges was either married, separated or divorced during this same period of time. A chi-square analysis was conducted on both student populations, and showed that a student's degree classification (GED or HS diploma) is dependent upon marital status (see Table 8 below for analysis of the chi-square test).

Table 8: *Chi-square Analysis for Marital Status by Degree Type at Public 2-Year Colleges: 1995-96.*

	Degree Type			
	High School	GED	Total	
			N	%
Response Total	1,341	110	1,451	100%
MARITAL STATUS				
Single	1,116	67	1,183	81.5%
Married	173	32	205	14.1%
Separated	10	*	---	0.9%
Divorced	37	*	---	3.1%
Widowed	*	0	---	0.34%
CHI-SQUARE ANALYSIS				
Chi-square (test statistic)	=	25.734		
p-value	=	0.0000		

N = 1,451      p-value = 0.0000

Note: Numbers based upon raw unweighted data only.

\* = Non-disclosed for confidentiality purposes. Cell size too small.

--- = Unreported due to confidentiality protection.

### Seeking Answers to the Research Questions

For the various reasons explained in Chapter 2, the central focus of this study was to examine the persistence rates of GED completers enrolled at public community colleges. Also, this study relied on the BPS:1996/2001 database to obtain information that might answer the primary focus question of this research. Yet, in order to adequately understand what happens to GED recipients over the course of their postsecondary experience, five related subset questions also needed to be explored--questions that looked at students' general academic performance during differing junctures of college enrollment. The first subset question, along with its related findings, is described below:

**Research Question 1:** *"When measured at the end of 5 months after initial enrollment at community colleges, are the attrition rates of GED diploma holders who dropout significantly different from their counterpart cohort of traditional high school graduates?"*

The BPS:1996/2001 database provides a record of 1,341 high school graduates having begun their postsecondary educations at a community college during the 1995-96 academic year. However, approximately 22.2 percent of the BPS sample of high school graduates who enrolled at community colleges during the academic year of 1995-96 were listed in BPS variables ENFTYX1 and ENPTX1 as being either a "-9" or "0" respondent. The -9 designation reflected missing information, whereas the 0 designation pertained to the number of students who had been classified by college registrars as being either a "nonrespondent" to the NPSAS:96 survey, or else as having been "not enrolled" during fall term of the 1995-96 academic year. [Note: Of the 12,083 students approved for participation in the BPS longitudinal survey, some chose not to matriculate into a



postsecondary institution during the fall term of the 1995-96 academic year, but rather waited until the subsequent winter or spring terms first to enroll in college]. Thus, the BPS sampling of beginning postsecondary students who attended classes at a community college during fall term of the 1995-96 academic year consisted of 1,038 high school graduates who responded to the NPSAS:96 survey. Of that number, 688 students were enrolled on a full-time basis (66.3%), and 350 were part-time enrollees (33.7%).

Table 9: *Attendance Pattern by Degree Type at Public 2-Year Colleges: 1995-96.*

	Degree Type					
	High School		GED		Total	
	N	(%)	N	(%)	N	(%)
Response Total	1,341	(92.4)	110	(7.6)	1,451	(100%)
ATTENDANCE PATTERN						
Missing Information	6	(n/a)			6	(n/a)
Did Not Enroll/Respond	297	(n/a)	35	(n/a)	332	(n/a)
Full-Time	688	(66.3)	43	(57.3)	731	(65.7)
Part-Time	350	(33.7)	32	(42.7)	382	(34.3)
Skip	*	(n/a)			*	(n/a)
CHI-SQUARE ANALYSIS						
Chi-square (test statistic)	=	25.734				
p-value	=	0.0000				

N = 1,451      p-value = 0.0000

Note: Numbers based upon raw unweighted data only.

\* = Non-disclosed for confidentiality purposes. Cell size too small.

The BPS sampling of GED recipients who began their postsecondary educations at a community college totaled 110 individuals. But 21 of those GED completers did not respond to the NPSAS:96 survey, and another 14 seemingly did not enroll during fall term of the 1995-96 academic year. Hence, there were 75 students from this particular GED cohort who responded to the BPS:96/98 follow-up survey, out of which 43 had initially registered as full-time students (65.7%) during fall term of the 1995-96 academic year versus 32 students who enrolled on a part-time basis (34.3%). As such, the respective findings from the chi-square test are presented in Table 9 above.

Table 9 reveals that the ratios of full-time enrollees to part-time enrollees seen in both cohorts (i.e., high school graduates and GED recipients) were not different from each other. Over the course of the 1995-96 academic year, some of the students in each cohort transitioned from full-time to part-time, and vice versa. The DAS variables of ENFTYX1 and ENPTYX1 were employed in an attempt to identify the numbers of students involved in these transitions. The intensity of enrollment variables provided enough information to determine the cohort of high school graduates, who initially enrolled as full-time college students, as being *slightly* more persistent than their counterpart GED cohort. The computed statistical means, based upon a z-test analysis for both cohorts, were as follows: HS full-time - 7.35 months; HS part-time - 5.32 months; GED full-time - 6.71 months; GED part-time - 5.09 months (see Table 10 for z-test analysis).

Table 10

*Months Enrolled Full-Time by Degree Type at Public 2-Year Colleges: 1995-96.*

	Degree Type					
	High School		GED		Total	
	N	(%)	N	(%)	N	(%)
Response Total	681	(94.2)	42	(5.8)	723	(100%)
MONTHS FULL-TIME						
1-5 Months	264	(38.8)	18	(42.9)	282	(39.0%)
6-10 Months	358	(52.6)	23	(54.8)	381	(52.7%)
11-12 Months	59	*	---	(n/a)	---	(8.3%)
Z-TEST: Two Sample for Means						
Mean	5.324272		5.086957			
Known Variance	7.091141		8.170048			
Observations	515		46			
Hypothesized Mean Difference	0					
z	=		0.542474			
P(Z<=z) one-tail	=		0.293746			
z Critical two-tail	=		1.959964			

N = 723      p-value = .5875

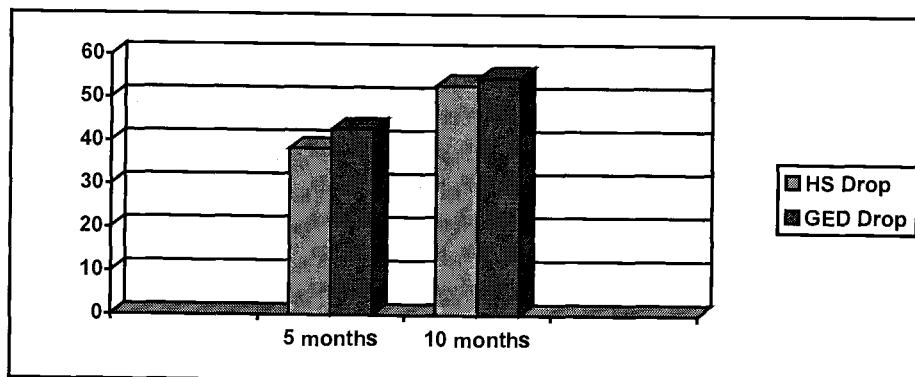
Note: Numbers based upon raw unweighted data only.

\* = Non-disclosed for confidentiality purposes. Cell size too small.

--- = Unreported due to confidentiality protection.

The DAS database also yielded information that suggested within the brief period of 30 days or fewer following the onset of the 1995-96 school year's fall term, students within both cohorts began to drop out of college. By the end of the 5th month, 264 high school graduates had either stopped-out or dropped-out. This number represents more than one out of every three students, or 38.8 percent of the high school cohort. At the end of ten months, this figure rose to nearly 53% (i.e. 52.6%) -- more than half of the high school graduates who had started taking classes as full-time students.

**Figure 6: Attrition by Degree Type: 5 and 10 Months After Initial Enrollment - 1995-96**



In regard to the GED cohort, the percentage of full-time students who dropped out of college by the end of the 5th month was even higher than their counterpart of high school graduates, amounting to approximately 42.9 percent of that cohort's membership (i.e., 18 out of 42 full-time students- see Table 10). By the end of the 10th month, another 12% followed suit and left college, amounting to 54.8 percent by the end of the academic year. Thus, while the GED cohort had a greater percentage of its members leave college than high school graduates within a period of 5 months after having been matriculated, the statistical differences between these two groups had diminished greatly as the 1995-96 academic year came to a close.

**Research Question 2:** *When measured at the end of 5 months after initial enrollment at community colleges, are the numbers of credit hours completed by GED certificate holders and high school graduates significantly different?*

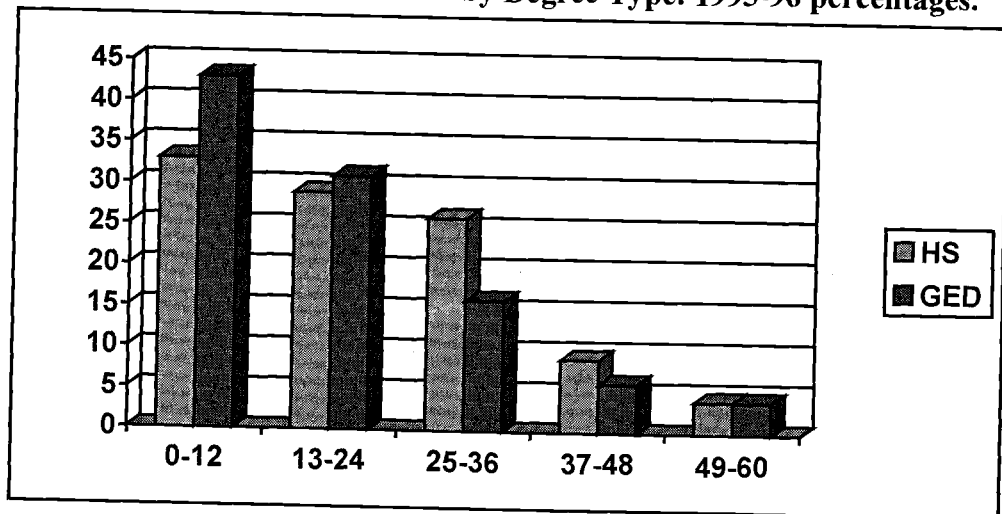
The cohort of BPS high school graduates that enrolled at community colleges during the 12-month period beginning July 1995 and extending through June 1996 earned a total of 19,525 credit hours. Out of a total of 1,261 students included within the germane DAS variables, it was found that approximately 66.3 percent of this cohort of high school graduates had registered under the status of "full-time" (i.e., taking 12 or more credits per term). Another 21.0 percent of this group had been classified as "half-time" students (i.e., taking more than 7 but less than 11 credits). Finally, 12.7 percent of the BPS cohort of high school graduates who began their postsecondary education at public 2-year institutions had been classified as "part-time" college students (i.e., they registered for 6 or fewer credit hours per term). Because some of those students were classified as "part-time" during one term, but "half-time" or "full-time" during another term, the DAS dataset variables could not be manipulated to extract precise information relative to each term of enrollment.

Similarly, it was equally difficult to extract raw numbers from the DAS dataset that enabled precise identification of the number of GED completers enrolled in community colleges during fall term of the 1995-96 academic year that had registered exclusively as having been either full-time, half-time, or part-time students, and who did not experience a change of enrollment status during a subsequent term. (i.e., moving from full-time to half-time, or vice versa). What is known about the BPS sample of GED

completers who began their postsecondary educations at a public 2-year institution is simply this: Approximately 57.3 percent of the GED enrollees at community colleges in the 1995-96 academic year were registered as being full-time students during at least one term. The converse of this number means that 42.3 percent of this cohort of GED completers had been registered as either part-time or half-time students for at least one term during the 1995-96 academic year.

With regard to the total credit hours earned for the academic year of 1995-96, approximately 64% of the high school population completed 24 credits or fewer as compared to 76% of GED diploma holders. Moreover, high school diploma holders held a minimal advantage over their GED counterparts when the numbers were tallied at 25 credits or more. Approximately 36 percent of the high school cohort registered for 25+ credits as compared to 24 percent of the GED cohort during 1995-96.

**Figure 7 - Total Credit Hours by Degree Type: 1995-96 percentages.**



A z-test was performed on both student populations that measured the students' overall credit hours earned. A statistical analysis of this test is reported below (see Table 11).

Table 11

*Credit Hours Earned by Degree Type at Public 2-Year Colleges: 1995-96.*

	Degree Type			
	High School	GED	Total	
			N	%
Response Total	1,261	105	1,366	100%
<b>CREDIT HOURS</b>				
0-12 Credits	435	46	481	35.2%
13-24 Credits	371	34	405	59.3%
25-36 Credits	313	17	330	24.2%
37-48 Credits	116	*	---	8.9%
49-60 Credits	26	*	---	2.0%
<b>Z-TEST: Two Sample for Means</b>				
Mean	20.13243458	17.5047619		
Known Variance	161.815	150.0216		
Observations	1261	105		
Hypothesized Mean Difference	0			
z	=	2.10578014		
P(Z<=z) one-tail	=	0.017611727		
z Critical two-tail	=	1.644853627		

N = 1,366      p-value = .0176

Note: Numbers based upon raw unweighted data only.

\* = Non-disclosed for confidentiality purposes. Cell size too small.

--- = Unreported due to confidentiality protection.

Based upon the above z-test statistical analysis, the null hypothesis was rejected that proposed that high school diploma credit hours are less than or equal to GED credit hours. As such, the final conclusion suggests that GED certificate holders take fewer credit hours on average than their high school counterparts.

**Research Question 3:** *"When measured at the end of 5 months after initial enrollment at community colleges, are the grade point averages of GED certificate holders and high school graduates significantly different?"*

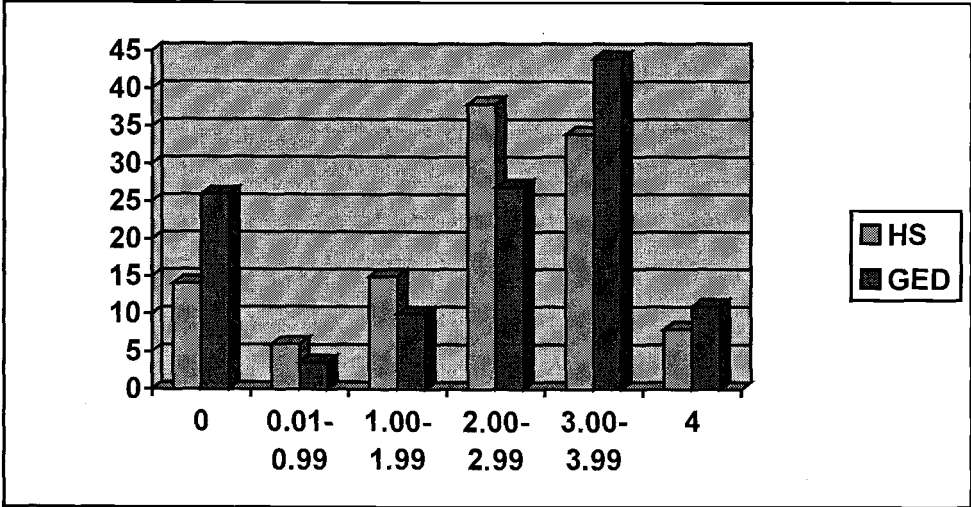
Out of the cohort total of 1,341 high school graduates, approximately one out of every seven students (189) had a grade point average of 0.00 at the end of 5 months after having first enrolled in a community college. Moreover, roughly one out of every six high school graduates (248) who enrolled in a public 2-year institution during the 1995-96 academic year had accumulated a grade point average that ranged between 0.01 and 0.99 after first being matriculated--that is, not higher than the letter grade of "D." [Parenthetically, inasmuch as 89 high school graduates did not report their grades to the BPS interviewers during the first survey, it might be speculated that the bulk of these 89 non-respondents also had grade point averages below the 1.00 "D" benchmark. If that speculation were warranted in actual fact, then up to 337 high school graduates (about 25% of the HS total cohort) had failing GPAs during this period. However, because that speculation cannot be confirmed by the BPS data, those 89 students were left out of the statistical computations when addressing this subject matter].

At the other end of the GPA spectrum, approximately one out of every four high school diploma holders earned letter grades of "As" and "Bs"--between 3.00 and 3.99 on the numeric grading scale--during the 5-month period after they initially enrolled in a



community college. Also, a total of 98 students reported earning straight "As" during their beginning five months of college. Therefore, a grand total of 444 students in the high school cohort--approximately 42% of those who earned grades--had accumulated GPAs of 3.00 or higher at the end of 5 months following their matriculation (see Figure 8).

**Figure 8: GPA by Degree Type After 5 Months of Initial Enrollment: 1995/96**



Interestingly, the cohort of GED completers had a significantly higher percentage of students who performed poorly in the accumulated grade point averages during this same 5-month time period. Out of the total cohort of 110 students, 28 had GPAs of 0.00, and another 4 students reported having GPAs of less than 0.99. When conjoined together, nearly one out of every three GED survey participants who began their postsecondary educations at a community college during the 1995-96 academic year had accumulated a letter grade of "D" or "F" within 5 months after first being matriculated into a public 2-year institution. If another speculation were also made that the 13 students who chose not to respond to the BPS survey's inquiry did so because they, too, had done poorly in

their academic prowess, then it is conceivable that as many as 41% of the students in the GED cohort had accumulated grade point averages of "Ds" and "Fs" within a few months after starting college. But as was stated in the preceding paragraph, this study ignored that speculation, because it could not be concretely proven by the BPS data.

Conversely, about one out of every three of the GED cohort of students (34.6%) who enrolled in community colleges during the 1995-96 academic year had accumulated grade point averages that ranged from straight "Bs" to straight "As" by the end of their 5th month of studies.

Because a greater percentage of the GED cohort had a grade point average of 0.00 at the end of 5 months, it could be easily supposed that the statistical mean GPA for high school students was much higher than that of their GED counterparts. But that supposition would be wrong. As can be seen in Table 12, the GPA statistical mean for high school graduates was 2.60, whereas the GPA statistical mean for the GED cohort during the same period of time was 2.82.

Table 12

*GPA Earned by Degree Type at Public 2-Year Colleges: 1995-96.*

	Degree Type			
	High School	GED	Total	
			N	%
Response Total	1,252	97	1,349	100%
GPA				
0.00	189	28	217	16.0%
0.01-0.99	59	*	---	4.0%
1.00-1.99	168	7	238	17.0%
2.00-2.99	392	20	412	30.0%
3.00-3.99	346	30	376	27.0%
4.00	98	8	106	6.0%
Z-TEST: Two Sample for Means				
Mean (Without 0 GPA)	2.598344309	2.816811594		
Known Variance	0.8646	0.8331		
Observations	1063	69		
Hypothesized Mean Difference	0			
z	=	-1.924446865		
P(Z<=z) one-tail	=	0.027149297		
z Critical two-tail	=	1.644853627		

N = 1,349    p-value = .027    Note: Numbers based upon raw unweighted data only.

\* = Non-disclosed for confidentiality purposes. --- = Unreported.

**Research Question 4:** *"When measured 6 years after beginning postsecondary education at a community college, are the rates of attainment of certificates or associate degrees for GED completers significantly different from the attainment rates of high school graduates?"*

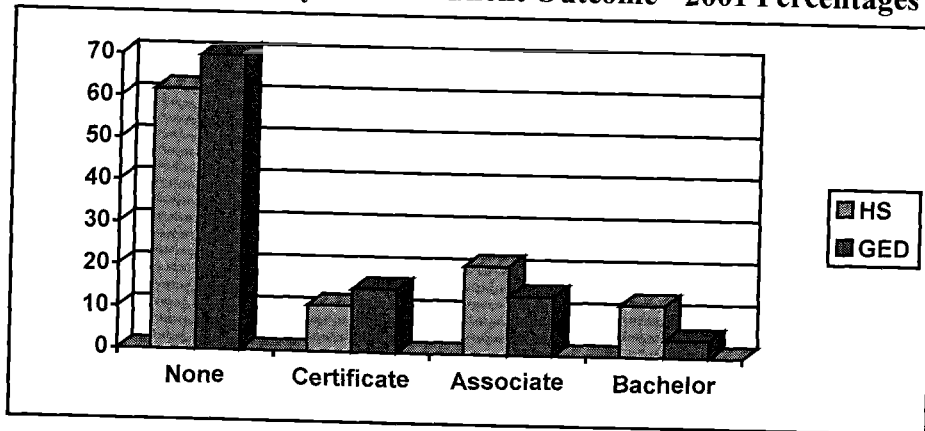
At the outset of the 6-year Beginning Postsecondary Students longitudinal study in 1995, a total of 1,503 public 2-year college students were selected to participate as survey respondents. Of that number, 1,341 (89.2%) were high school graduates, 110 (7.3%) were GED recipients, 7 (0.5%) had earned a high school equivalency diploma, and 45 (3.0%) lacked a formal education award of any kind. At the conclusion of the study in 2001, 357 people who held high school diplomas did not respond to the question that asked for total degrees attained and 37 GED recipients also chose not to participate in this final survey. Thus, the database of respondents was reduced in number to 984 high school graduates and 73 GED certificate holders.

Of the high school graduates who responded to the final BPS survey, 608 stated that they obtained neither a certificate, nor associate's degree, nor bachelor's degree during the preceding 6-year survey period. But a total of 317 other respondents in the high school cohort replied that they had earned a formal award (but not two or more). There were 43 other students who reported that they had been awarded both an associate's and bachelor's degree. An additional 14 students said they were the recipients of both associate degree's and vocational certificates.

In regard to the cohort of 73 GED students who responded to the final BPS survey questionnaire, 15.1% stated that they had earned just a certificate, and 13.7% said they

had earned an associate's degree only. Interestingly, 4.1% earned a bachelor's degree, compared to 12.3% of the high school graduates who attained a 4-year degree.

**Figure 9 - Public 2-year Enrollment Outcome - 2001 Percentages**



These figures show that the degree attainment rates for high school graduates are higher than their GED counterparts, particularly in respect to attainment of 2-year associate's degrees and 4-year bachelor's degrees. On the other hand, GED students had a higher attainment rate with regard to vocational certifications (15.1% versus 11.1%). A chi-square test was conducted on both student populations with regard to their enrollment outcome.

Table 13 (below) illustrates and defines the overall degree attainment of both GED and high school diploma enrollees for the years 1996 through 2001 as well as outlines the overall findings of the chi-square analysis.

Table 13: *Degree Attainment Earned by Degree Type at Public 2-Year Colleges: 2001.*

	Degree Type			
	High School	GED	Total	
			N	%
Response Total	1,341	110	1,451	100%
DEGREE ATTAINED				
No Response	359	37	396	27.3%
None	608	51	659	45.4%
Certificate Only	93	11	104	7.1%
Associate's Only	148	8	156	10.7%
Certificate and Associate	14	0	14	0.9%
Bachelor Only	76	*	---	0.5%
Certificate and Bachelor	*	0	---	---
Associate and Bachelor	43	*	---	3.1%
Certificate, Assoc., and Bach.	*	0	---	---
CHI-SQUARE ANALYSES				
Chi-square (test statistic)	=	1.887		
p-value	=	0.1695		

N = 1,451      p-value = .1695

Note: Numbers based upon raw unweighted data only.

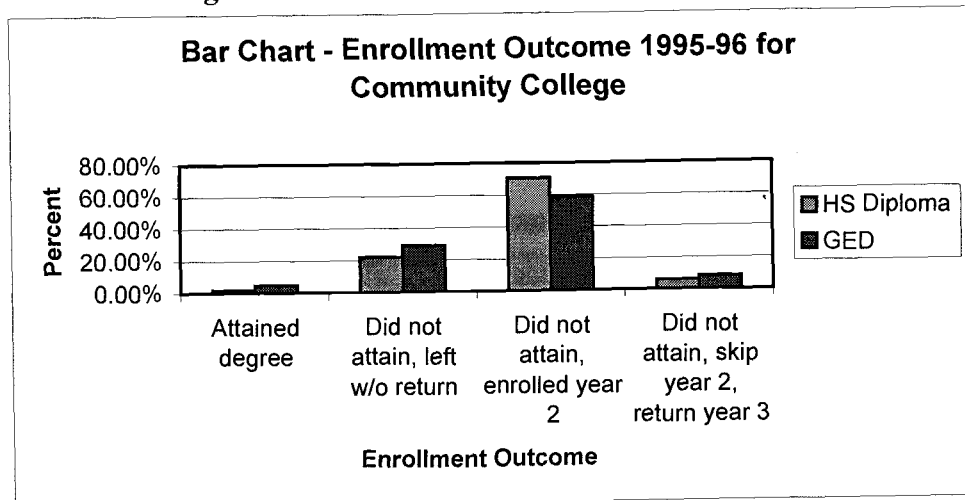
\* = Non-disclosed for confidentiality purposes. Cell size too small.

--- = Unreported due to confidentiality protection.

**Research Question 5.** *When measured 6 years after beginning postsecondary education at a community college, do some GED dropouts subsequently enroll in other postsecondary institutions to continue their education?*

The findings discussed so far in this chapter have focused on data collected from the DAS database that pertained mostly to the 1995-96 academic year. But to achieve a better understanding and more complete perspective of the GED persistence and attrition rates at community colleges, it is necessary to examine other information. For example, it is also important to know if some of the GED cohort recorded as having "left without return" during the 1995-96 academic year may not have been an actual college "dropout," but rather a "transfer" student to another institution who "stopped out" for a period of time before returning to college.

**Figure 10 - Enrollment Outcome - 1995/96**



Under the DAS variable PROUTY1 (which pertained to enrollment outcomes during the 1995-96 academic year), data were found that revealed 7 GED completers having "stopped out" during that particular year for a period of time (i.e., leaving college

the 1st year and not returning until the 3rd year). Based on the BPS survey sample size, the total number of "stopouts" represented approximately 8% of the GED cohort. Thus, the retention statistics previously discussed in this chapter would be proportionately skewed if this "stopout" factor had been either negligently overlooked or purposefully not reported. Table 14 provides an illustrated example of these statistical findings (reported below).

Table 14: *Enrollment Outcome - Community Colleges 1995-96*

	Degree Type			
	High School	GED	Total	
			N	%
Response Total	1,084	87	1,171	100%
ENROLLMENT OUTCOME				
Attained Degree	19	*	---	1.9%
Did Not Attain, Left Without Return	237	25	262	22.4%
Did Not Attain, Enrolled Year 2	764	51	815	69.6%
Did Not Attain, Stopped-Out, Returned Year 3	64	7	71	6.1%
CHI-SQUARE ANALYSIS				
Chi-square (test statistic)	=	6.345		
p-value	=	0.0118		

N = 1,171      p-value = .0118      Note: Numbers based upon raw unweighted data only.

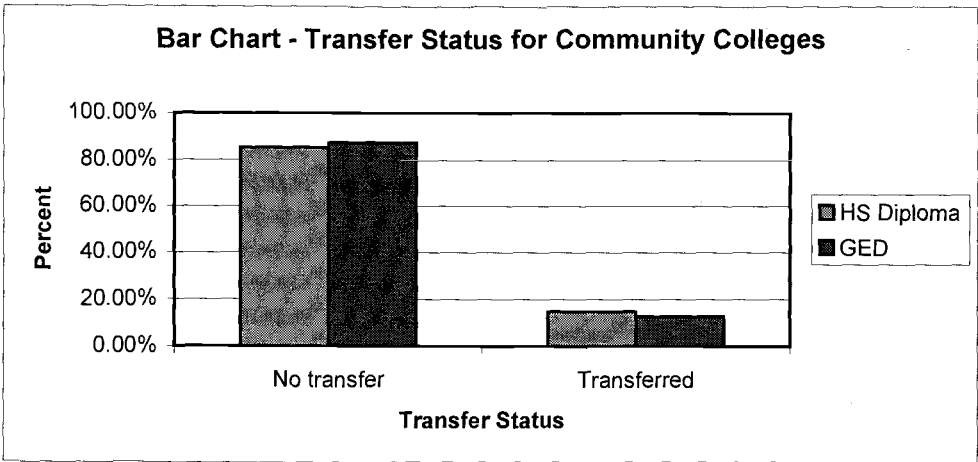
\* = Non-disclosed for confidentiality purposes. Cell size too small.

--- = Unreported due to confidentiality protection.



Information as to how many of the BPS survey participants transferred to other institutions during the 6-year longitudinal study also is germane to answering the research question cited above. BPS variable PRTRY1 yielded information that showed 12.6 percent of the GED cohort of community college students transferring to one or more institutions during the study period. Since 4.1 percent of this particular GED cohort persisted to obtain a bachelor's degree [see Table 13], we can be reasonably certain that at least some of the GED cohort in fact transferred to 4-year institutions (with some earning a bachelor's degree, and others not earning that degree). Furthermore, it is conceivable that some others within this faction enrolled at another 2-year (or less) public (or private) institution.

**Figure 11 - Transfer Status**



Perhaps the reader found it peculiar that Table 14 lists 28.7 percent of the GED cohort as having left college without return during the 1995-96 academic year. This number seemingly conflicts with the figure of 42.9 percent of full-time GED cohort dropouts discussed earlier in this chapter (see Table 10). But a closer examination of the numbers suggests that what first appears to be a discrepancy in Table 10 actually is

corroboration for Table 14's finding that approximately 42.9 percent of the **full-time** enrollees of the GED cohort left college within a few months after having been first enrolled. Indeed, the total number of GED students who responded to the BPS survey is listed in Table 14 as being 87% of those total respondents stated that they left college during the 1995-96 academic year and did not return, thus yielding the 28.74% number (i.e., 25 divided by 87 equals 28.74). However, the BPS survey cohort of GED completers who enrolled in community colleges during the 1995-96 academic year totaled 110 people. Since the responses of 87 people were reported in Table 14, one therefore can calculate that 23 of the original GED cohort did not respond (due to reasons that are not given in the DAS database). If one conjectures that the reason 22 of these students chose not to respond to the survey questionnaire was due to the fact that they, too, had dropped out of college before the end of the 5th month (presuming also that 1 of the 23 students was a "stop-out" rather than a "dropout"), then these 22 people, when added to the 25 who openly confessed that they had dropped out of college, provides a summed total of 47 students (i.e.,  $25 + 22 = 47$ ). If we then divide 47 by 110 (the total number of the community college GED sampling), we compute a quotient of 42.73%--a number that is closely proximately to the figure found in Table 10.

### **Recapitulation and Synopsis of the Findings**

The primary focus of my dissertation was to answer this question: *Is there a significant difference in the rates of attrition between GED completers and high school graduates who began their respective postsecondary educations at community colleges?* The research findings of this study suggest that there is not a simple "yes" or "no" answer

to that question. Indeed, when considered on a very short-term basis, the answer is "yes"; however, the answer changes to "no" when viewed on a long-term basis.

It seems clear from the BPS:1996-2001 database that GED recipients have a higher dropout rate than high school graduates. But that determination is true only during the 5-month period following initial matriculation. By the 10th month of the first academic year, the percentage of GED students who dropped out of the community colleges (54.8%) was closely proximate to the percentage of high school students who took this same course of action (52.6%).

Drawing firm conclusions from the qualitative information contained in the BPS database was difficult in some instances and virtually impossible in other instances. For example, of the 20 GED participants who left college in the 1995-96 academic year and did not return (see Table 14), not a single one of them listed "academic troubles" as being a reason when answering a BPS:1996/98 follow-up survey question that asked, "What was your first reason for leaving college?" In light of the fact that roughly two-thirds of the BPS community college GED cohort had accumulated GPAs of 0.99 or less during the 1995-96 academic year, one might easily suppose that at least a few of those 20 respondents likely experienced some degree of difficulty in performing coursework assignments to their instructors' satisfaction. Yet any attempt to draw conclusions from incomplete information can quickly turn into a risky venture. .

Still, the objective evidence exists to say that nearly half of all GED graduates who enroll in community colleges can be predicted to dropout within a period of 12 months after first being matriculated. On the other hand, high school graduates enrolled at community colleges can be predicted to do the same during the same time period. All

of this information suggests that educators who seek to find and implement new and effective ways to improve student retention are to be applauded.

Perhaps the "surprising" findings contained in this chapter (e.g., GED persisters have higher GPAs at the end of their first year of studies than do their counterpart of high school graduates) will reinvigorate some of those educators to develop retention strategies specifically geared toward GED enrollees at public 2-year institutions. Certainly a few of the research findings presented in this chapter are less surprising, but important nevertheless. For example, the findings that pertained to marital status, age, and intensity of enrollment paint a "shadowy" picture of which traits among the group of GED completers are most closely linked with greater persistence problems, as well as those which are not. On the other hand, characteristics such as race and gender had neither significance nor value with respect to predicting whether future students who possess the same characteristics are likely to be at risk of prematurely leaving college.

#### **A Caveat Concerning the Findings**

As previously noted in Chapters 1 and 3 of this study, the information from which the aforesaid statistics were computed were derived from raw data contained within the BPS:1996-2001 longitudinal survey database, which is part of the Data Analysis System (DAS). The DAS software incorporates the findings of several national surveys sponsored by the National Center for Education Statistics (NCES), a division of the US Department of Education, including the BPS:1996/2001 survey, the NELS:1988/2000 survey, the NPSAS:1996 survey, the NPSAS:2000 survey, and the BPS:1996/98 survey. Because NCES statisticians designed the DAS software to perform numerous statistical calculations so as to adjust raw survey data for standard errors, users of that software

assume that all extracted data from the DAS has been properly weighted. This researcher once again reiterates that the statistics contained in this chapter are based on raw, unweighted data, and therefore should not be deemed by the reader as reflecting national representativeness. If the reader desires weighted results, the DAS software is available for access by the public via the Internet (<http://nces.ed.gov/surveys/bps/>).

## Chapter 5

### CONCLUSIONS AND RECOMMENDATIONS

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*"It is one of the paradoxes of success that the things and ways which got you there, are seldom those things that keep you there."*  
- Charles Handy-

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The word "dropout" carries a pejorative connotation in today's business world. Seemingly, many employers tend to stereotype high school dropouts as a group of "quitters." Yet it is grossly unfair to classify a high school dropout who subsequently earned a GED certificate as a "quitter." Indeed, the acquisition of a GED certificate serves as prima facie evidence that students of this kind should more properly be classified as "completers" rather than as "quitters."

Even so, studies such as the one conducted by Stephen Cameron and James Heckman for the US Department of Labor (previously mentioned in Chapter 3 of this study) provide some justification that many American employers are prone to view GED completers and high school dropouts as being somewhat similar in respect to their academic preparedness. In all likelihood, the predisposition for this action has its roots deeply embedded within the popular opinion that GED graduates, when compared to their high school counterparts, are much more inclined to drop out of college prematurely within a few months after having been first enrolled.

However, the findings set forth in the preceding chapter run counter to the premise of this popular notion. As seen in Table 10, the attrition rates of the GED completers and the high school graduates who concurrently enrolled as full-time students

at community colleges during their freshman year were comparable with each other. Simply put, the data contained within the Beginning Postsecondary Students Longitudinal Study: 1996/2001 reveal that the percentage differences in enrollment outcomes between *full-time* GED certificate holders and *full-time* high school graduates who *persisted* to the end of the 1995-96 academic year were very small. [Note: The attrition rate for students enrolled on either a half-time or part-time basis was higher for each of the two cohort groups].

But even though the BPS: 1996/98 follow-up survey showed little differences in the first-year persistence rates of GED completers and high school graduates who enrolled at community colleges, it is especially noteworthy that the BPS data also revealed the combined attrition of these same two survey groups during the first 10 months after enrollment as being about half of the total survey sample. Inasmuch as roughly 1.4 million students enrolled in community colleges as first-time freshmen during the 1995-96 academic year, it can be calculated that hundreds of thousands of that particular year's cohort of students were tagged as "dropouts" by their institution's college registrars before the onset of spring term of that academic year.

In all likelihood, many college administrators would not be unduly taken back by this researcher's finding that roughly half of the BPS:1996 cohort of full-time GED recipients dropped out of college during their first year of enrollment. But the coupled finding that a similar rate of attrition was experienced by the BPS:1996 cohort of high school graduates who first enrolled at community colleges should not be summarily dismissed by college student services personnel. Indeed, this researcher's finding corroborates what was found by an organization titled Community College Survey of

Student Engagement (CCSSE.), which issued the following admonition to its members:

"Colleges that do careful cohort tracking generally note that when community colleges lose students, they lose them early. All of these findings together illustrate the critical importance of connecting with students from the moment of their earliest encounter with the college. In other words: Engage early. Engage often." ([http://www.ccsse.org.survey/nr\\_closing.html](http://www.ccsse.org.survey/nr_closing.html). Accessed May 2004)

This advice to college administrators given by officials at the CCSSE organization is especially applicable to GED completers who begin their postsecondary education at community colleges. Indeed, the BPS:1996/98 survey yielded data which revealed that approximately **42.9** percent of the GED cohort that first enrolled at public 2-year institutions had departed college life before the end of their fifth month following matriculation. This rate of premature departure was significantly higher than what was experienced by its counterpart BPS cohort of high school graduates. In light of this very high drop out rate that GED completers witnessed happening among their peers, the advice given to college administrators by officials at the CCSSE --specifically, "Engage early [and] Engage often"--may be especially applicable with respect to that segment of GED enrollees who voluntarily choose to abandon their postsecondary education soon after being enrolled.

An examination of the BPS: 1996/2001 survey data also revealed that of the GED cohort participants who responded to the BPS:96/98 follow-up survey, 28 earned GPAs of 0.00. Based on the BPS data contained within the DAS enrollment and intensity variables, it would seem that these 28 students voluntarily dropped out of college within a month or two after having first started classes. Interestingly, not a single one of the GED



recipients who participated in the BPS:1996/2001 longitudinal study claimed "academic problems" as a causative reason for his or her premature departure from college. Thus, we are left to speculate as to what might have motivated these students to leave college in such a hasty manner.

However, for those GED recipients who persisted in their college studies through the end of the 1995-96 academic year, the statistical mean of their combined GPAs was **2.82**. In contrast, the counterpart BPS cohort of high school graduates who enrolled at community colleges during the 1995-96 academic year had a statistical mean of **2.60** for their combined GPAs.

Thus the BPS:1996/2001 longitudinal study creates a "policy paradox" of sorts. That is, the data show GED certificate holders as being much more likely to drop out of college within one or two months after first being enrolled than are high school graduates. This finding supports the position taken by the US Department of Education that possession of a GED certificate is a risk factor which weighs negatively against a student's probability to persist in college to the point of attaining a formal award of some kind. Still, the BPS data also revealed that of those GED recipients who persist through their first year of studies, their grade point averages (GPAs) tend to be higher than high school graduates who also persisted through three terms or two semesters of college coursework. This finding, of course, stands partially in opposition to the US Department of Education's view that possession of a GED certificate should be classified as a risk factor (*academic*) along side of six other risk factors (*environmental*).

In regard to attainment of formal awards, 38.2% of the BPS cohort of high school graduates who first enrolled at community colleges had earned either a bachelor's degree,

associate's degree, or vocational certificate by the end of the longitudinal study (i.e., 2001). The counterpart cohort of GED recipients did not fare quite as well, with about 30.2 percent of them having received a formal award within the BPS 6-year study period. More specifically, the comparisons between these two cohorts are as follows: (a) earned certificates - 15.1% GED vs. 11.1% HS; (b) earned associate's degree - 13.7% GED vs. 21.0 HS; and (c) earned bachelor's degrees - 4.1% GED vs. 12.3% HS. Given these percentages, the US Department of Education's proposition that holders of the GED certificate are at risk of not attaining a degree in comparison to high school graduates is, once again, raised to the forum for discussion.

### **Measuring Student Outcomes: An Overview of the Challenges**

Certainly, any analysis of research data that measures student retention at public community colleges should not ignore this axiom: *Measuring student outcomes is problematic*. Why? One reason is due to the fact that approximately one-quarter of the BPS cohort of students who first enrolled in community colleges during the 1995-96 academic year expressed an initial intent to earn a bachelor's degree at a 4-year institution. Certainly community college students who hold this intent have a pattern of transferring to 4-year institutions without the obtainment of either a vocational certificate or associate's degree. Although students of this kind are listed by college registrars as not having attained a formal credential, they nonetheless represent a successful outcome, both from the students' and the community colleges' perspectives.

Moreover, not all GED students enroll in community colleges with the initial intent of attaining either a formal credential or new job skills. Indeed, when asked about their purpose for enrolling, about one-fifth (19%) of the 1995-96 cohort of BPS students

who enrolled at community colleges cited the reason of "personal enrichment" as their primary motivation (NCES: Community College Students, 2003). In addition, approximately one out of every six BPS students who enrolled at community colleges during the 1995-96 academic year expected their college experience to result in the attainment of NEITHER an associate's degree NOR a vocational certificate. Thus, it is conceivable that the educational (i.e., "personal enrichment") objectives of some of this particular group of community college enrollees may have been fully met after taking just a few classes during one or two terms of attendance.

Determining intensity of enrollment was a particularly problematic matter. The BPS survey data suggests that crossover between full-time and part-time enrollment was a common occurrence among both cohorts of community college students. For instance, a GED student who initially enrolled on a full-time basis (12 or more credits) may have taken only 6 credit hours in the second term or semester (i.e., half-time enrollment), then registered as a full-time student again for the following term or semester. Therefore, due to these crossovers, which involved approximately half of the BPS community college participants, the data became too complicated to extract clear-cut intensity figures.

But despite problematic issues of these kinds, the BPS:1996/2001 database nevertheless yielded evidence that GED recipients are more likely than their high school counterparts to permanently leave college after attending classes for only a month or two. On the other hand, it is equally clear that the attrition rates for GED completers and high school graduates are nearly identical when viewed on an annual basis, that is, measured at the end of the academic year. It is this latter statistic that should cause concern among community college administrators, namely, that 54.1 percent of the BPS cohort of GED

completers and 52.7 percent of the BPS cohort of high school graduates did not enroll in their respective community colleges for a second year of classes.

### **Recommendations**

Researchers who conduct qualitative research express their opinions on the findings quite freely. But researchers who undertake quantitative investigations restrain themselves from such discussions, preferring instead to silence their own voice so as to allow the reader to draw his or her own conclusions from the findings. From the outset, I intended this research project to be quantitative in design; hence, I initially envisioned my dissertation as concluding with a statement that encouraged other people to conduct further research on this topic in the future. But some of the findings of this research were so significant as to warrant a brief exposition. Thus, my dissertation concludes with three recommendations.

My first recommendation is that the appropriate policymakers within the US Department of Education give consideration to re-thinking their earlier decision that resulted in the GED certificate being listed as one of seven risk factors that serves to negatively impact student persistence and degree attainment at the college level.

My second recommendation is that educators give consideration to assigning a broader connotation to the term "student attrition." The word "attrition" is commonly found in every study that endeavored to identify the reasons why students drop out of either college or high school. Webster's dictionary defines "attrition" as meaning a "wearing away" of something, that is, a kind of "erosion." College and high school administrators see student attrition as being a negative thing. But should it not be the goal of every high school principal and college president to achieve a 100 percent attrition of

each succeeding year's senior class? Why would a principal want to keep a single senior from leaving school by means of graduation?

In order for community colleges to derive meaningful policies for increasing student persistence, the term "attrition" must be redefined as meaning one of two things:

1. *Negative Attrition:* Students who prematurely leave college before completing their educational objective; and,
2. *Positive Attrition:* Students who leave college after completing their educational objective.

A college's commencement ceremony is an example of "positive attrition." On the other hand, a newly enrolled student dropping out during the midst of his or her first term is an example of "negative attrition."

Needless-to-say, achieving an increase in the college's rate of positive attrition can only occur as a result of positive actions. Doing nothing is a negative action. Adopting retention policies that have proven to be only marginally successful at other institutions is a negative action. Formulating new policies and fresh ideas for increasing positive student attrition, but then not fully implementing those policies on an institutional basis is also a negative action--merely another way of doing nothing.

My third recommendation is that administrators at community colleges review their institution's existing student retention policies, looking closely at what their college has done to integrate GED completers into the campus environment.

Numerous institutions of higher learning can do much to enhance the degree and certificate attainment rates of their enrolled students. Perhaps Vincent Tinto's theory of student retention, which was first introduced in 1975, gained the broadest support among

American educators. In essence, Tinto advanced the idea that whether a student departs from an institution is primarily the result of the extent to which that same student became academically and socially connected with the institution.

Certainly if a student's social interaction on campus is the leading predictor of college attrition, then it would seem that long-distance learning institutions (online-based), such as the University of Phoenix, ought to be experiencing insurmountable problems with student attrition. After all, students who enroll in these kinds of learning programs rarely, if ever, set foot on a college campus. On the other hand, an abundance of research exists which supports Tinto's and Pascarella and Terenzini's respective theories, particularly in regard to minority groups.

Yet, no single attrition or retention model can fully explain why college students drop out of college in such large numbers. Obviously, people differ widely in their desires, their personalities, their traits, their backgrounds, and their aspirations. To suppose that a single theory can explain why all of these differing personalities voluntarily leave college is similar to supposing that a cookbook with just one recipe would be able to satisfy the palettes of every person in the world.

When college tuition costs began to soar during the early 1990s, college administrators across the United States looked for creative approaches that would help lower the attrition rates of first-time freshmen. And several creative approaches were found. For example, administrators at F.H. LaGuardia Community College in New York developed a retention program that required newly-enrolled students to take three or more courses together (block scheduling) in which they were the only members of the class. The underlying concept of this notion was to create a group of students who would bond

together with an *esprit de corps*--a cohort of students who not only help each other apply their learning through required internship experiences, but who would also tutor and mentor other students in their cohort who needed learning assistance. This concept came to be known as "learning communities." Education leaders such as Vincent Tinto, Alexander Astin, Peter Ewell, Carol Schneider, Pat Cross, John Gardner, and Barbara Leigh Smith have been pioneers in developing and refining theories that pertain to improving student retention through learning communities. Vincent Tinto had this to say about learning communities:

"Clearly there is no one type of learning community, there are many. But nearly all have two things in common. One is *shared knowledge*. By organizing the shared courses around a single theme or single large subject, learning communities seek to construct a coherent first year educational experience that is not just an unconnected array of courses, say in composition, calculus, modern history, and geology. In this way, students come to share, as a community of learners, a body of knowledge that is itself connected. The other is shared knowing. By enrolling in several classes together, students not only share a body of knowledge, they also share the experience of trying to know or learn the material of the shared courses." (Tinto speech, 1998)

Pascarella and Terenzini (1979) stated that the leading predictor of college attrition is the absence of significant interactions with other college students. But if this theory is indisputably correct, then are college administrators who claim that "distance learning" programs are the wave of the future guiding their respective institutions down a path that ultimately leads to massive attrition problems? After all, students involved in

telecommunication courses have virtually no social interactions with other college students, simply because students who take distance learning courses seldom, if ever, step foot on campus. Therefore, implementation of the learning communities theory would become a formidable task if, in the future, postsecondary education institutions increasingly turn toward on-line instruction as a way of reducing overhead costs.

There is a sufficient body of research supporting Tinto's theory to suggest he correctly perceived the components of the student attrition problem. That is, a causal relationship exists between a student's persistence in college with that student having become academically and socially connected with his or her college. But after reviewing some of the existing research on student attrition, this researcher is persuaded that attrition among GED completers enrolled in postsecondary institutions depends less on whether they became academically and socially connected with the institution (i.e., actions initiated by the students), but rather depends more on whether the institution became academically and socially connected with the GED students (i.e., actions initiated by the college). Tinto's early research placed emphasis on the student as being the responsible party for achieving social and academic connections with the student's college. But the fact that GED completers enroll in postsecondary institutions serves as *prima facie* evidence that they tried--at least during the time of enrollment--to achieve academic connections with the college. Seemingly, the institutions that have witnessed the most progress in lowering student attrition rates have been those that take an aggressive and proactive role in connecting newly enrolled freshmen with their institutions' campus life. Listed below for the reader's perusal is an outline of some of the ideas that a few 2- and 4-year colleges have formulated in an effort to lower rates of



student attrition, as well as this researcher's own ideas that she believes are worthy of consideration by college administrators when they formulate new policies on this issue.

### **Five Factors for Improving Student Retention**

1. The Fondness Factor: Make the students "fall in love" with your college.
  - a. Communicate to the GED student that he or she is being inducted into an elite organization that truly cares about the welfare of its members--an organization always there to lift up any member who stumbles and falls.
  - b. A caring relationship is often evidenced by some kind of outward sign or symbol, such as an engagement ring. Hence, the college must give its GED students some kind of physical evidence that bears witness to their relationship with the college (e.g., lapel pins, necklaces, t-shirts, etc.).
  - c. Constructively critique the GED students' academic performance with "caring," i.e., pointing out deficiencies needing improvement as helpful "coaches," not as uncaring "critics."
  - d. Create opportunities for the GED students to connect with each other--both inside and outside of the classroom environment--for support.

Examples: Administrators at Del Mar College of Texas conducted a survey that indicated two important reasons why students enrolled at that particular college were achievement of "personal improvement" and "meeting interesting people." This college concluded that, inasmuch as the campus social environment was important to enrolled students, there needed to be friendly personal interactions between the students and the institution. The college thereafter adopted several retention strategies based on these two survey findings.

A study undertaken by Raymond Padella and Jesus Trevino (1997) examined the characteristics of minority students who persist in their college studies to attain a formal award. Rather than focusing on why students prematurely leave college, they instead looked at what actions minority students took in order to graduate from college. This study found that successful minority students built their own peer support groups by creating or joining clubs. An earlier study conducted by Brent Mallinckrodt (1988) found that Black students who belonged to groups which provided strong peer support and survival skills to its membership were much more likely to successfully adjust to the college environment than students who were lacking that kind of support.

2. THE FREEDOM TO FAIL FACTOR: Teddy Roosevelt said, "Show me a person who has never made a mistake, and I'll show you a person who has never done anything."
  - a. Communicate the idea that most successful people experience a number of failures along their journey toward success, as well as make a lot of mistakes. Indeed, it is imperative for GED students to understand that failure is not an ignoble thing, provided that it is used as a learning tool to further the student's knowledge of what to do...and what not to do.
  - b. Use GED completers who are in their second year (sophomores) as mentors for the freshmen cohort of GED completers.
  - c. Squash stereo-typed status barriers (e.g., GED graduates are "academically inferior" to high school graduates): Provide examples of GED graduates who achieved national prominence, such as Tom Brokaw, Bill Cosby, Senator Ben Nighthorse Campbell of Colorado, and so forth.

In his speech entitled "Learning Communities: Building Gateways to Student Success," Vincent Tinto (1998) made the following observation:

"For some students, especially those who in the past had struggled in school, the collaborative environment of the learning community provided a safe place, a smaller knowable place of belonging, in which they were valued and in which they discovered they could learn. As one student put it 'You realize you know something, like you're not dumb'."

3. THE FUNCTIONAL FACTOR: The word "functionalism" refers to the practice of adapting method, form, and materials, etc., primarily with regard to the purpose at hand. The function of a "student" is to "study." Hence, the college must encourage its students to effectively and efficiently perform this function. Some ways this might be done are:

- a. Offer "Study Skills" seminars that provide students with tips on note-taking, test-taking, etc. However, in order for such seminars to be thought of as productive, students must be given opportunity to interact and "teach" on the topic. A purely lecture-driven format is often non-engaging and irrelevant to the students' lives. Therefore, instructors need to teach according to a "hands-on" constructivist-type model in order for students to learn and retain the necessary information.
- b. Offer a type of "Cliff Notes Subject Review" seminars wherein an instructor overviews key ideas in certain subjects and provides written study notes. For GED students enrolled in remedial classes, provide required "comment cards" to be submitted to the instructor at the end of each class that state what the student has learned and what they are most confused about. The instructors can use this information to help students during the next class.

- c. Create opportunities for the GED students to serve the college in some way that is important. For example, appoint them to taskforces and committees that explore reasons why students drop out of college and make recommendations to administrators as to how those dropouts can be brought back to the college.
- d. Register GED students together in a block of classes. By making GED students a cohort in and of themselves, those taking two or more classes together can form study teams.
- e. Tap into students' "multiple intelligences." According to Howard Gardner, author of the multiple intelligences theory, there are eight multiple intelligences that encompass the adult learner (Brualdi, 1996). These intelligences--musical, bodily-kinesthetic, spatial, environmental, linguistic, mathematical-logistical, intrapersonal, and interpersonal--must all be taken into account before instructing and assigning tasks to adult GED learners. Allow the GED student to express him/herself in a myriad of ways when completing assignments or presenting new information to others, rather than via means of the "paper and pencil" approach.
- f. Assess student learning gains, based upon the multiple intelligences approach, by recognizing the individual potential of each student.

Examples: Seattle Central Community College in the state of Washington implemented a "Coordinated Studies Program" wherein enrollees take courses together, then meet together three times a week for 4 to 6 hours to discuss what they learned. Vincent Tinto reported that students who participated in this program were retained at a rate approximately 25 percent higher than non-participating students (Tinto, 1998).

In her paper entitled "The Challenge of Learning Communities as a Growing National Movement," Barbara Leigh Smith (2001), Co-Director of the National Learning Communities Project based at Evergreen State College (WA), infers that if frustrated students on the brink of dropping out of college ask themselves the question "education for what?" the institutions must have retention strategies that assist those students in answering that question.

4. THE FRIENDSHIP FACTOR: Develop multiple lines of communication between faculty and students, as well as between the cohorts of students of differing years.
  - a. Strive to create a sharing, cooperative partnership--a team environment that celebrates development and growth not only for the students, but also for the college and its faculty.
  - b. If a student does not register for an upcoming term, send a letter, telling the student that he or she is missed. Follow-up with a telephone call, asking if the student will be reenrolling the following term.

Examples: St. Louis Community College has a policy of sending letters to all non-returning students encouraging them to return to college. The first letter sent tells the students that they are missed; a follow-up letter is sent reminding them of the registration deadline for the upcoming semester. Administrators at St. Louis Community College found that the return rate of students who received these letters was significantly higher than students who dropped out of college but were never contacted (NVCC, 2003).

5. THE FUN FACTOR: Capture the hearts of the students by making it fun and exciting to be on campus; breathe life into the students' learning experience.

- a. There is an old axiom that says, "What is good for the goose is good for the gander." If we suppose that there is truth in this ancient saying, then when students have fun on campus, the faculty is also having fun; and, when everyone is having fun, then the campus environment takes on an exciting new life of its own.

### **Dissertation Conclusion**

At the outset of this study, it was briefly described how an assigned research task given to me at one rural Oregon community college during 2001 eventually became the impetus for this dissertation. That particular research endeavor caused me to wonder at length why more than four out of every ten GED enrollees at my institution were leaving college before the end of their first term of studies. Needless-to-say, I was taken back when the BPS database analysis was finalized. My institutional research at one Oregon community college had shown that 43.5 percent of all full-time GED enrollees had left college within *five months* after having first been enrolled. To my amazement, the BPS data yielded an attrition percentage for GED graduates enrolled full-time in community colleges that was closely proximate--that is, 42.9 percent (BPS study) versus 43.5 percent (institution study)--to that of high school diploma holders. Thus, exactly two years, ten months, and sixteen days after having first been assigned the task of collating data to determine the GED attrition at one Oregon community college, the questions raised during my first research endeavor were finally answered. Although the findings presented in Chapter 4 of this study are unweighted, I believe they nonetheless portray a realistic picture of what is currently transpiring on the national level in respect to GED attrition at community colleges.

It is my hope that the findings presented in Chapter 4 will come to the attention of those government officials at the US Department of Education who originally deemed the GED as being a risk factor for student persistence in college. While it is true that roughly half of the GED certificate holders who enroll in community colleges are likely to drop out within 12 months or less after enrollment, that same statistic is also true for high school graduates.

I also remain hopeful that the theories contained in this final chapter of my dissertation will not be relegated to a library shelf to gather dust, but rather given serious consideration by the decision-makers at community colleges who are empowered with authority to formulate institutional policies on student retention.

## APPENDIX A - Description of BPS Data Extraction Process

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1. The Electronic Codebook for Windows (ECBW) was installed from a CD-ROM on a standalone computer (computer was disconnected from the college network when working on the data, all files were stored on the local hard drive, the CD-ROM was not copied).
2. The variables of interest were tagged and saved as a tag file.
3. The tagged variables were output as a txt file (variable name with description).
4. The txt file was opened in Microsoft Word, printed for reference, and saved as a doc file.
5. The tagged variables were output to Microsoft Access as txt files (three files involved, total number of records was 12,085).
6. The files were then imported one by one into Access as tables.
7. Relationships were established between each table using as primary key the variable ID (which was automatically output with each file).
8. A query was created that consisted of all variables in all three tables with each record (ID) separate.
9. This query was then exported as a Microsoft Excel file.
10. In Excel, the variable ID was changed to a number from 1 to 12,085 and the data sorted alphabetically by variable name.
11. Using variables HSDIPLOM (Diploma received or passed GED) and ITNPSAS (First institution type 1995-96), only those records that had been identified as attending a public 2-year institution (community college) were saved in a separate master file (total number of records was 1503).
12. Each variable to be analyzed was then extracted from this master file and saved in a separate file along with the variables ID and HSDIPLOM and any analysis performed on that variable.



## APPENDIX B - GLOSSARY OF VARIABLES

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This glossary describes the variables used in this report. The items were taken directly from the BPS: 96/2001 Data Analysis Systems (DAS), an NCES software application that generates tables from the data (see chapter 3 for a description of the DAS). The glossary index lists the variables as they appear in chapter 4 of this study.

<u>Section</u>	<u>Variable Name</u>	<u>Variable Label</u>
1. Education Attendance	ATTEND	Attendance intensity fall 1995-96
2. Education Attainment	CCOUT2B	Public 2-year enrollment outcome 2001
3. Education Attendance	CREDHRS1	Credit hours taken 1st inst 95-96
4. Education Attainment	DGRETY2B	Degree type attained through 2001
5. Education Attendance	ENFTYX1	Months enrolled full-time during 95-96
6. Education Attendance	ENNIY1	Number of inst attended 95-96 (F98)
7. Education Persistence	ENNUFLB1	Track exit(1st) months enrolled thru 00
8. Education Attendance	ENPTYX1	Months enrolled part-time during 95-96
9. Education High School	HSDIPLOM	Diploma received or passed GED
10. Institution Type	ITNPSAS	First institution type 1995-96
11. Education Attainment	PROUTY1	Outcome of enrollment 95-96 (F98)
12. Education Transfer	PRTRY1	Transfer during 95-96 (F98)
13. Education Stopout	QBGAP1	Stopout-first reason 2001
14. Background Demographics	SBAGFM	Age during first month enrolled 1995-96
15. Background Demographics	SBGENDER	Gender
16. Background Demographics	SBMARRY1	Marital status 1995-96

17. Background Demographics	SBRACE	Race/ethnicity (including Hispanic)
18. Education Performance	SEGPAY1	Grade point average 95-96 (continuous)

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